

**UNDERSTANDING AND
DESIGNING TECHNOLOGIES FOR
EVERYDAY FINANCIAL
COLLABORATION**

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**UNDERSTANDING AND
DESIGNING TECHNOLOGIES FOR
EVERYDAY FINANCIAL
COLLABORATION**

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Abstract

Perhaps enticed by the promise of reduced marginal costs per customer and other “operational efficiencies”, the financial industry seems to take for granted that introducing technology into their services delivers convenience and makes it easier for people to manage their money. The overwhelmingly positive discourse that surrounds financial technologies portrays them as the inevitable next step in the evolution of money, and as driving consumer empowerment by reducing costs and improving quality of service. Research, however, has linked those very same technologies to new and existing forms of financial exclusion. This raises the question of how we can design financial technologies that promote access and fairness.

In this thesis, I take on this question by casting a critical lens over the design of financial technologies through experiences of financial difficulty and financial third party access. I conducted qualitative studies with a team inside the banking industry tasked with servicing customers deemed “vulnerable”; and with a group of people who live under the “double trouble” (Topor et al., 2016) of mental illness and financial difficulty. The latter trialled a new financial third party access digital service for 3 months. These varied perspectives on financial difficulty and third party access reveal the unintended consequences of introducing technology into our interactions with money, and the theories and assumptions concealed in the design of existing financial technologies.

Based on the insights of these studies, and a synthesis of the literature on the nature of money, this thesis contributes alternative paradigms that may help us design financial technologies differently. Such technologies would reflect an understanding of money as a social relation, and of our finances as a collaborative endeavour. Rather than focusing on efficiency, resource optimisation and asset protection, they would encourage flexibility, complementarity, reflection, appropriation, positive forms of security, collaboration and participation. By designing financial technologies under different theoretical premises and with different priorities, we may promote access, fairness and democratic oversight in financial service provision, particularly for those experiencing financial difficulty.

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Let it be known that this thesis is every bit as theirs as it is mine.

Declaration

I declare that the work contained in this thesis has not been submitted for any other award and that it is all my own work. I also confirm that this work fully acknowledges opinions, ideas and contributions from the work of others. The work was done in collaboration with Bailey Kursar and colleagues from the Touco startup, and the Money and Mental Health Policy Institute.

Any ethical clearance for the research presented in this thesis has been approved. Approval has been sought and granted by the Faculty Ethics Committee on 22 May 2018, 20 March 2019 and 18 July 2019.

I declare that the Word Count of this Thesis is 79,563 words

Name: Belén Barros Pena

Signature:

A handwritten signature in black ink, appearing to read 'Belén Barros Pena', written in a cursive style.

Date: 25 June 2021

Chapter 1

Introduction

1.1 Motivation

Banking is going through turbulent times. After the financial crisis of 2007-2009, regulators stepped in with a set of internationally agreed measures known as the Basel Framework, which sought “to strengthen the (...) supervision and risk management of banks” (Bank for International Settlements, n.d.). In Europe, a second version of the Payment Services Directive (PSD2) was finalised in 2016, and came into force in January 2018 (Nichkasova and Shmarlouskaya, 2020). It aimed to increase the integration and efficiency of the EU payments market, and promote competition in payment services (Zachariadis and Ozcan, 2017). In parallel, the UK Competition and Markets Authority (CMA) initiated the Open Banking initiative (Zachariadis and Ozcan, 2017). The latter illustrates the close association between regulation and digital technologies, with the Open Banking initiative explicitly mandating the development of open application programming interfaces (APIs) (Zachariadis and Ozcan, 2017).

The intersection of technology and regulation also impacts the financial industry in two additional ways: first, through increased competition (Nichkasova and Shmarlouskaya, 2020, Büchi et al., 2019); and second, through the empowerment of consumers (Nichkasova and Shmarlouskaya, 2020). Banks appear to be under new and growing competitive pressures, with new kinds of providers entering the financial services market. These can be grouped into 3 categories, all of them linked to technology in some way: i) “challenger banks”, ii) specialised fintech companies and iii) large technology companies (Zachariadis and Ozcan, 2017; Nichkasova and Shmarlouskaya, 2020; Büchi et al., 2019). “Challenger banks” (Zachariadis and Ozcan, 2017) or neobanks (Joyce, 2019b) provide traditional banking services such as current accounts, savings accounts and debit cards through digital means - particularly mobile native applications - and without physical

bank branches (Büchi et al., 2019). Specialised fintech companies focus on providing specific types of financial services (e.g. payments, currency exchange, loans, personal financial management) through digital technologies (Nichkasova and Shmarlouskaya, 2020). Finally, big technology companies such as Apple, Google, Facebook and Amazon are entering the financial services market. Cited examples include Apple Pay and Google Pay (Nichkasova and Shmarlouskaya, 2020), Facebook Messenger peer-to-peer payments (Nichkasova and Shmarlouskaya, 2020; Zachariadis and Ozcan, 2017), and Amazon's lending business for merchants (Zachariadis and Ozcan, 2017).

Besides growing competition, the combination of regulatory pressures and widespread adoption of digital technologies is portrayed as having a positive and empowering effect on consumers. According to this narrative, regulation and technology will benefit end customers by spurring innovation, improving the user experience, raising quality and lowering prices (Zachariadis and Ozcan, 2017).

Competition will increase "the market power of consumers" (Nichkasova and Shmarlouskaya, 2020, p. 439), by making it easier to switch companies, and by helping people overcome the "stickiness" and inertia that have traditionally kept them tied to the same provider for years (Zachariadis and Ozcan, 2017).

Nichkasova and Shmarlouskaya go as far as calling this kind of consumer power "a new form of financial democracy" (2020, p. 438), whereby people will be able to interact directly with each other, bypass traditional financial institutions, and enjoy "an empowered, self-service model" (Nichkasova and Shmarlouskaya, 2020, p. 440).

This discourse of customer empowerment through digital technologies ignores additional trends in the relationship between financial service providers, the state and citizens that also affect the balance of power between these three economic actors. In particular, the financialisation of society and the citizen responsabilisation agenda.

Financialisation is a process that began in the 1980s and is characterised by the increasing importance of financial motives, markets, actors and institutions in the operation of the economy (Epstein, 2005). According to Berry, the process of financialisation includes the following trends: growing power of the financial sector,

reorientation of economic activity towards short-term profit, increased interaction between individuals and financial services, and “personalisation of financial risks” (Berry, 2015, p. 512) through the progressive dismantling and privatisation of social welfare provision (Pathak, 2014; Berry, 2015). Financialisation has reached people in the UK through, for instance, the promotion of “‘investment’ debt (such as student loans and mortgages)” (Pathak, 2014, p. 95), and the subsequent increase in personal indebtedness (Hudson et al., 2020); and through the automatic enrollment into defined-contribution pension plans, through which the state partially renounced its role in the provision of welfare in retirement (Berry, 2015).

The “personalisation of financial risks” (Berry, 2015, p. 512) that accompanies the process of financialisation is part of a broader agenda of citizen responsabilisation. This refers to “shifts in government” that relocate “responsibility for welfare and well-being from the state to the individual” (Pathak, 2014, p. 111). Responsibilised citizens are required to take responsibility for their own financial stability and security, “forgoing the resources they were ultimately entitled to from the welfare state” (Berry, 2015, p. 520). The promotion of a self-reliant citizenry is accompanied by the vilification and stigmatisation of welfare dependency and overindebtedness (Pathak, 2014). These are framed as a sign of “irresponsibility and incapability” (Pathak, 2014, p. 90), “as a deficit of ethical behaviour” (Pathak, 2014, p. 97), and “as a symptom of moral degeneracy” (Pathak, 2014, p. 99). In this narrative, unemployment and overindebtedness are a consequence of individual failures, rather than structural factors. The focus is on the lack of financial literacy, as evidenced by an incapacity to understand the language and concepts of financial services, and to competently manage money (Pathak, 2014). The impact of “external economic forces” (Davies et al., 2015, p. 29), such as precarious labour conditions, low incomes, employment-related crises, the withdrawal of state welfare or financial exclusion from formal sources of credit, is neglected or downplayed (Pathak, 2014; Davies et al., 2015).

Davies et al. (2015) have criticised the embedding of this individualised perspective into UK financial regulatory interventions that target financial difficulty. What the authors call “the vulnerability framework” (Davies et al., p 23), epitomised by the reports on vulnerable customers published by the Financial Conduct Authority (FCA), explains problem debt primarily “in terms of individual ‘behaviours,

preferences and biases', a lack of knowledge and confidence or even a lack of control over personal actions" (Davies et al., 2015, p. 28). According to the authors, such behaviours are considered "especially prevalent (...) amongst low-income earners." (Davies et al., 2015, p. 28). These are the same people who are being penalised by the "poverty premium" (Davies et al., 2016), and who are subjected to "financial exclusion" (Leyshon and Thrift, 1995). The poverty premium is the process by which people living on low incomes "pay more for essential goods and services" (Davies et al., 2016, p. 4) compared to average earners. Financial exclusion prevents "certain social groups and individuals from gaining access to the financial system" (Leyshon and Thrift, 1995, p. 314), as providers retreat towards affluent social groups, who are deemed more profitable and less risky (Leyshon and Thrift, 1995). In our financialised contemporary society, life without access to financial services becomes "extremely problematic" (Leyshon and Thrift, 1995, p. 313), making financial exclusion an urgent concern.

Digital technologies have been linked to both financial exclusion and the poverty premium. According to Davies et al., digital exclusion increases exposure to the latter (2016). In terms of financial exclusion, research on cash use in the UK has highlighted that those who give and receive care, those living with mental health problems, and those on low incomes are less likely to use digital or card payments (Access to Cash Review, 2019). They rely on cash instead, often because payment technologies are unsuitable for their circumstances. For instance, digital and card payments are unable to accommodate the forms of financial collaboration involved in caring relationships; and they make it harder to control compulsive spending behaviours (Access to Cash Review, 2019). Automated credit rating calculations based upon personal and financial data have also been associated with financial exclusion. They enable the redirection of lending towards higher income groups (Leyshon and Thrift, 1995), penalising the most financially vulnerable (Ingham, 1999; O'Neill et al., 2017).

In spite of this evidence, mainstream business and regulatory narratives unproblematically position digital technologies as an instrument for the benefit and empowerment of the citizen-consumer. How these technologies may be also contributing to processes of financialisation and responsabilisation, or to the unfair treatment of low-income earners, remains to be fully examined. This thesis explores

this overlooked aspect of financial technologies, by casting a critical lens over their design and implications through the perspectives of citizens with experience of mental health and financial difficulty.

1.2 Key Terms

There are several terms used in this thesis that require definition: i) “vulnerability” and “vulnerable customers”; ii) “financial difficulty”; iii) “poor mental health”; iv) “financial technologies”; v) “open banking” and vi) “financial third party access”.

In this section, I scope and clarify each of these terms.

1.2.1 Vulnerability and Vulnerable Customers

The term “vulnerability” is used as defined by the UK financial regulator, the Financial Conduct Authority (FCA). In a report published in 2015 (Coppack et al., 2015), the FCA defined a vulnerable customer as “someone who, due to their personal circumstances, is especially susceptible to detriment, particularly when a firm is not acting with appropriate levels of care” (Coppack et al., 2015, p. 7).

“Vulnerability” and “vulnerable customers” are assessed in terms of “risk factors”, i.e. “circumstances that might contribute towards a consumer’s vulnerability” (BSI, 2010, p. 4). Risk factors are classified into 4 groups: i) health (e.g. severe or long-term illness, mental illness); ii) life events (e.g. bereavement, income shock); iii) resilience (e.g. low or erratic income, over indebtedness); and iv) capability (e.g. learning impairments, poor literacy or numeracy skills) (Financial Conduct Authority, 2019).

I argue in this thesis that this focus on “risk factors” betrays the individualising agenda denounced by Davis et al. (2015), i.e. the tendency to responsabilise individuals for their own financial circumstances, without consideration to how systemic factors may be contributing to bringing them about. As a result of this critique, I will only use the terms “vulnerability” and “vulnerable customers” when reporting on the perspectives of the financial industry, since they reflect the language in use within it. For instance, I use “vulnerability” and “vulnerable customers” in Chapter 4, when describing the experiences of bank employees

tasked with providing service to “vulnerable customers”. Everywhere else, I will employ the term “financial difficulty”, which I define next.

1.2.2 Financial Difficulty

I use the terms “financial difficulty” and “people in financial difficulty” to refer to any challenging circumstances in relation to money management, which are likely to be the result of a combination of factors that may or may not include life events, impairments and systemic issues such as precarious labour markets, the “spread of debt into everyday life” (Davies et al., 2015, p. 35), or the withdrawal of public services and welfare provisions (Davies et al., 2015). The term “financial difficulty” attempts to reflect the complex and multi-layered nature of strained financial situations.

Circumstances of financial difficulty may encompass relative poverty, i.e. disposable income way below median (Frankham et al., 2020); financial hardship, i.e. insufficient financial resources to cover basic needs (Frankham et al., 2020); and problem debt, i.e. “seriously behind on payments for a range of bills are credit obligations” (Evans, 2018, p. 487). But financial difficulty may also include challenges related to money management, such as issues with spending control, lack of motivation to attend to financial matters, or impaired capacity to manage one’s financial affairs either temporarily or permanently.

1.2.3 Poor Mental Health, Mental Health Conditions and Mental Illness

Following the World Health Organisation (WHO), “poor mental health” in this thesis refers to a lack of well-being that affects individuals’ capacity to realise their own abilities, cope with the normal stresses of life, work productively and contribute to their communities (World Health Organisation, 2018).

According to the WHO, “mental health is more than just the absence of mental disorders or disabilities” (World Health Organisation, 2018). It is a fundamental factor in our ability to “think, emote, interact with each other, earn a living and enjoy life” (World Health Organisation, 2018). This broadens the concept of “mental health” beyond specific conditions, to focus instead of people’s well-being. In this

thesis, I subscribe to this view of “mental health”, and albeit probably inaccurately from a clinical perspective, I use the expressions “poor mental health”, “mental health conditions”, “mental illness” and “mental health problems” somehow loosely and interchangeably.

1.2.4 Financial Technologies

In this thesis, I use the expression “financial technologies” in a broad and encompassing way. I include in it long-standing banking services that are now reliant on digital technologies, such as bank accounts and their associated debit cards; new financial services built upon those same digital technologies (“fintech”); near field communication payment technologies such as “contactless”; instant lending technologies such as credit cards; as well as digital forms of banking through web browsers and native mobile applications.

Financial technologies are enabled by, and are built on top of, digital technologies and their infrastructures. As far as this research is concerned, financial technologies constitute a subset of digital technologies that mediate access to, and transactions with, financial information and assets.

1.2.5 Open Banking

“Open banking” refers to a UK regulatory initiative targeting the financial industry that requires banks to provide access to their customers’ financial data via application programming interfaces (APIs). Its origins can be traced to the second European Union Payment Services Directive (PSD2), a legal framework completed in 2016 and that came into effect in January 2018. PSD2 extends the obligations of financial service providers in order to create a more efficient payments market, improve quality of service and lower prices for customers. In order to promote competition, “PSD2 requires banks to grant third party (...) access to their customers’ accounts and payment services securely following customer consent” (Zachariadis and Ozcan, 2017, p. 4).

In parallel to the preparation of PSD2, the UK Competition and Markets Authority mandated from nine commercial banks the funding of an implementation body to define common technical standards for the open banking APIs in the UK

(Zachariadis and Ozcan, 2017; Open Banking Implementation Entity, n.d.). This body is known as the Open Banking Implementation Entity (OBIE), and trades as Open Banking Limited (Open Banking Implementation Entity, n.d.). The Open Banking APIs allow UK banks to disclose and share highly sensitive personal financial data in a way that is compliant with data protection regulations and addresses security and fraud risks.

1.2.6 Financial Third Party Access

I use the expression “financial third party access” to refer to a form of financial collaboration whereby we grant access to financial information and assets to trusted others in order to receive support with money management. Financial third party access can be facilitated formally through bureaucratic or contractual instruments such as power of attorney or banks’ third party mandates. However, it is also possible to engage in financial third party access through informal collaborative mechanisms, such as sharing our bank cards and PINs, or disclosing our online banking credentials to someone we trust.

A detailed explanation of the nature and mechanisms of financial third party access is provided in Chapter 2, section 2.5.

1.3 Research Questions and Research Approach

The discourse that surrounds the adoption and spread of financial technologies is generally aggressively confident and self-assertive, emphasising their benefits over their drawbacks. Such benefits are supposed to include convenience, efficiency, reduced transaction costs and the ability to reach those who had been previously left out of formal financial service provision. Despite this narrative, and the claim that technology contributes to financial inclusion, the mechanics of the “poverty premium” (Davies et al., 2016) and processes of “financial exclusion” (Leyshon and Thrift, 1995) continue apace in the UK. Some evidence even suggests that financial technologies may be actually creating new forms of exclusion and exacerbating existing ones (Davies et al., 2016; Ingham, 1999; O’Neill et al., 2017). The development over the past 10 years of what Davis et al. have called the “vulnerability framework” (2015) in the UK, a set of policies and recommendations that attempt to improve the service that the financial industry provides to those

deemed “vulnerable”, speaks to the urgency of these matters.

In a regulatory context that explicitly mandates the deployment of digital technologies as a strategy to drive change within the financial services market (Zachariadis and Ozcan, 2017), financial technologies become fundamentally entangled with the policies and initiatives directed to the financial industry as a whole, including those taking up the “vulnerability” issue. From this entanglement derives a need to examine how financial technologies may be contributing to the financial exclusion of those who cannot or will not use digital technology, and to unfair service conditions for those “socially constructed” (de Castro Leal et al., 2021) as vulnerable. This in turn raises the main question this research seeks to address:

How can we design financial technologies that promote access and fairness in financial service provision, particularly for those who are experiencing some form of financial difficulty?

In order to explore this question, I directed my inquiry in two directions: a theoretical one, and a second one that examines day-to-day practices of money management. My theoretical inquiry focused on money, as the ultimate and fundamental object of financial technologies. In particular, I reviewed the main theories that attempt to explain money’s existence and nature, drawing on texts from economic sociology and anthropology. My examination of theories of money was oriented around the following research question:

How do ideas and theories about the nature of money feed into the financial industry, their services and attendant technologies, and what impact does this have on people experiencing financial difficulty?

The output of this inquiry on the nature of money opens the literature review included in this thesis, and can be found in Chapter 2. I applied this theoretical lens to the analysis of the implications of digitising financial service provision, which have been uncovered by existing Human Computer Interaction (HCI) and Computer Supported Cooperative Work (CSCW) literature on money, as well as my own fieldwork. This allowed me to establish associations between the consequences of

introducing technology into our interactions with money, and theories concerned with its nature. These associations are described as part of my thesis discussion in Chapter 8, in section 8.4.

My second inquiry examined practices of financial collaboration in the context of financial difficulty, specifically the issue of financial third party access. It has been observed that lawful or formal financial third party access mechanisms, such as lasting / enduring power of attorney and banks' third party mandates, are underused by older adults and their carers (Tilse et al., 2005a; Tilse et al., 2005b; AgeUK 2011; Bew et al., 2017; Edgar et al., 2017). A similar pattern has been uncovered between those who live with a mental health condition and their carers (Murray, 2016; Elbogen et al., 2003; Labrum, 2018). People who need support with money matters and those who assist them often deploy instead what has been called "informal workarounds" (Edgar et al., 2017) and "coping mechanisms" (Bew et al., 2017), such as sharing bank cards and PINs (Tilse et al., 2005a; Vines et al., 2011; AgeUK, 2011; Edgar et al., 2017), or disclosing Internet banking credentials (Tilse et al., 2005a; Edgar et al., 2017; Murray, 2016). These alternative ways of enabling financial third party access can be risky, but they deliver many advantages when compared to the binary, rigid and bureaucratic formal mechanisms currently in existence. "Informal workarounds" (Edgar et al., 2017) are flexible, and can accommodate the situated nature of our day-to-day financial practices. In addition, they are considered more attuned to the nature of caring relationships (Tilse et al., 2005b). While formal financial third party access mechanisms emphasise protection, transparency and accountability, "informal workarounds" prioritise family relationships and the trust that exists within them (Tilse et al., 2005b).

My inquiry into technology and financial third party access covered two different viewpoints, taking inspiration from the layered pictures often assembled by phenomenological description (Willis, 2001). First, it examined the perspectives of the banking industry; second, the views of those with experience of mental illness and financial difficulty. Both perspectives are inextricably linked, since in the UK banks mediate and facilitate pretty much all our interactions with money through their services and technologies.

HCI and CSCW literature on money has not seen much engagement with commercial banks (for exceptions see Panjawi et al., 2013; Ghosh, 2013 and Hughes et al., 1999), particularly when taking into account their important role as money gatekeepers in an increasingly financialised society (Leyshon and Thrift, 1995). In this research, I was interested in including the perspectives and experiences of those within the banking industry tasked with providing service to “vulnerable customers”, and explore how their work intersects with financial third party access. To do so, I engaged with two different teams inside a commercial bank in the UK: the first team included experts in customer vulnerability, and the second in customer experience. The question I aimed to examine was:

How does the financial industry construct and operationalise vulnerability, and how does that impact financial third party access arrangements and processes for people experiencing financial difficulty?

Chapter 4 covers the findings from my fieldwork inside the bank, which highlighted the close association between understandings of financial difficulty and third party access; as well as the tensions between financial technologies and services that are designed for individuals on one side, and the need to facilitate financial third party access on the other.

My inquiry into technology and financial third party access also engaged with the experiences of those who live with the “double trouble” (Topor et al., 2016) of mental illness and financial difficulty. Academic literature has looked into financial third party access in the context of older adulthood (e.g. Tilse et al., 2005a; Tilse et al., 2005b), and how it relates to financial technologies (e.g. Vines et al., 2011; Dunphy et al., 2014a). There is also some research on the subject of financial collaboration amongst those living with mental illness (e.g. Marson et al., 2006; Elbogen et al., 2007; Elbogen et al., 2008; Serowik et al., 2013; Labrum, 2018; Luchins et al., 2003). However, little has been written about how financial technologies intersect with financial third party access in the mental health context. This area is addressed by part of my fieldwork, where together with a charity, a fintech startup, and 14 people who self-identify as living with a mental health problem, we explored how technology initiatives driven by regulation (open banking) can be deployed to enable new forms of financial third party access. The

question I sought to explore was:

How can we design financial technologies that recognise the importance of social relations in money management for those in financial difficulty, and that are better tied to the socio-cultural meanings of money and their related practices?

Chapters 5, 6 and 7 contain findings from the fieldwork I undertook to explore this question. Chapter 8 includes a possible answer, in the form of design directions for financial technologies that can help us prioritise financial collaboration (section 8.5).

Theories on the nature of money, the perspectives of the banking industry on financial third party access, and personal experiences of mental illness and financial difficulty come together to address the question of how we can design financial technologies that promote access and fair service.

1.4 Thesis Structure

This thesis is structured as follows. Chapter 2 reviews relevant literature, organised from the abstract to the more specific. Section 2.2 provides an overview of the two competing theories about the nature of money - an economic and a sociological perspective -, and outlines how HCI and CSCW literature on money has positioned itself in relation to this theoretical debate. Section 2.3 narrows down into a subset of HCI and CSCW research on money that has adopted and studied the concept of “moneywork”, the often hidden labour that goes into day-to-day financial tasks. Section 2.4 traces practices of financial collaboration across the literature, expanding the disciplinary scope to include anthropological studies of money. Section 2.5 focuses on a specific form of financial collaboration known as financial third party access, which refers to the sharing of financial information and access to assets with trusted others to enable support with money management. Section 2.6 closes the literature review by contextualising the importance of financial third party access for those living with mental health conditions.

Chapter 3 explains the epistemological underpinnings of this research, and the methods deployed during fieldwork. Section 3.2 positions my work within the

phenomenological tradition through its focus on lived experience, and gives an overview of the qualitative research methods used. Sections 3.3 and 3.4 explain in detail my two fieldwork engagements, which consisted of interviews and ethnographic research inside a commercial bank in the UK, and the evaluation of a new financial third party access mobile application called Toucan. Section 3.5 outlines the ethical considerations raised by fieldwork, and section 3.6 concludes the chapter by describing my approach to data analysis.

Chapters 4, 5, 6 and 7 are dedicated to findings from fieldwork. Chapter 4 discusses the research carried out inside a UK bank; and chapters 5, 6 and 7 the evaluation of the Toucan mobile application.

Chapter 4 starts by introducing the UK regulatory framework built around customer vulnerability since 2015 (section 4.2). The rest of the chapter explores how this regulatory framework is operationalised inside a commercial bank. Sections 4.3 and 4.4 present the teams I engaged with during fieldwork, one of which specialised on customer vulnerability, and the other on customer experience. Subsequent sections explain three factors that impacted the provision of service to customers in vulnerable circumstances: i) the lack of flexibility in the bank's internal procedures (section 4.5); ii) the need to facilitate financial third party access (section 4.6); and iii) the move towards technology-mediated banking channels (section 4.7).

Chapter 4 looked at the issue of vulnerability from the point of view of the financial industry. Chapter 5 switches perspective, and focuses instead on the experiences of a group deemed at risk of vulnerability: people living with a mental health condition. Section 5.2 introduces the challenges my participants experienced at the intersection of money management and mental health. Section 5.3 describes how participants integrated technologies into their financial coping strategies. Section 5.4 outlines how those very same technologies undermined participants' efforts to minimise the impact of their health conditions on their economic circumstances.

While Chapter 5 highlights the drawbacks of financial technologies designed under individualised assumptions about the nature of money, Chapter 6 demonstrates the potential of technologies grounded on ideas about money as essentially collaborative, using the Toucan app as a case study. Chapter 6 starts by

introducing the Toucan application and its functionality (section 6.2); and by providing a portrait of two representative participants and their use of Toucan during a 90-day trial of the application (section 6.3). Sections 6.4, 6.5 and 6.6 describe participants' expectations with regards to the Toucan app, how the application was configured and how it was used during the study period. Section 6.7 explains the effects of Toucan use on the participants' financial practices, which were perceived as positive in spite of the app's limitations and shortcomings. These "bugs" and their potential solutions are the focus of the final sections of the chapter (6.8 and 6.9).

Despite the positive experiences with Toucan, like all other financial technologies the application demanded from participants new forms of moneywork. Some of that work participants carried out on their own, and it is described in Chapter 6. However, much of the moneywork involved in using the Toucan app was related to financial collaboration practices. That labour has been given its own chapter (Chapter 7), as a way of drawing attention to the forms of moneywork associated with financial third party access. Chapter 7 identifies 5 moneywork activities: i) choosing a suitable third party (section 7.2); ii) securing third party agreement (section 7.3); iii) configuring third party access (section 7.4); iv) establishing a collaboration protocol (section 7.5); and v) negotiating information disclosure (section 7.6). Although moneywork is an aspect of financial third party access that has been overlooked in discussions and publications on the subject, I argue that understanding this hidden labour can help us design flexible, proportionate and practice-sensitive services and technologies for financial third party access.

From the fieldwork findings about moneywork in Chapter 7, the thesis moves into the discussion in Chapter 8. The discussion opens by summarising the consequences of digitising money, building upon existing literature complemented by findings from my own fieldwork (sections 8.2 and 8.3). The chapter proceeds by drawing connections between the consequences listed in the opening sections, and economic ideas about the nature of money (section 8.4). It is through these connections that we can appreciate the strong influence economic theories are exercising over the design of existing financial technologies. Uncovering this influence suggests alternative perspectives that could also underpin the design of financial technologies, in particular notions of money as a social relation (Ingham,

1996). This is elaborated in section 8.4, which also introduces the concept of “financial citizenship” (Leyshon and Thrift, 1995) as a guiding framework. Chapter 8 concludes by proposing seven design directions that can help us conceive and develop financial technologies that nurture and support the social and political dimensions of money (section 8.5).

The thesis ends with a brief conclusion in Chapter 9, where I outline my contributions to knowledge (section 9.2), the limitations of my research (section 9.3), and directions for future work (section 9.4).

1.5 Contribution to Knowledge

This thesis makes the following contributions to knowledge.

First, it compiles a list of implications derived from the widespread deployment and use of financial technologies. To assemble this list, I build upon and expand existing HCI and CSCW literature on money, bringing together bodies of work that have so far remained mostly segregated from each other, such as studies carried out in the Global North, and research in the Global South.

Second, the thesis sheds light on the individualising effects of existing financial technologies, which are designed under the assumption that money is a strictly personal affair, and money management a fundamentally solitary pursuit. This assumption clashes with the communal and collaborative nature of our behaviours and practices with and around money, and pushes people towards adopting informal and often risky workarounds to overcome barriers to financial collaboration.

Third, the thesis demonstrates the influence that economic ideas about the nature of money exercise over the design of existing financial technologies. As a result, and like the economic theory of money itself, the design of existing financial technologies is performative, i.e. it helps bring about and preserve our unequal and exclusionary monetary system.

Finally, the thesis proposes a set of design directions for financial technologies that foreground alternative conceptions of money as a social relation (Ingham, 1996),

and emphasise its social and political dimensions. These design directions are inspired by the concept of financial citizenship (Leyshon and Thrift, 1995), which promotes our right to participate in financial governance, and to exercise democratic oversight of the socio-technical system that produces money and maintains its value (Ingham, 1999).

1.6 Publications from this Thesis

The above contributions are reflected in the following peer reviewed publications and workshop contributions, which have resulted from this doctoral research, and in some cases form substantial elements of the thesis content:

- Barros Pena, B., Kursar, B., Clarke, R.E., Alpin, K., Holkar, M., Vines, J., 2021. Financial Technologies in the Cycle of Poor Mental Health and Financial Hardship: Towards Financial Citizenship, in: CHI Conference on Human Factors in Computing Systems. Presented at the CHI '21. <https://doi.org/10.1145/3411764.3445251> - *The material published in this paper provides a foundation for the work reported in Chapter 5 of this thesis.*
- Barros Pena, B., Kursar, B., Clarke, R.E., Alpin, K., Holkar, M., Vines, J., 2021. “Pick Someone Who Can Kick Your Ass” - Moneywork in Financial Third Party Access. Proceedings of the ACM on Human-Computer Interaction 4. <https://doi.org/10.1145/3432917> CSCW '20 Honourable Mention Award - *The material published in this paper provides a foundation to the work reported in Chapter 7 of this thesis.*
- Elsdon, C., Feltwell, T., Barros Pena, B., Nissen, B., Gloerich, I., Speed, C., Vines, J., 2020. Designing Futures of Money and FinTech, in: Companion Publication of the 2020 ACM Designing Interactive Systems Conference. Presented at the DIS '20, pp. 429–432. <https://doi.org/10.1145/3393914.3395904>

- Barros Pena, B., Talhouk, R., Kursar, B., 2020. Digital Finance and Money Collaboration. Contribution to the Designing Futures of Money and Fintech workshop at the 2020 ACM Designing Interactive Systems Conference (DIS'20). Available at:
https://github.com/belenbarrospena/me/blob/gh-pages/DIS2020_workshop_submission_26062020.pdf

Chapter 2

Literature Review

2.1 Introduction

This chapter provides an overview of the literature relevant to the fieldwork and contributions of this thesis. The chapter has been organised so as to progress from the more abstract to the more specific. It starts with a discussion of money, since this is the fundamental object of financial technologies. Section 2.2 outlines the two main theories of money - an economic and a sociological one - that attempt to explain its existence, its nature and its origins. Economic ideas about the nature of money are currently mainstream, and exert a powerful influence over the way that financial services and technologies are designed.

The chapter proceeds by discussing a subset of the HCI and CSCW literature that has studied financial matters. The fields of HCI and CSCW's attention to finance is relatively recent. Woldmaria et al. comment on the "paucity" (2016) of research until 2008, when the arrival of mobile money awakened interest in this area, as illustrated by the organisation of dedicated workshops at CHI '14 (Kaye et al., 2014b), CSCW '15 (Millen et al., 2015), and DIS '20 (Elsden et al., 2020). Much of the HCI and CSCW literature on money has been about the design, adoption and evaluation of financial technologies such as payment systems (e.g. Shen et al., 2020; Vashistha et al., 2019; Moroni et al., 2015; Snowton et al., 2014; Balan et al., 2009). However, this thesis is mostly concerned with a subset of publications that have focused instead on personal financial practices, and on how technology is integrated into them. This body of literature I have characterised as dealing with "moneywork" (Colavecchia, 2009), a concept that was introduced by Perry and Ferreira in 2018 (Perry and Ferreira, 2018). Section 2.3 explains the concept of "moneywork", traces its origins, and reviews its associated research.

One of the main characteristics of the “moneywork” literature is the conceptualisation of monetary transactions as interactions, which in turn emphasises their collaborative nature. In section 2.4, I trace practices of financial collaboration across the literature, expanding the disciplinary remit to include anthropological studies of money. Section 2.5 delves into a specific form of financial collaboration known as financial third party access, which refers to the sharing of financial information and access to assets with others in order to enable assistance with money management.

The chapter closes with a discussion on the relevance of financial third party access for people living with mental illness. Section 2.6 introduces the association between mental health and financial difficulty, and what is known about financial technology use in this context.

2.2 On Money

“Money, it would seem, has always been a puzzle” (Ingham, 2001, p. 304)

Nobody seems to know what money is (McLeay et al., 2014a). This is in spite of us using money everyday, or perhaps because of it. The standard definition of money provided by Economics states that money is three things: a medium of exchange, a unit of account and a store of value (Graeber, 2014; McLeay et al., 2014a). This definition, although widely quoted, is not uncontroversial. The medium of exchange function has split based on the timing of events, sprouting a separate function of money as a means of payment (Murphy, 1978; Ingham, 2004). According to this temporal distinction, money acts as means of payment when exchange and the “act of payment” (Murphy, 1978, p. 49) happen at the same time; but it acts as medium of exchange when “payment is deferred” (Murphy, 1978, p. 49).

Other authors have offered completely different characterisations of money, focusing on some of its other traits. For instance, its informational attributes, which make it into a “mnemonic technology” (O’Dwyer, 2018) or an “instrument of collective memory” (Hart, 2000); the meaning of the infrastructures that surround it (Maurer, 2015); its links to identity (Birch, 2014); or how it represents the quality of social relations (Zelizer, 1996). All these diverse perspectives have something in

common: they are, to a certain degree, functionalist explanations (Ingham, 2004). They seem to speak about money in terms of what money does: money enables exchange, stores value, articulates social relations or leaves information traces. But what is money itself? What is its nature? What lies beneath its functions?

The question is the subject of an old controversy; a “theological” (Hart, 1986) argument between two factions that can be traced at least to the foundation of the Bank of England in the 17th century (Ingham, 2004; Hart, 1986). The two sides of the dispute include several schools of thought and have been given many names: commodity vs. token, orthodox vs. heterodox, metallist vs. nominalist, (neo)classical vs. credit theories (Ingham, 2004), monetarists vs. Keynesians (Hart, 1986). The argument and all its names seem to boil down to two different perspectives on the question of money: an economic one, and a sociological one. I shall refer to them as such for the remainder of this chapter. The economic theory of money was outlined by David Ricardo and John Stuart Mill in the 19th century (Hart, 1986). The origins of the sociological one are rooted in intellectual efforts to understand new forms of money that appeared in Western Europe from the 16th century (Ingham, 2001); and in ideas developed during the formation of the unified German state in the 19th century (Ingham, 2001; Hart, 1986). This does not mean all those involved in the debate split neatly across such disciplinary boundaries. There are many economists on the heterodox side (John Maynard Keynes being foundational to it), and some sociologists on the orthodox one (Ingham, 2001).

When it comes to sociological understandings of money, HCI and CSCW literature has displayed a certain preference for the work of Viviana A. Zelizer (e.g. Ferreira and Perry, 2019; Hulikal Muralidhar et al., 2019; Woldmaria et al., 2016), perhaps because of her focus on the contextualised and diverse social meanings of money in use (Ingham, 2001). Additionally, the ethnographic nature of at least some of her research (Ingham, 2001) does resonate with HCI and CSCW methods. However, the present account of the disputes around the nature of money turns to different sources. It mostly relies on the work of two anthropologists - Keith Hart and David Graeber - and the sociologist Geoffrey Ingham. It is the latter’s sociological theory of money that is presented in this chapter; while the anthropologists build upon both the economic and sociological ideas to propose a conclusion to the question of the nature of money.

According to Ingham (2004), any theory on the nature of money must answer three fundamental questions: 1) what is money, 2) how is money produced, and 3) how is money maintained over time. The economic and sociological theories of money propose “antithetical” (Ingham, 2004, p. 56) and irreconcilable answers to these three questions, and they also disagree on their historical accounts of the origins and evolution of money. In what follows, I briefly outline the answers each theory provides to these three questions, what their arguments are, and why they are fundamentally opposed.

2.2.1 What Is Money?

The economic theory of money is the epitome of functionalism. Money is what money does, and money does three things: it works as a medium of exchange, as a unit of account and as a store of value. According to this economic paradigm, the most important of these three functions is medium of exchange (Ingham, 2004): the ability to mediate commercial transactions. It is in this function that the quality of “moneyness” (Ingham, 2004, p. 34) resides. Money is a “lubricant” (Ingham, 2004, p. 206), a means to facilitate more efficient commodity exchanges, a technical device to enable easier barter. All other functions of money derive from this ability to mediate and simplify exchange (Ingham, 2004). Understood in this sense, money becomes a “neutral veil” (Ingham, 2004, p. xiii). It simply sits above the “real economy” where products and services are traded, symbolising their underlying exchange ratios (Ingham, 2004) and, in doing so, making transactions more efficient. Money can effectively symbolise the exchange ratios between different real commodities because it is itself a “tradable commodity” (Ingham 2004, p. 33): it is a thing that can be exchanged for all other things. Money is the coins and notes, it is “material and tangible”, it can “be stored and passed from hand to hand”, it circulates (Ingham, 2004, p. 15). In this sense, money and credit are two different things (Ingham, 2004).

In the sociological theory, the quality of “moneyness” resides in a completely different money function: the unit of account. Money is not a thing at all: it is an abstract and universal measure of value that can take myriad media of exchange forms - notes, coins, cheques, electronic transfers, credit cards, etc. (Ingham, 2001). Understood in this way, money is “pure purchasing power” (Ingham 2004, p.

4), and it is a “claim upon the products of society” (Scott, 2018, p. 148): “the holder of money is owed goods” (Ingham, 2004, p. 57). This means money and credit are not two different things: they are one and the very same. Money *is* credit: it is the expression of social relations of credit and debt (Ingham, 2001). Debt being “inherently a relation of social inequality” (Ingham, 2004, p. 91), money can never be “neutral”, as the economic theory asserts.

As a convention for the measure of value we have come to agree upon, money has two properties: “valuableness” and “value” (Ingham 2004, p. 48). “Value” is money’s purchasing power at any point in time. “Valuableness” is the legitimacy that establishes money as universally acceptable, and which is invariably endowed by authority. In most cases, the sovereign or the state confers valuableness by accepting money as payment for tax (Ingham, 2004). Since money is the expression of a certain kind of social relation (credit and debt) that becomes universally acceptable through the endorsement of a powerful institution (the sovereign or the state), it is a “social construction” (Ingham, 2006: 30).

2.2.2 How Is Money Produced?

According to the economic theory, money arises as the natural outcome of processes of exchange (Ingham, 2001). In order to maximise their barter options, traders will keep stocks of the most tradable commodities, which consequently become established as the accepted media of exchange (Ingham, 2001). In this account, money emerges spontaneously from numerous, bilateral, and essentially subjective barter exchanges (Ingham, 2004). The production of money is, therefore, a kind of natural phenomenon by which “individual subjective preferences” (Ingham, 2004, p. 7) end up producing a universally agreed scale of value (Ingham, 2001). Money is thus the “unintended consequence” (Ingham 2004, p. 19) of acts of economic rationality by utility-maximising individuals (Ingham, 2004). Ingham questions this universalisation of subjectivity, and wonders how “inter-subjective hierarchies of value” (Ingham, 2004, p. 7) could actually emerge from individual preferences.

In the sociological account, money is produced by an institutional authority that endows it with legitimacy as a universal measure of value. This authority is usually the sovereign or the state (Ingham, 2004). By declaring that it will accept money as payment for tax, the monarch or the state creates money and establishes its validity (Ingham, 2004). As proof for the argument, Ingham reminds us that “the earliest known coins in Greece and Asia Minor” (2004, p. 45) from the first millennium BC did not include any numerical indication of value, but they did bear the mark of the issuer (Ingham, 2004). He also observes that, without exception, “weak states have weak monetary systems” (Ingham, 2004, p. 212). Authority is, therefore, “a necessary or *logical* condition for money’s existence” (Ingham, 2004, p. 49). Money involves “sovereignty” (Ingham, 2004, p. 49), which reveals there is always a political relationship between the institution that guarantees the legitimacy of money and those who use it (Ingham, 2004). That relationship is first and foremost one of power, whereby one of the parties is capable “to impose a hegemonic meaning” (Ingham, 2001, p. 318). Money may nowadays be maintained by trust, but it was born from “coercion” (Ingham 2004, p. 65), i.e. from the ability to enforce, sometimes violently, the use of money in transactions (Ingham, 2004). A quote from Marco Polo’s account of the use of paper money in 13th-century China illustrates the role of hegemonic power, coercion and violence in the establishment of money as a measure of value:

With these pieces of paper, made as I have described, he [Khubilai Khan] causes all payments on his own account to be made; and he makes them to pass current universally over all his kingdoms and provinces and territories, and whithersoever his power and sovereignty extends. And nobody, however important he may think himself, dares to refuse them on pain of death. (*The Book of Ser Marco Polo: The Venetian Concerning Kingdoms and Marvels of the East*, cited in Norman, n.d.).

2.2.3 How Is Money Maintained?

For the economic theory, the key to how money is maintained over time resides in the natural or “real” economy: the substratum of economic life that money sits upon. It is the exchange activity that takes place within this real economy that determines the value of money. The real economy has natural rhythms, and money behaves according to them. There is a natural and optimum supply of money; a natural and optimum value for it; as well as natural rates of interest and unemployment (Ingham, 2004). Everything else - the state and monetary institutions such as banks

- is “exogenous” (Ingham, 2004, p. 29), i.e. does not belong to the economy or the market per se. The state sits outside the economy, its role limited to injecting and maintaining sound, stable money as a “public good” (Ingham, 2004, p. 31). Banks are neutral, passive intermediaries, reduced to adapting to the state’s supply of money (Ingham, 2004). Banking is simply a cost-reducing device to “place the aggregated savings of many small depositors at the disposal of borrowers” (Ingham, 2004, p. 27). In this view of banking, “deposits make loans” (Ingham, 2004, p. 27). According to the economic perspective, monetary institutions are apolitical and play a purely technical role. The issuers and users of money are engaged in a relationship of free, mutual cooperation in order to achieve greater efficiency and cost reductions (Ingham, 2004). Other than the “‘higgling’ to arrive at a mutually agreed exchange” (Ingham, 2004, p. 17), social relations play no part in the economy or the production of money.

In stark contrast, the sociological theory argues that money is “socially and politically constructed” (Ingham, 2004, p. 123) and maintained. Money itself *is* a system of social relations of power between economic agents, and between those agents and the monetary authorities (Ingham, 2006). First, the state possesses the hegemonic power required to enforce the money of account as a universal measure of value. Second, “legitimately-sanctioned agencies” (Ingham, 2006, p. 32) such as mints, ministries of finance and banks, produce the medium of exchange and means of payment. This implies that money is not “exogenous” but “endogenous” (Ingham, 2004): it is created by the banking system through a “relatively autonomous process” (Ingham, 2004, p. 108) that is not tied to customers’ deposits. Rather than deposits making loans, “loans make deposits” (Ingham, 2004, p. 27): by issuing loans, a bank creates deposits and thereby creates money (Ingham, 2004). Third, the users of money enact the relationship between money and commodities. On one side, those producing goods attempt to expand their value or raise their prices through increased borrowing and debt. On the other side, those producing money try to control its supply and purchasing power to rein in inflation (Ingham, 2001), as well as developing “new social relations of credit” or “monetary innovations” (Ingham, 2006, p. 32). In summary, money is made and kept through a socially-enacted “triangular power struggle” (Ingham, 2006, p. 33) where each party pursues their own interests. It is not free, mutual cooperation that maintains money, but rather economic strife.

Because they are the result of social power struggles, “all monetary systems (...) are necessarily precarious and unstable” (Ingham, 2006, p. 33). They require “constant intervention” to “regulate and legitimize monetary practice and policy, and to control economic agents’ disrupting and destabilizing pursuit of self interest (...) [A] permanent, ongoing social reproduction of money through” (Ingham, 2006, p. 33) the social construction of norms and the readjustment of power relations.

2.2.4 The History of Money

As outlined above, the economic and sociological theories provide opposing answers to the three core questions on money: money is either a commodity or a universally accepted abstract measure of value; money is either the natural product of exchange or the result of hegemonic power; money is either maintained through mutual cooperation or through social and political struggle. Such disparities also result in radically different accounts of the history of money.

The economic theory’s account of the origins of money relies on “the myth of barter” (Graeber, 2014, p. 395). According to David Graeber, economists imagine a situation very much like today’s world but without money, where people would need to directly trade the products of their labour like for like. This may sound facetious, but it can be clearly appreciated in the following explanation from the Bank of England, addressed to the general public:

If Robinson Crusoe is a natural forager, for instance, then he could focus his effort on picking berries, while his friend Man Friday, a skilled fisherman, could devote all of his time to fishing. The two could then trade with one another and each consume more berries and fish than if each of them had split his time between picking berries and catching fish. (...) While Robinson Crusoe and Man Friday could simply swap berries for fish — without using money — the exchanges that people in the modern economy wish to carry out are far more complicated. Large numbers of people are involved. And — crucially — the timing of these exchanges is not typically coincident. (McLeay et al., 2014a, p. 6)

In such a complex barter situation, if “you have roosters, but you want roses” (Parkin and King, 1995, p. 65 cited in Graeber, 2014, p. 23), you would need to find someone who has roses *and* wants roosters. This is the problem of the “double coincidence of wants”, and renders barter at scale extremely unwieldy. Money evolves as a workaround to the problem of the double coincidence of wants

(Ingham, 2004). According to this account, everyone would start stockpiling something everyone else is likely to want (Graeber, 2014), and this “most tradable commodity” (Ingham, 2004, p. 35) would end up establishing itself as the accepted medium of exchange. Over time, people would realise that precious metals are ideal as a medium of exchange, since they are durable, portable and divisible. This provides an explanation for the emergence of coinage (Graeber, 2014). The unrelenting search for efficiency in market exchange would then bring about our modern, dematerialised forms of money and finance. These would have been created to save costs in minting, or as a response to the insufficient supply of physical money to meet the ever-expanding needs of international commerce and industrial production (Ingham, 2004). “It all forms”, writes Graeber, “a perfectly simple, straightforward progression, a process of increasing sophistication and abstraction that has carried humanity, logically and inexorably, from the Stone Age exchange of mastodon tusks to stock markets, hedge funds, and securitized derivatives.” (2014, p. 28).

According to Graeber (2014) and Ingham (2004), this economic account of the origins and evolution of money is not supported by historical records. No “fabled land of barter” (Graeber, 2014, p. 29) has ever been found, and money of account was being used in the Babylonian empire over 2000 years before the first coins appeared (Ingham, 2004). An alternative explanation of the origins of money links it to an “early social institution for the settlement of disputes” (Ingham, 2006, p. 25) called “worthpayment” or “wergeld” (Ingham, 2006). This was the compensation or fine (Graeber, 2014) one must pay to an injured party for causing them damage or death, according to a “fixed scale of tariffs” (Ingham, 2006, p. 25). For instance, “If one killed a man, one paid goods to the value of seven cumals [female slaves], in recompense for killing him” (Graeber, 2004, p. 173). Ingham suggests that in wergeld, the money of account used to measure the value of injury was an analogy for society itself (Ingham, 2001), and the associated tariffs constituted a “moral evaluation of social roles and positions” (Ingham, 2001, p. 311). Money’s origins, therefore, lay outside exchange, barter and the market (Ingham, 2001).

Modern money, in turn, was the result of states borrowing from their wealthy merchants to finance war (Ingham, 2004); and of the separation of money of account and means of payment after the disintegration of Rome (Ingham, 2006). In

medieval Italy, state and bank debts, specifically their promises to pay, became accepted as a means of payment. Eventually, the state sanctioned the depersonalisation and transferability of personal debt, through which an individual's IOU could become money (Ingham, 2006). A debt could now be used to pay another debt (Ingham, 2001). This use of institutionally legitimised debt as a means of payment is, for Ingham, "one of the most important developments in the history of humanity's organizational or infrastructural power" (Ingham, 2006, p. 27).

2.2.5 The Performativity of Monetary Theories

According to Graeber (2014) and Ingham (2001), the economic theory of the nature of money has proved to be "inadequate" (Ingham, 2004, p. 36). The historical evidence does not support its narrative of the origins of money rooted on barter (Ingham, 2001; Graeber, 2014); and the Bank of England itself has come out to explain that money is an IOU (McLeay et al., 2014a; McLeay et al., 2014b), i.e. a form of credit, rather than a "tradable commodity" (Ingham, 2004, p. 33).

Economic money theories nonetheless persist. They are still the foundation of mainstream ideas about money, influencing policy, constituting the basis of laypeople's understanding of what money is and how it works, their principles still present in educational books and the teaching of economics (Graeber, 2014). Why that may be so is not clear. Ingham points to the mechanisms of the social production of science as a partial explanation. Scientific "'paradigms' can be sustained by the social organization of the scientific community beyond the point that they cease to provide clear understanding" (Ingham, 2004, p. 36). As a fundamental piece in the advent and dominance of the discipline of Economics, the orthodox theory may be hard to let go (Graeber, 2014).

Ingham, however, volunteers a second reason: that theories about money are “performative” (Ingham, 2004, p. 84), i.e. they play a role in bringing about and preserving the same socio-technical reality they claim to explain. Economic theories of money are an “ideological (...) attempt to produce the working fiction of stable money” (Ingham, 2004, p. 84). They portray money as natural, universal and immutable, concealing its social origins and the “malleability” (Ingham, 2000, p. 31) of the institutions that produce it. In doing so, economic theories work towards sustaining the monetary status quo.

To make his case, Ingham returns to the foundation of the Bank of England, which happened amidst arguments about whether or not to link money to the value of a precious metal. In defending such a link, heavyweights of British thought such as Locke and Newton were mostly concerned with creating a strong currency that could in turn sustain a strong state (Ingham, 2004). A purely abstract money, they reasoned, “would be destabilized by the struggle between economic classes. Anchored in a natural substance” (Ingham, 2004, p. 44-45) such as gold, money “would transcend” (Ingham, 2004, p. 45) those social conflicts. And so the gold standard contributed to portray money as an immutable natural phenomenon, masking the bankers’ private control of a public good “that should be under popular control” (Ingham, 2004, p. 45). Long-lasting institutions are based on ideologies that explain social arrangements as the natural order of things: universal, immutable and uncontestable (Ingham, 2006). The economic theory is one of such ideologies, hiding the fragile and malleable condition of the social construction that is money (Ingham, 2006).

2.2.6 A Tentative Conclusion to the Question of Money

So we know that the economic theory of money is flawed, but that does not answer the question of what is money. Anthropology has come up with a neat answer to the economic vs. sociological argument: money is, of course, both. Money “is almost always something hovering between a commodity and a debt-token” (Graeber, 2014, p. 75). Like the two sides of a coin (Hart, 1986), economic and sociological theories of money are simply describing a single aspect of a dual reality. Keith Hart has strongly critiqued the one-sidedness and theological nature of the economic vs. sociological argument, encouraging us instead to embrace the “dialectical synthesis” (Hart, 1986, p. 650) that money requires.

The argument between the economic and sociological theories about the nature of money may strike us as esoteric and far removed from the design of financial technologies, which is the subject of this thesis. However, its implications are profound and touch every single aspect of our financial lives. In the hands of the prevalent economic theories, money becomes an asocial, apolitical, neutral entity whose existence is explained by the natural order of things and therefore cannot be meaningfully contested. Society, in turn, becomes simply a group of interdependent, utility-maximising individuals. Financial services and the digital tools that accompany them are designed accordingly, remaining deaf to alternative sociological ideas about money, which insist that money is fundamentally social, deeply political, and can never be neutral. Money and its value are the outcome of social and political struggles between different factions in the economy: capital and labour, the state and its creditors, banks, debtors and taxpayers (Ingham, 2004). Society and its money are “a moral community” before they are a market (Ingham, 2004, p. 93).

2.2.7 HCI, CSCW and the Theories of Money

HCI and CSCW have engaged little with this controversy about the nature of money. Only Ferreira and co-authors have briefly mentioned the subject (Ferreira et al., 2015; Ferreira and Perry, 2019), and have explicitly positioned their research as extending “the utilitarian view of money as *capital* to explore the ‘extraeconomic’, social basis of money” (Ferreira et al., 2015, p. 1223).

This does not mean that other authors have not implicitly taken sides. A recent stream of HCI and CSCW literature makes a strong case for the socially situated nature of money (Snow et al., 2017), a statement that aligns this research to the sociological camp of the money controversy. For instance, Pal et al. explain how, in India, everyday economic practices “are embedded in networks of existing social institutions” (2018, p. 3), and remind us that “social capital is an integral part of the livelihood strategies of economic actors, often helping them withstand adverse situations” (Pal et al., 2018, p. 4). Talhouk et al. (2020) and Vyas and Dillahunt (2017) provide additional examples, remarking on the importance of social capital when identifying trusted parties for financial collaboration, and for building resilience at times of financial crisis.

To better articulate their arguments and findings about the social nature of money, a subset of HCI and CSCW literature concerned with money and financial practices has adopted and developed the concept of “moneywork”. I review the literature on “moneywork” in the next section.

2.3 Money and HCI: The Notion of Moneywork

One of the most characteristic aspects of the HCI and CSCW literature on money is the attention it has paid to the labour people must undertake in order to make money work for them, which has been termed “moneywork”. The term “moneywork” was initially coined by the sociologist Sandra Colavecchia in her study of household care work from a feminist perspective. Colavecchia defined “moneywork” as the “labour of managing family finances” (2009, p. 426). This labour encompassed activities such as bill paying, budgeting, learning about financial matters and shopping; as well as activities specifically focused on saving money, for instance “borrowing items, (...) collecting hand-me-down clothing and toys; making items rather than purchasing them (...); using 'points' cards to get free items (...); and selling clothing to consignment stores.” (Colavecchia, 2009, p. 421).

In 2018, Perry and Ferreira introduced the concept of “moneywork” into HCI, using it to frame their study of payments with the Bristol Pound alternative currency. In their paper, the authors defined moneywork as the “interactional work around the use of money in making financial transactions” (Perry and Ferreira, 2018, p. 1) , and

“the practices that users engage in when working with money” (Perry and Ferreira, 2018, p. 2). When explaining their use of the term, the authors acknowledge the influences of Colavecchia’s research, as well as Kirk et al.’s studies of “photowork” (2006) and “videowork” (2007).

Since Perry and Ferreira’s publication in 2018, several HCI and CSCW papers have incorporated the term moneywork. For instance, Lewis and Perry (2019) studied the daily financial activity of 12 people in the UK through a diary study from a moneywork perspective, concluding that “going digital requires additional effort in mapping information within and across digital, physical and social resources” (Lewis and Perry, 2019, p. 13). Hulikal Muralidhar et al. applied Perry and Ferreira’s moneywork lifecycle for payments, which identifies pre-, at- and post-transaction moments, to describe the consequences of introducing a mobile application into loan repayment practices in India (2018). Barros Pena et al. unpacked the moneywork involved in financial third party access (2021b). Kameswaran and Hulikal Muralidhar looked at the labour demanded by payments from the perspective of those who are visually impaired (2019); and Hulikal Muralidhar explored the extra work required from rickshaw drivers in order to adopt and use mobile money (2019).

The last two studies have also extended and qualified the concept of moneywork, bringing attention to its often “supplementary” and “hidden” nature (Kameswaran and Hulikal Muralidhar, 2019; Hulikal Muralidhar, 2019); to its applicability not just to payments - and therefore to money as a medium of exchange - but also to money as a store of value (Hulikal Muralidhar, 2019); and to the importance of the spatial, and not just temporal, dimensions of this kind of labour (Hulikal Muralidhar, 2019). According to Hulikal Muralidhar, moneywork should consider not just the sequence of events in time, but also the “exact whereabouts of people and artefacts” (2019); as well as the labour involved in “achieving the right configuration of people” (2019) and resources necessary to accomplish financial tasks. To illustrate the spatial aspects of moneywork, Hulikal Muralidhar uses the case of Indian rickshaw drivers working for a ride-hailing service, who had to visit ATMs exclusively to withdraw earnings from rides paid with mobile money (Hulikal Muralidhar, 2019). The author concludes that adopting mobile money demands from users “new forms of mobility work” (Hulikal Muralidhar, 2019).

As this example illustrates, supplementary moneywork may be necessary due to, for instance, the adoption of digital financial services such as mobile money (Hulikal Muralidhar, 2019), the financial challenges associated with mental illness (Harper et al., 2015), or inaccessible payment systems that must be rendered accessible (Kameswaran and Hulikal Muralidhar, 2019). To provide an example of the latter, Kameswaran and Hulikal Muralidhar explain how paying ride-hailing drivers by cash requires identifying the different note and coin denominations (2019). Since currency notes and coins cannot be easily recognised by touch only, visually impaired participants had to engage in cash organisation work prior to their ride. They would use different wallet pockets and folders for each denomination for easier retrieval, or store separately the estimated fare provided by the ride-hailing mobile application (Kameswaran and Hulikal Muralidhar, 2019). For these authors, moneywork is a “way to get an analytical grip on monetary transactions” (Hulikal Muralidhar et al., 2018, p. 4), and a means to reveal the “meanings and values associated with money” (Hulikal Muralidhar et al., 2019, p. 3).

The conceptualisation of the labour involved in managing money as “moneywork” is relatively recent. But before the term “moneywork” appeared in HCI and CSCW publications, researchers in these areas had already demonstrated a commitment to the study of money from the perspective of the hidden work it demands. Many earlier studies on financial matters have focused on the work involved in making money work. For instance, Mainwaring et al. (2008) described the labour required for using digital forms of money in Japan. Participants had to convert regular cash into e-cash, and to do so they had to find a card recharging machine or a point-of-sale terminal, both of which were vendor-specific. E-cash was not accepted everywhere, as cash is, so users had to locate the right stores; and a type of e-cash could not be converted into another.

Kumar et al. (2011) observed payment practices and cashiers at busy Indian establishments such as railway stations and mobile phone bill counters. The authors explain that although cash is convenient in contexts with high transaction volumes, it also requires considerable work. Cash and notes must be organised when time allows, and must be tallied at the end of the day. Change must be always available, which involves maintaining a constant float of coins and low denomination notes, asking customers to provide exact amounts, and several rounds of cash exchanges between cashiers and buyers.

In their study of loan repayments amongst rickshaw drivers in Bangalore, O'Neill et al. compare the labour required by cash and mobile money repayments, and describe "the considerable amount of work that goes into making formal financial products work for low income communities" (2017, p. 764). They conclude that challenges derived from irregular daily income, and difficulties when topping up mobile wallets, were the main barriers to the adoption of mobile payment technology in this context.

Pritchard et al. (2015) examined the consequences of the removal of cash payments in London buses. They found that "Cashless brings work", in this case the management of contactless transport cards. Other authors have explored the labour involved in budgeting and managing household finances (e.g. Kaye et al., 2014a; Vyas et al., 2016; Snow and Vyas, 2015); the use and meanings of cheques (Vines et al., 2012b); and the additional work required when living on a low income (Vines et al., 2014; Vyas and Dillahunt, 2017; Snow et al., 2017).

Whether they use the term "moneywork" or not, what all these studies have in common is their understanding of money use as a situated practice (Perry and Ferreira, 2018); their emphasis on monetary transactions as interactions (Ferreira and Perry, 2019); and their conception of money as a fundamentally social technology (Ingham, 1996). Such ideas locate this stream of HCI and CSCW literature firmly on the sociological side of the money debate. In addition, by drawing attention to the situated and mundane aspects of the labour required by day to day financial management, the concept of moneywork provides a useful lens for the study of the tasks, practices and interactions involved in financial collaboration.

2.4 Financial Collaboration

As noted in the previous section, the literature on moneywork understands monetary transactions as interactions (Ferreira and Perry, 2019). Much of the work of making money work is, therefore, interactional work, and involves collaboration between two or more parties with money as its object or medium, i.e. financial collaboration. I understand collaboration here as activities undertaken together in the pursuit of a shared goal (Hulikal Muralidhar et al., 2018).

In this section, I outline how financial collaboration takes place across payments, savings and remittances; how it thrives in times of crisis; and how it manifests in more mundane, day-to-day settings.

2.4.1 Payments as Financial Collaboration

In a paper published in 2015, Ferreira et al. demonstrated how the process of re-conceptualising money-mediated activities as collaborative activities can take place in the case of payments (Ferreira et al., 2015). The authors describe how a somewhat slow and cumbersome payment system generated opportunities for playful and pleasurable interactions, social and community contact, engagement with local places and reflection about consumption and means of payment. From this perspective, payments are not just transactions or an exchange of value: they become social relations and opportunities for interaction (Ferreira and Perry, 2019). Many studies (e.g. Kumar et al., 2011; Kameswaran and Hulikal Muralidhar, 2019; Candello et al., 2015; O'Neill et al., 2017) have focused on financial collaboration through payments, either for products and services or for credit. For instance, Kumar et al. studied the collaborative nature of ticket payments in busy Indian buses, which rely on cooperation and trust between passengers (2011). Because conductors, who collect payments and hand out tickets, cannot walk up and down packed bus aisles, passengers shout up to find out fares, and pass the money via other passengers, who also return the ticket and change. In the same paper, authors also describe practices of “haggling and bargaining” (Kumar et al., 2011, p. 1418), a social activity that relies on local knowledge and expertise to identify reasonable starting points, and on the “tolerance” of customers towards price variability.

Kameswaran and Hulikal Muralidhar (2019) explain how, for visually impaired users of ride-hailing services, the task of collecting and verifying change after payment entailed “collaborative work” with the drivers. By helping with identifying notes, announcing the final price for the ride, and handing back the correct change, drivers collaborated with their visually impaired customers to complete the exchange, playing an important part in “rendering cash accessible” (Kameswaran and Hulikal Muralidhar, 2019) for these users.

Candello et al. (2015) describe the Brazilian “fiado”, the small local merchants’ practice of selling products on credit to customers they trust. According to the authors, “fiado” is common in Brazil, and the repayment date is rather loose, for instance “next week”, “next month” or simply “later”. “Fiado” requires merchants to keep track of these small loans, and to chase customers who do not pay. In spite of the extra work and inconvenience fiado generates, merchants still engage in the practice in order to “please” their clients, “for loyalty and friendship”, i.e. to maintain “social ties”. Customers reciprocate by agreeing to defer their change when the merchant does not have it available.

In their study of rickshaw loan repayments, O’Neill et al. (2017) characterised them as “a collaborative achievement” between drivers, their families and the loan collectors, rather than “simply a transactional exchange of value”. The act of paying cash to a collector is first and foremost a social encounter, and the authors emphasise the importance of the relationships established through such encounters over time. Face to face interactions helped drivers maintain their reputation as responsible borrowers, for instance by explaining why they could not pay an installment. Collectors, on the other hand, encouraged drivers to pay the due amounts, and provided counselling and support in financial decision making. Hulikal Muralidhar et al. explain that it is common for such loan payments “to be collected from friends and family members” (2018, p. 13), particularly if collectors visited the payee’s home, since the loan beneficiary would often be away working.

As Ossandón observes, microfinance itself is “backed by social relations that make re-payment more likely” (2014, p. 9). Candello et al. (2015) describe a microfinance programme in Brazil structured through a “solidary group”. Individuals can only borrow if accepted as members of one of such groups. “The group is self-regulating

and collectively responsible for the loan, i.e., every member is a guarantor for the rest of the group” (Candello et al., 2015): if a member does not have money to pay an installment, the other group members will pay on their behalf. According to the authors, solidary groups have been a fixture of microfinance initiatives since the 1970s. They are used as a loan security mechanism, since they are believed to make members more “reliable” borrowers through providing mutual support and protection, as well as compensating for individual “erratic” behaviour.

It seems clear from this literature that payments are social encounters. However, this focus on payments has perhaps obscured the fact that there are many other forms of financial collaboration that do not strictly involve payment for products or services. Examples of them can be found scattered across the literature within HCI, CSCW, economic sociology and anthropology. Some of the best known are rotating group savings and remittances, to which I turn next.

2.4.2 Rotating Group Savings and Remittances

Rotating group savings are an informal mechanism for collaborative savings whereby group members pay regular contributions and take turns to receive the amount collected (Mehmood et al., 2019). Rotating group savings are “widely used across the globe” (Mehmood et al., 2019, p. 1), particularly in places where exclusion from formal banking is common (Ossandón, 2014). For instance, they are known as ROSCA (Rotating Savings and Credit Association) in Pakistan (Mehmood et al., 2019), “pollas” in Chile (Ossandón, 2014), “arisan” in Eastern Java, “ko” in Japan, “hui” in Central China, “ho” in Vietnam, “dashi” between the Nupe of Eastern Nigeria, and “esusu” between the Yoruba also in Nigeria (Geertz, 1962). They were also common in the UK until relatively recently, with Vines et al.’s “eighty somethings” still remembering them as “pound clubs” (2011). This form of saving has been documented as far back as the 13th century (Geertz, 1962), and mobile applications are now appearing to facilitate it (e.g. MoneyFellows, n.d.; circle, n.d.).

Less structured forms of collaboration in the context of savings also exist, as demonstrated by Woldmariam et al.’s study of financial practices in rural Ethiopia (2016). In a context characterised by lack of access to formal financial services, social relationships become a means to keep savings away from one’s own home,

with trusted individuals storing the funds of others in order to avoid theft, misuse, and third party money requests. This is what Collins et al. have called “moneyguarding” (2009), the practice of “having someone look after your money for you, often a relative, neighbor, employer or shopkeeper” (Collins et al., 2009, p. 208).

A second well known example of financial collaboration are remittances, which are person-to-person money transfers over long distances (Hulikal Muralidhar et al., 2018). Kumar et al. (2011) discuss the collaborative practices of migrant workers to enable remittances. One of their participants sent money regularly to a remote village through an acquaintance, who would transfer the money to a relative who, in turn, would hand it over to the participants’ parents. Describing uses of mobile money in Ghana, Yu and Ibtasam (2018) recount how one of their participants would agree to receive mobile money transfers for someone else, withdraw the amount and hand it over to the intended recipient.

Aside from these prominent examples, there are other forms of financial collaboration that may be harder to identify. For instance, those that emerge at times of monetary crisis.

2.4.3 Financial Collaboration in Monetary Crisis Situations

Additional financial collaboration practices often emerge or become exposed at times of monetary crisis. One such crisis happened in India in 2016, when the government unexpectedly declared all banknotes of 500 and 1000 rupies illegal tender without any prior notice. This event, which came to be known as the “demonetisation”, effectively rendered useless more than 85% of the currency used in India at the time (Pal et al., 2018). In order to cope with the subsequent chaos, street sellers and shop owners made use of their “social capital”, i.e “social relations that have productive benefits” (Forchuk et al., 2017, p. 248). Vegetable street sellers from a Bangalore market created a “security net” to confront the acute shortage of money in circulation and to help each other meet their cash needs (Masiero, 2017). Trusted persons were engaged to withstand the long queues at banks in order to exchange old notes, make deposits and withdrawals. Having several people in this role allowed shopkeepers to circumvent the individual limits to

such transactions imposed by the government (Pal et al., 2018). Cash payments were deferred, leveraging existing informal credit networks: “trustworthy customers” were allowed to “pay later”, while customers accepted paper IOUs from shops in lieu of change (Pal et al., 2018). Social relationships were strengthened through offering credit to relatively new customers (Pal et al., 2018).

Similar trust-driven behaviour was observed during the extended banking closures that took place in Ireland between 1966 and 1976 due to industrial disputes (Murphy, 1978). With the banks closed - in 1970 for over 6 consecutive months - the public lost access to over 80% of the money supply (Murphy, 1978). In spite of such dramatic reduction in the means of payment (we must remember that, at the time, bank cards were still in their infancy), retail activity was not significantly affected (Murphy, 1978). This was because cash was replaced by a huge multilateral, collaborative and highly personalised system of credits and debits mediated by cheques. Ten million cheques for over £3,000 million changed hands during the bank closures (Norman and Zimmerman, 2016). Since there was no way to know when or if those cheques would clear, people were effectively accepting individuals’ cheques backed up by other individuals’ cheques. This was in theory extremely risky: if one of the cheques failed to clear the default could cascade through the chain. Still retail outlets and pubs accepted cheques as payment, on the basis of the knowledge they had about their customers’ creditworthiness, and the creditworthiness of those whose cheques that customer had accepted in turn. The ability to take payments became based “on the vast stock of information available to transactors on the creditworthiness of fellow transactors” (Murphy, 1978, p. 50), i.e. on the social relationships between the parties. As Murphy explains, the small population size in Ireland (about 3 million at the time) aided the process. It “meant that there was a high degree of personal contact amongst members of the community (...) the managers of these retail outlets and public houses had a high degree of information about their customers - one does not after all serve drink to someone for years without discovering something of his liquid resources” (1978, p. 44-45). As an employee of the Bank of England with a knack for comedy put it, those publicans “had an informed view of whether the liquid resources of would-be payers were stout or ailing” (Norman and Zimmerman, 2016). Jokes aside, the Irish bank closures provide remarkable evidence as to the potential extent, scope and power of financial collaboration.

2.4.4 Day-to-Day Financial Collaboration

Financial collaboration, however, still thrives outside extraordinary times as the ones described in the previous section. Money management in the household has been shown to be an eminently collaborative activity, across the world and independently of the type of household (e.g. family units vs. shared accommodation). Hulikal Muralidhar tells us that household finances in India are jointly managed by different family members coming together, such as spouses in nuclear families, and elders / in-laws in joint families (2019). Some of the rickshaw drivers taking part in their research handed over most of their earnings to their spouses, who were responsible for managing them. These drivers “also depended on their social and community ties (friends, family members, neighbours etc.) for short-term, interest-free credit” (Hulikal Muralidhar et al., 2019, p. 13). In a similar vein, when looking at the financial practices of US middle class households, most of Kaye et al.’s participants managed someone else’s money to some degree. This led the authors to assert that finances “are more communal than many financial systems may assume” (Kaye et al., 2014a, p. 526). Vyas et al. reached a similar conclusion in their ethnographic study on financial systems in Australian households, finding that family finances were “a collaborative, negotiated and democratic process” (2016, p. 1787). Finally, within the context of shared accommodation in the UK, Lewis and Perry observed that non-related individuals exhibited “socially complex and interdependent financial interactions” (2019, p. 9), and engaged in “collective money management” behaviours whereby individuals would work “on behalf of others to administer large amounts of money” (2019, p. 12).

Beyond the household, studies engaging with specific cultural contexts, or with distinct groups such as older adults or people living on a low income, have consistently uncovered other, more unusual forms of financial collaboration. For example, Woldmariam et al. describe the traditional collaborative behaviours triggered by death in rural Ethiopia. Bereaved families receive individual cash donations called “yazentega”, through which donors develop and maintain “reputation and community standing” (2016, p. 496). Recipients are expected to remember the donors and reciprocate during future social occasions such as weddings, birthdays or graduations. The authors also describe the “edir”, an

association whose members' monthly donations are also dedicated to assist bereaved families. Edir members gather monthly at a member's home to pay their contributions, which are recorded in a book called "mezgeb". When a member does not wish to attend the monthly meeting, a "delegate" - often a child - is sent to pay the contribution on their behalf.

We find another example in Kusimba et al.'s study of mobile money transfers in Kenya (2017). The authors describe what they call "impromptu fundraising", whereby people who are part of inter-household, money-sending social groups will be asked to contribute financially to the needs of the members, for instance the purchase of consumer items, medical bills, schooling and rituals. In Latin America, Ossandón (2014) documents the pervasive practice of lending retail store credit cards to close others in low income areas of Santiago de Chile.

There are also instances of financial collaboration in studies with groups who find themselves in challenging circumstances. For instance, Kameswaran and Hulikal Muralidhar's visually impaired participants enlisted the help of family and friends to classify and carefully organise cash within their wallets, so that the different coins and note denominations would be easier to identify and retrieve at payment time. They also worked with others to configure mobile wallets, which required inputting card details that would be read aloud by collaborators (Kameswaran and Hulikal Muralidhar, 2019).

Looking at the particularities of living on a low income, Vyas and Dillahunt highlight the importance of reciprocity, "sharing resources, and maintaining a strong community network" (2017, p. 15) to foster resilience at times of financial difficulty. Examples of communal financial coping practices included getting used items from friends and family, and "sharing goods and services" with friends and community members. Participants shared wifi data costs with neighbours, "magazine subscription costs with friends, school uniforms among parents, carpool duties and fuel costs with friends, and Groupon meal vouchers with close friends" (Vyas and Dillahunt, 2017, p. 12). Two participants also bartered their skills and time for food and other in kind goods (Vyas and Dillahunt, 2017).

Research in Australia (Tilse et al., 2005a; Tilse et al., 2007) and the UK (Dunphy et al., 2014a) has also revealed the importance of collaboration and assistance with money management for older adults. This is the realm of “financial third party access”, a form of financial collaboration that refers to the act of granting others access to our financial information and / or assets in order to receive support with money management (Bond et al., 2019). Financial third party access is the subject of much of the fieldwork of this doctoral thesis, and it is reviewed in detail in the next section.

2.5 Financial Third Party Access

Financial third party access refers to a form of financial collaboration through which we receive someone else’s assistance with financial decision-making and the management of our money. Although this definition may fit several of the examples in the previous section, from now on I will apply it specifically to situations in which someone could benefit from help with minding money.

Many people rely on others for support with money management. Those living with age-related conditions, illness, and temporary or permanent disability may require help with day-to-day tasks like paying bills, withdrawing cash or shopping; and may benefit from assistance when making financial decisions. Minding money has been recognised as a common care-giving task (Tilse et al., 2005a). In addition, engaging trusted others in the management of personal finances can be valuable for individuals experiencing financial hardship or life circumstances that place their financial stability at risk, for instance people diagnosed with mental health conditions that may impair their ability to manage money.

Financial third party access often involves trusted others handling financial information and assets belonging to those they help, and for this reason it has also been referred to as “asset management”. In this expression, the term “assets” encompasses all the financial resources, both income and capital, that someone possesses (Tilse et al., 2005b). Asset management has been defined as the provision of day to day and long term management assistance involving “some control” (Tilse et al., 2005a) over financial decision-making, asset organising and use (Tilse et al., 2005a; Tilse et al., 2005b). In the context of older adulthood, Tilse

et al. distinguish three components of asset management: i) day-to-day tasks such as paying bills, banking and paperwork; ii) long term management to ensure financial security; and iii) “dispersal” of major assets such as property (Tilse et al., 2005a).

There are two distinct levels of support in financial third party access: supported decision making, where the third party provides assistance with making financial decisions or undertaking financial tasks; and substitute or surrogate decision making, where the third party makes decisions on someone else’s behalf when they are unable or unwilling to do so themselves (Wilson and Tilse, 2015; Feltz, 2016).

Tilse et al. also identify three types of financial third party access mechanisms: formal, semi-formal and informal (2005a). Formal mechanisms are “legally sanctioned administration arrangements” (Tilse et al., 2005b, p. 54) for substitute decision making; semi-formal mechanisms include joint accounts and third parties nominated through banks; informal arrangements encompass a varied set of financial interactions and practices, such as sharing banking security credentials or “transfers of cash and credit” (Tilse et al., 2005b, p. 54), most of which are regarded as a security risk (e.g. Tilse et al., 2005a; Tilse et al., 2005b; Edgar et al., 2017; Alghamdi et al., 2015). In this chapter, I will simplify Tilse et al.’s classification (2005a) and distinguish only between formal and informal mechanisms. The use of joint accounts for third party access will be considered an informal arrangement, since this is not the intended use for such accounts. Third parties nominated through banks will be bound with formal mechanisms, since they are sanctioned by standard banking processes. In what follows, I briefly review the formal arrangements for third party access as they currently exist in the UK; as well as what is known about informal arrangements.

2.5.1 Formal Mechanisms for Financial Third Party Access

Formal mechanisms can be classified in two groups based on who appoints the trusted third party: individuals or administrative bodies. In the UK, people who retain capacity to make their own decisions may choose their trusted third parties and formalise their responsibilities through lasting power of attorney, banks’ third party mandates, or one-time verbal consent. For those who no longer have capacity to

make their own decisions, a deputy may be appointed by the Court of Protection (gov.uk, n.d.b). If in receipt of welfare benefits, an appointee may be authorised by the Department of Work and Pensions (DWP) (gov.uk, n.d.a). In my research, I have been mostly concerned with those mechanisms where the third party is freely chosen by an individual who has capacity to make the decision. In the UK, these include lasting power of attorney, banks' third party mandates, and one-time consent (Bond et al., 2019). Each of these mechanisms will be described in turn.

In England and Wales, a Property and Affairs Lasting Power of Attorney (LPA) is “a legal document that lets you (the ‘donor’) choose trusted people (‘attorneys’) to make financial decisions (...) on your behalf” (Office of the Public Guardian, 2017, p. 3). Donors can decide when attorneys will start making decisions for them. The options are as soon as the LPA is registered with the relevant institution, which is called the Office of the Public Guardian (OPG); or once the donor lacks mental capacity (Office of the Public Guardian, 2017). By default, and unless otherwise specified, attorneys have access to and control virtually all donor’s assets. For instance, they may open, close and use bank and savings accounts; collect benefits or a pension; make and sell investments; and buy or sell property (Office of the Public Guardian, 2017). Equivalent mechanisms to LPA exist worldwide, although each jurisdiction has its own terminology, laws and enforcing mechanisms (Purser et al., 2018). For all of them, “the basic premise remains the conferral of power on a person to make decisions on behalf of another” (Purser et al., 2018, p. 891). That power must be bestowed while the donor still has capacity, and remains in place after the donor has lost the ability to make decisions for him / herself (Tilse et al., 2011).

By contrast, a third party mandate “can only be used while a customer retains capacity to make their own financial decisions” (Bond et al., 2019, p. 16). A third party mandate is a written agreement between a customer and a bank that “allows a named person (the ‘third party’) to access an account on the account holder’s behalf” (Edgar et al., 2017, p. 7). The agreement grants ample powers to the third parties, but it establishes some limitations. For instance, beneficiaries of third party mandates cannot apply or sign for any type of credit (e.g. credit cards, loans, mortgages or overdrafts). At this point in time, there are differences between UK financial service providers in terms of the rights conferred by third party mandates.

For example, some providers allow third parties to access Internet banking (Barclays, n.d.), while others do not (Lloyds Bank, n.d.; HSBC UK, n.d.);

In addition to the above formal instruments, a person can give verbal consent for a third party to speak on their behalf to a financial service provider about a specific matter. This can happen in a bank branch or over the phone, and usually requires the donor to be present during the exchange. The authorisation extends only to that particular exchange, hence this being a form of one-time consent (Bond et al., 2019).

2.5.2 Informal Mechanisms for Financial Third Party Access

Literature studying the financial lives of older adults has uncovered that formal instruments for financial third party access are underused in care contexts. A survey of Australian non-professional carers found that formal mechanisms equivalent to lasting power of attorney and Court of Protection deputyship had been used in just 17% of responses; and banks' third party mandates, in 19% of responses. The majority of responses indicated the use of what the authors called "informal processes" (Tilse et al., 2005a; Tilse et al., 2005b). Vines et al.'s research with "eighty somethings" (2011) in the UK identified similar practices, which the authors connected to earlier life experiences participants had of sharing money within households and local communities. Policy-oriented research in the UK has reached similar conclusions (e.g. AgeUK, 2011; Bew et al., 2017; Edgar et al., 2017): older adults requiring assistance with money matters often disregard formal third party access instruments and instead deploy "informal workarounds" (Edgar et al., 2017) and "coping mechanisms" (Bew et al., 2017).

These informal mechanisms include, between others, sharing bank cards and PINs with carers in order to delegate payment authority and to get access to cash through others (Tilse et al., 2005a; Vines et al., 2011; AgeUK, 2011; Edgar et al., 2017); disclosing telephone and Internet banking credentials (Tilse et al., 2005a; Edgar et al., 2017), which allows helpers to set up direct debits and pay bills on someone's behalf; older adults signing blank cheques or withdrawal forms to be used by their carers (Tilse et al., 2005b); transfers of cash and credit (Tilse et al., 2005b), for instance carers advancing their own money that is later repaid by the

person they help (Tilse et al., 2005a); and the use of joint accounts for financial assistance, through which carers can take over financial responsibilities when needed and control spending (Murray, 2016).

Older adults and their carers are not the only ones deploying informal processes for financial third party access. Such practices have been identified as well between those living with mental health conditions. A survey commissioned in 2016 by the Money and Mental Health Policy Institute, an advocacy organisation based in the UK, found that 52% of those who care for someone with a mental health problem know someone else's PIN number; 25% have used someone else's contactless bank card; and 23% know someone else's online banking passwords. Between those experiencing a mental health problem, 32% said someone else knew their PIN number; 13% that someone else had used their contactless bank card; and 11% that someone else knew their online banking passwords (Murray, 2016). In the US, research on representative payeeship, a formal financial third party access mechanism similar to the UK's DWP appointeeship, has uncovered that it is informally practiced by those impaired due to severe mental illness and their carers. A study of third party money management for people diagnosed with a major affective disorder receiving welfare benefits found that 31% of those getting help with money did so informally (Elbogen et al., 2003). In a recent survey, 27% of family members living with a relative diagnosed with a psychiatric disorder reported "unofficially managing the money" (Labrum, 2018, p. 6) of that relative. The study concludes that informal money management on behalf of people with psychiatric disorders is "quite common" (Labrum, 2018).

2.5.3 The Unsuitability of Formal Mechanisms as a Driver for Informal Ones

Informal mechanisms for financial third party access are noteworthy for their security implications. These practices help people retain independence (AgeUK, 2011), but they also introduce significant risks for both givers and recipients of help (Dunphy et al., 2014a). Sharing banking security credentials not only exposes asset owners to fraud and financial abuse: it constitutes a breach of the banks' terms and conditions, and voids all fraud protections as a result (Vines et al., 2011; Edgar et al., 2017; Singh et al., 2006). Carers engaging in these practices are at risk of false

accusations of theft, fraud (Dunphy et al., 2014a) and “undue financial influence” (Tilse et al., 2011, p. 102). When they open joint accounts to enable oversight, carers jeopardise their own financial stability by becoming “jointly liable for any spending on the account” (Murray, 2016, p. 21).

Explanations as to why people adopt these risky workarounds have often focused on accessibility barriers in mainstream banking channels (Vines et al., 2011; AgeUK, 2011; Edgar et al., 2017). Research commissioned by UK public institutions has also emphasised the lack of knowledge about formal third party access mechanisms, and the lack of awareness about the consequences of using informal workarounds (Bew et al., 2017; Edgar et al., 2017; Beckett et al., 2014). Academic literature, however, has reported that people are often aware of the risks they take (Singh et al., 2006; Singh et al., 2007b; Vines et al., 2011), and has drawn attention instead to the “attitudinal (...) and social underpinnings” of these practices (Tilse et al., 2005b, p. 55-56), as well as to the inadequacies of formal third party access mechanisms (Vines et al., 2011; Dunphy et al., 2014a). Tilse et al., for example, observed that older people supported and preferred informal arrangements because they capitalise on existing trust within families, and are compatible with their expectations regarding inheritance and handing down assets (Tilse et al., 2005b). Older adults also prioritised family relationships over transparency and accountability: some older participants showed little interest in monitoring financial management, while others did not want to query transactions or decisions since this could disrupt family relationships (Tilse et al., 2005b).

In addition to these relational trade-offs, existing formal mechanisms for third party access seem unable to accommodate the situated nature of financial collaboration. These formal mechanisms are essentially binary: they grant third parties “full access (...) or no access at all” (Vines et al., 2011, p. 72). They disregard the fact that social money practices are not “all or nothing” (Vines et al., 2011, p. 72) and require greater flexibility. Existing formal mechanisms for third party access are too blunt an instrument for dealing with everyday financial tasks (Dunphy et al., 2014a).

Furthermore, security and HCI literature has uncovered that these “informal workarounds” happen amongst many other groups and in non-care contexts. Sharing passwords in general, including those for personal banking, appears to be

common. Dhamija and Perrig's study about image-based authentication found that "people viewed the ability to share passwords with others as a feature. Almost all participants shared their bank PIN with family or friends" (2000). Kaye mentions that spouses "frequently shared bank account details and PIN codes" (2011, p. 2621). The Money and Mental Health Policy Institute estimates that over 16 million people in the UK know someone else's PIN number, almost 8 million people know someone else's online banking credentials, and almost 7 million people have used someone else's contactless card (Murray, 2016). This is backed by research on banking habits. In a study carried out in Australia, Singh et al. report that "married and de facto couples share Internet and phone banking passwords because they trust their partner and see all their money as joint, irrespective of the form of the account" (2007b, p. 899). In their research on banking security practices in Saudi Arabian households, Alghamdi et al. uncovered that credential sharing takes place within family circles (2015). Of their 29 participants, 25 shared their cards and PINs with family members. One of their participants described the practice as "a way of supporting each other" and "a kind of solidarity" (Alghamdi et al., 2015, p. 301). Research in India with young and middle-aged adults uncovered that card sharing is a common practice amongst the banked (Kumar et al., 2011). Kumar et al. found that people had friends' card details and would use them at any time upon informing the card owner; and that card owners gave card details to family members to carry out purchases on their behalf (2011). Settlement between the parties would later take place in cash or kind, depending on the relationship. Yu and Ibtasam report intermediated use of mobile money services in Ghana, whereby a third party will transact on someone else's behalf using either their own mobile money account or the assisted individual's mobile money account (2018). Finally, Singh et al. observe that card and PIN sharing also takes place in remote aboriginal communities in Australia, not just due to difficulties accessing banking services in underserved areas, but also because of cultural norms that establish that "money is shared with kin" (2007b, p. 900).

This evidence suggests that what have been called "informal" or "coping" workarounds are actually common and widespread, indicating the "lack of fit" (Singh et al., 2007a) between the design of financial services and socio-cultural money practices. Formal third party access mechanisms are too rigid and ill-suited to the socially situated nature of our financial lives, and they do not take into account the

cultural and symbolic meanings of money. Aggravating the problem, banking infrastructure lacks the tools, technologies and policies to support more nuanced forms of trusted sharing and access (Bond et al., 2019). There is a clear need for flexible, proportionate, practice-sensitive and secure mechanisms for financial third party access that facilitate and legitimise collaborative financial behaviours, rather than penalising them. However, banks (especially in the UK) have largely ignored the recommendations from academia and advocacy organisations in this matter (Bew et al., 2017; AgeUK, 2011; Bond et al., 2019; Dunphy et al., 2014a; House of Commons Treasury Committee, 2019). For example, the first complementary or “carer” cards in the UK appeared only in April 2020, as banks sought to improve support for vulnerable populations during the COVID-19 lockdown (Team Starling, 2020; Royal Bank of Scotland, 2020).

This research explores new possibilities for financial third party access enabled by digital technologies in collaboration with people living with mental health conditions. By focusing on mental health, I address an area that has yet to be studied in detail from an HCI perspective; and that introduces singular challenges to money management in general, and financial third party access in particular. In what follows, I summarise existing research on the interplay between money, mental health, digital technologies and financial third party access.

2.6 Money and Mental Health

The connection between poor mental health and financial difficulties is well documented (e.g. Richardson et al., 2017; Ljungqvist et al., 2016; Elbogen et al., 2011; Jenkins et al., 2008). People living with poor mental health are more likely to find themselves in financial difficulty. This include relative poverty, i.e. disposable income well below median (Frankham et al., 2020); hardship, i.e. insufficient financial resources to cover basic needs (Frankham et al., 2020); and problem debt, i.e. “seriously behind on payments for a range of bills and credit obligations” (Evans, 2018, p. 487). Those in debt or experiencing financial hardship are significantly more likely to have a psychiatric disorder (Jenkins et al., 2009), and those in financial difficulty struggle to recover from their mental health conditions (Evans, 2018; Harper, 2018; Sylvestre et al., 2018; Topor et al., 2014). This association between money and mental health has been called the “double trouble”

(Topor et al., 2016), where financial difficulty and poor mental health feed into each other and trap people into a hard to break cycle (Forchuk et al., 2017).

Although the association is clear, the mechanisms of the relationship between money and mental health are complex, and causality is hard to establish (Ljungqvist et al., 2016; Frankham et al., 2020; Kiely et al., 2015; Davies et al., 2015; Forchuk et al., 2017). There are two main theories that seek to explain the relationship between money and mental health: social drift and social causation (Ljungqvist et al., 2016; Topor et al., 2016). The social drift hypothesis argues that financial hardship comes as a result of mental health conditions and their impact on our ability to cope. The social causation hypothesis argues it is the stresses attached to money problems that cause mental illness (Ljungqvist et al., 2016; Topor et al., 2016; Topor et al., 2014).

Poor mental health can negatively affect our capacity to work - and therefore our income - as well as our memory, planning, problem solving and communication abilities, all of which can make money management more difficult (Evans, 2018). This would seem to support the social drift hypothesis. However, studies have also found that recent experiences of hardship and deprivation negatively impact mental health (Kiely et al., 2015; Topor et al., 2014), and this would seem to support the social causation hypothesis. Topor et al. conclude that these two theories are not mutually exclusive (2016). The relationship between money and mental health has been described as “bidirectional” (Evans, 2018) and “nonlinear” (Forchuk et al., 2017), with money troubles and poor mental health feeding into each other and trapping individuals in a “vicious cycle” (Richardson et al., 2018) that becomes difficult to escape (Forchuk et al., 2017).

Existing research into the subject of money and mental health has been mostly undertaken within the fields of psychology, psychiatry and social work. This body of research describes circumstances and symptoms of mental health conditions that negatively affect the ability to manage money. These include delusions, cognitive and perceptual impairments, impulsive behaviour, susceptibility to abuse and victimisation, difficulties controlling spending, lack of positive support from close social circles and lack of community resources (Conrad et al., 2006; Richardson et al., 2017; Harper et al., 2018).

A few studies have focused on the daily money practices of people with mental illness (e.g. Caplan, 2014; Harper et al., 2015; Topor et al., 2016; Forchuk et al., 2017; Richardson et al., 2017; Harper et al., 2018; Harper, 2018). This literature has uncovered several financial “coping strategies” (Ejrnæs et al., 2020), i.e. problem-solving behaviours and adaptations that allowed participants to get by (Ejrnæs et al., 2020). These include i) taking advantage of subsidies, community programmes and other available assistance for housing, utilities, food and leisure (Caplan, 2014; Harper, 2015; Topor et al., 2016); ii) relying on social networks (Harper, 2015; Harper et al., 2018; Topor et al., 2016; Forchuck et al., 2017); iii) cost-efficient shopping (Caplan, 2014; Harper, 2015; Topor et al., 2016); iv) careful financial planning (Harper et al., 2018), which involved activities such as budgeting (Caplan, 2014; Harper, 2015), prioritising (Caplan, 2014), earmarking (Harper et al., 2018), spending self-discipline (Harper, 2015), and even doing without basic necessities when needed (Topor et al., 2016); v) debt management, which included both avoiding credit (Caplan, 2024) and borrowing when necessary (Harper et al., 2018; Topor et al., 2016); vi) seeking additional income (Harper 2015; Harper et al., 2018; Topor et al., 2016; Forchuck et al., 2017) by pursuing activities such as collecting cans, selling cigarettes, taking part in research studies (Harper, 2015; Topor et al., 2016) or finding part-time work (Forchuck et al., 2017); vii) attempting to save money (Caplan, 2014); and viii) nominating a legal guardian to manage their finances on their behalf (Topor et al., 2016).

This body of research has also revealed the main challenges experienced by those with poor mental health when engaging with financial services: cost and lack of friction. Given how poor mental health is often associated with lower financial income (Topor et al., 2014), this group is disproportionately affected by fees and charges (Harper et al., 2018; Topor et al., 2016), a circumstance that is often referred to as the “poverty premium” (Davies et al., 2016). Lack of friction in payments, transfers and obtaining credit is also particularly damaging for people with mental illness (Harper et al., 2018). This is because their symptoms may include impulsive shopping and over generosity (Richardson et al., 2017; Harper et al., 2018), as well as a need “to comfort themselves through spending” (Harper et al., 2018, p. 229).

When addressing the problems and challenges of money management associated with living with poor mental health, research has emphasised the importance of support from others, and has hinted at the potential of financial technologies. I look at each of them in turn.

2.6.1 Support from Others, Money and Mental Health

As mentioned in the previous section, people struggling with their mental health experience circumstances and symptoms related to their conditions that can negatively impact their financial practices. Their needs in terms of help with minding money are also different from those derived from disability and age-related conditions. The latter are often permanent or degenerative, coming with expectations of increased support over time. By contrast, impairment connected to poor mental health tends to be intermittent and fluctuating (Marson et al., 2006), with people requiring varying degrees of support at different times. Adults with mental illness often become disconnected from their families, which reduces their support options (Luchins et al., 2003). In addition, they may require help at short notice, since mental health conditions have a pattern of sudden outbreak that reduces the scope for planning (Murray, 2016). These particularities make those struggling with mental health a distinct population in terms of organising and providing support with money management.

Organisations in the UK advocating for people living with mental illness have insisted on the importance of developing flexible tools for safely delegating access to financial assets (Money and Mental Health Policy Institute, 2018; Bond et al., 2019). Supporting this perspective, research on money and mental health has highlighted the benefits derived from money management assistance for those struggling with their mental health (Marson et al., 2006). Studies looking at the effects of representative payeeship in the US report reductions in homelessness, hospitalisation, victimisation and substance abuse; as well as greater treatment adherence, improved quality of life and better money management (Elbogen et al., 2007). However, this research has also identified several problems with representative payeeship in its current form. For instance, it may exacerbate recipients' dependency on their payees; it may introduce conflict and violence between the parties to the relationship; it may be abused when informal

arrangements are in place (Elbogen et al., 2003), or used coercively (Elbogen et al., 2007), for example by using money as “leverage” to improve treatment adherence (Elbogen et al., 2005).

In order to address these problems, researchers have recommended closer collaboration between representative payees and recipients. Payees should promote the recipients’ self-determination by involving them as much as possible in financial decision-making (Elbogen et al., 2008; Serowik et al., 2013; Labrum, 2018). As opposed to imposed arrangements, which are often experienced as coercive, Serowik et al. advocate voluntary money management counselling that empowers recipients through autonomy, and where recipients make decisions themselves “with guidance from the money manager” (2013, p. 10). The authors emphasise the importance of trust between the parties, of transparently and clearly communicating the role and responsibilities of the money manager, and of providing “frequent, understandable financial feedback” that contributes to “financial mindfulness” (Serowik et al., 2013, p. 10). These recommendations portray a very different kind of financial support to that exemplified by the rather rigid, binary, and mostly mandatory (Luchins et al., 2003) current form of representative payeeship.

2.6.2 Financial Technologies, Mental Health and Financial Difficulty

The complex relationship between financial and mental well-being makes it particularly urgent to develop systems that can support those living with mental health conditions. Improving our understanding of how the cycle of mental illness and financial hardship unravels can help develop more effective interventions to support those struggling with their mental health (Kiely et al., 2015; Evans, 2018; Harper et al., 2018).

The existing literature on money and mental health from academic institutions and advocacy organisations shows confidence in the possibilities offered by technology to improve financial products and services for those living with mental illness. Policy reports and recommendations from advocacy organisations in the UK and the US include several supporting banking features, most of them enabled or mediated by financial technologies (Farr et al., 2019; Money and Mental Health Policy Institute,

2018; Bond et al., 2019). These include customisable SMS alerts based on criteria such as transaction amounts, transaction time of day, and transactions with certain merchants; the delivery of such alerts to a trusted third party; cooling off periods by which certain transactions would require confirmation from the account holder either 12 or 24 hours after payment; double confirmation of transactions by a nominated third party; online read-only account access for third parties; supplementary bank cards for carers with limited permissions; and even “algorithmic support” (Farr et al., 2019), where banking data would be used to predict financial behaviour and deny certain transactions, always with the customer’s permission and with an option for individuals to establish their own rejection parameters.

At the same time, these organisations have identified many of these same technologies as barriers to deliver improvements. Any supporting features enabled exclusively through technology would exclude those who are unwilling or unable to adopt and use them, between them people whose mental health conditions could make it harder to engage with them (Money and Mental Health Policy Institute, 2018). Organisations have also highlighted the paucity of change in banking technology infrastructure (AgeUK, 2019), and the lack of investment in systems that could provide the flexibility needed to implement the recommended supporting banking features (Bond et al., 2019).

Within the academic research, both Caplan (2014) and Harper et al. (2018) touch upon the subject of financial technologies in their studies of money practices and mental illness, highlighting their potential for good. Caplan describes how getting welfare benefits deposited into bank accounts rather than paid by cheque, and paying bills online, helped participants save time and money (2014). In their discussion, Harper et al. postulate that, in the US, “fintech” offers “promising, low-cost ways to help people add friction to their spending, to put money aside as savings, and even to borrow” (2018, p. 231). However, their research also exposes some of the problems associated with technology in financial services in the US context. For instance, although payday lending and their often abusive practices are illegal in some US states, they remain accessible through online channels. Online bill payments by debit card can move bank accounts into negative numbers even if account holders have not opted into overdraft services, which results in charges and penalties (Harper et al., 2018).

2.7 Conclusion

In spite of the contradictions and complexities that surround the introduction of technology in financial services, no study - save those resulting from this PhD research (Barros Pena et al., 2021a; Barros Pena et al., 2021b) - has looked specifically at the effect of these technologies in the cycle of mental illness and financial hardship, or the role they play in the coping strategies and challenges of those living with poor mental health. This is a subject that HCI is well positioned to address, but has yet to do so. A recent literature review of the last decade of HCI research on affective health (Sanches et al., 2019) does not mention any papers looking at financial matters. HCI literature on money has paid some attention to the particularities of managing on a low income (e.g. Vines et al., 2014; Snow et al., 2017; Vyas and Dillahunt, 2017; Snow et al., 2016), and to the financial lives of older adults (Vines et al., 2011; Vines et al., 2012b; Dunphy et al., 2014a), but not to those struggling with mental illness.

Although there is overlap between the financial strategies and circumstances of those living on a low income and those living with poor mental health (Topor et al., 2016; Harper et al., 2018), it has already been shown how the latter face additional challenges brought about by their conditions.

HCI can also contribute concepts and frameworks for the study of the financial practices of those struggling with their mental health. Reflecting on the effort required from their participants in order to make ends meet, and the health consequences of their constant preoccupation with money problems, Harper et al. conclude that “normative conceptions of ‘work’ fail to capture the labors of those who live with both mental illness and very low incomes” (2015, p. 1274). The notion of “moneywork” (Perry and Ferreira, 2018), adopted by the HCI literature on money as a means to conceptualise “the work of managing everyday financial tasks” (Lewis and Perry, 2019, p. 2), can provide a useful framework for the study of the added labour taking place within the cycle of mental illness and financial hardship.

Research on the association between mental health and financial difficulty has demonstrated the benefits of third party money management support for those living with mental illness. For this group, financial collaboration and help with

minding money can be critically important for their well-being. However, the utilitarian economic ideas about money that dominate the financial industry, the design of their services and their technologies, disregard this social dimension of money. HCI and CSCW studies have uncovered how people must resort to risky workarounds in order to overcome the barriers to collaboration erected by services and technologies that view money purely as a lubricant of exchange between rational, utility maximising individuals. This creates difficulties for those who need, or can benefit from, involving others in the management of their personal finances.

More research is needed about how ontological assumptions about the nature of money feed into the financial industry, their services and their technologies; and about the impact this has on people struggling with money management. My field research addresses this space, by looking into how financial third party access is operationalised inside the financial industry; and by exploring alternative financial technologies that are purposefully designed to encourage and enable financial collaboration.

Chapter 3

Methodology

3.1. Introduction

The previous chapter concluded by positioning my research as an inquiry into understanding the ontological assumptions about money that underpin the design of existing financial technologies. This chapter explains the epistemological and methodological approaches deployed for that aim.

The chapter anchors the research in phenomenological inquiry, provides an overview of my fieldwork, describes in detail the qualitative methods deployed and its related ethical considerations, as well as the approach to data analysis.

3.2. Research Epistemology

The need to uncover how ontological assumptions about the nature of money manifest in the design of existing financial technologies derives from my research questions. I set out to explore how we can design financial technologies that promote access and fairness in financial service provision, and that recognise the importance of social relations in money management for those in financial difficulty. I do so by engaging with people's lived experiences of financial collaboration at the intersection of mental illness and financial difficulty. Those lived experiences provide a critical lens for the examination of existing financial technologies, and support my investigations on the ontological assumptions about money implicit in their design.

The focus on lived experience situates my research within phenomenological inquiry (Dourish, 2004, p. 103). In particular, my research is concerned with the "meanings and significances given to an experience by those experiencing it"

(Willis, 2001, p. 6), what Willis has called “empathetic phenomenology” (Willis, 2001, p. 6). In my case, those meanings refer to experiences of financial difficulty from two different perspectives: financial service provision and people living with mental illness. This “layered picture” (Willis, 2001, p. 8) of a phenomenon that aims to capture it from diverse viewpoints is, according to Willis, one of the ways “phenomenological description can be attempted” (Willis, 2001, p. 8).

Of the different theoretical concepts developed within phenomenology, Heidegger’s distinction between “ready-to-hand” and “present-at-hand” appears particularly relevant for the study of money technologies in the context of financial difficulty. These represent two distinct ways of encountering and acting upon the world (Dourish, 2004). World objects exist as “equipment” when they are ready-to-hand, i.e. when we use them as tools to accomplish a task. On other occasions, however, objects themselves become the focus of our attention, and so they are present-at-hand (Dourish, 2004). Money and financial technologies would seem to be mostly experienced as ready-to-hand, as goal-directed equipment, for instance as we pay for a purchase. However, the context of financial difficulty draws our attention to money itself. In such circumstances, we become mindful of money as an object of our activity (Dourish, 2004), changing our orientation towards it into present-at-hand. It is this mindfulness what makes financial difficulty such a productive domain for the study of money and its attendant technologies.

My research shares the principles and values underpinning “phenomenology-inspired design” (Hummels and Lévy, 2013, p. 47), which approaches people “as unique skillful beings in a complex social world” (Stienstra, 2015, p. 21), and seeks alignment “with behavior and action instead of cognition and language” (Hummels and Lévy, 2013, p. 45). It also aims to demonstrate and emphasise the value of my participants’ experiences and interpretations, whose point of view as people who live under the “double trouble” (Topor et al., 2016) of financial difficulty and mental illness is too frequently dismissed and overlooked (Willis, 2001).

Research of this nature is often pursued, as this has been, through qualitative methods and thematic analysis (Willis, 2001). Qualitative research is primarily

“concerned with the daily actions of people” (Williams and May, 2003, p. 8), their individual experiences, and the meanings they attach to them (Williams and May, 2003). Thematic analysis, in its reflexive approach, “emphasises the importance of the researcher’s subjectivity as analytic resource, and their reflexive engagement with theory, data and interpretation.” (Braun and Clarke, 2020, p. 3). In the remainder of this chapter, I describe the qualitative methods I have used, how they were applied during fieldwork, and how I made sense of the data through reflexive thematic analysis.

3.2.1 Overview of Methods

My research fieldwork involved two main activities. The first was a set of engagements with employees inside a UK commercial bank, where I interacted with two different teams: a team of experts on customer vulnerability, and a team of experts on customer experience. The second fieldwork activity consisted in the evaluation of a new mobile application called Toucan, in collaboration with people living with mental illness. In these fieldwork engagements, I deployed mostly qualitative methods. Although quantitative usage data of the mobile application was collected as part of the fieldwork, it was used to complement and assist the analysis of the qualitative data gathered. The qualitative methods included participant observation, a diary study, and two types of semi-structured interviews: “phenomenological” and “ethnographic” (Roulston and Choi, 2018). Although based on interview guides, all interviews were open ended and led by participants in terms of pace and ordering of topics (Bernard, 2011; Roulston and Choi, 2018). All interview guides are included in the appendices (A.4, B.5, B.6, C.12, C.13 and C.14).

Table 1 summarises the different fieldwork engagements and the methods employed in them. I explain these methods in more detail in the following stage-specific sections.

Table 1. Summary of fieldwork engagements and methods

	Participant observation	Phenomenological semi-structured interviews	Ethnographic semi-structured interviews	Diary study
Customer vulnerability experts		✓		
Customer experience experts	✓		✓	
Evaluation of Toucan mobile app		✓		✓

3.3 Fieldwork Inside a Commercial Bank

My fieldwork inside the bank is covered in Chapter 4 of this thesis. As mentioned above, it involved engaging with two different teams. The first activity took place in August 2018, and consisted of 5 semi-structured interviews with members of a team of experts on customer vulnerability. This team provided advice to employees throughout the bank on how to handle situations that involved vulnerable customers.

The goal of the interviews was to discuss how vulnerability was conceptualised and addressed inside the organisation, what systems and processes were in place for that purpose, as well as the personal experiences and understandings of those responsible for implementing vulnerability policies and practices. These interviews were, therefore, phenomenological, in the sense that they focused on the lived experience of participants (Roulston and Choi, 2018). The purpose was not to get answers to specific questions or test a hypothesis, but to understand the “subjective understanding” (Seidman, 2006, p. 10) and meaning people make from their

experiences (Seidman, 2006). The interview guide I used is included in Appendix A (A.4). The interviews lasted between 46 and 67 minutes, had an average duration of 58 minutes, and yielded 4 hours and 53 minutes of audio recordings.

The second activity took place from January to July 2019, and it involved participant observation and ethnographic interviews within a team of customer experience (CX) experts. The choice of participant observation derived from the opportunity to undertake an industry internship as part of my PhD study programme. After discussions with the academic supervisory team, and the management of the CX team to which I was allocated during the internship, it was agreed I should combine my stay with fieldwork deploying ethnographic methods. The “target-question” (Buscatto, 2018, p. 333) of my ethnographic inquiry was as follows: How do CX bank employees understand the practices and ideas that accompany the production of financial technologies, such as agile development, research with service users, and widespread customer data collection?

Participation is a fundamental practice in ethnographic research (Lazar et al., 2017). Accordingly, during my time with the CX team, I took the role of “participant observer” (Bernard, 2011, p. 258), i.e. I was an outsider who took part in some aspects of the life of the team while gathering data in the process (Bernard, 2011). Upon my arrival, I discussed my expertise with the team, and invited them to consider ways in which I could contribute to their work and make myself “helpful” (Lazar et al., 2017, p. 241). The team requested from me advice and training on undertaking qualitative research. I consequently helped them plan, execute and analyse several research activities; I advised them on field research equipment and software to acquire; and delivered 6 training sessions on subjects chosen by team members, which included, between others, ethnographic research in commercial settings, interviewing techniques, and qualitative data analysis.

In addition to collecting field notes and photographs, during the last month of my stay I organised 5 semi-structured interviews with team members. These interviews with customer experience experts were ethnographic, since they built upon 6 months of prior participant observation, and were thus “part of a longer, ongoing

relationship” (Lazar et al., 2017, p. 244). The purpose of these interviews was exploring the meanings the customer experience team members ascribed to digital technologies and the practices that accompany them (Roulston and Choi, 2018). During these interviews, we discussed the history of the team, the individual trajectories of the team members, their internal design framework, the tools they used to manage their work, their understanding of user-centred design, and the role of digital technologies in customer experience and within the bank in general. All interview guides shared a common core, but also included additional questions tailored to my particular interactions with each participant during the 6 months of participant observation. Sample interview guides are included in Appendix B (B.5 and B.6). The interviews lasted between 47 and 84 minutes, had an average duration of 58 minutes, and yielded 4 hours and 52 minutes of audio recordings.

3.4 Evaluating the Toucan Mobile Application

My second fieldwork engagement involved the evaluation of a new mobile application called Toucan. I report on this fieldwork in Chapters 5, 6 and 7.

Toucan is a native mobile app for Android and iOS that allows people to collaborate on money management with someone they know and trust. Toucan was developed by a financial technology startup based in London, and uses the Open Banking APIs available in the UK to connect to a user’s bank account. Once the bank account connection has been established, users can configure a set of SMS alerts that will be triggered by certain bank account activity. Users can choose to send those alerts only to themselves, or to deliver them also to a trusted third party of their choice. In the mobile application, this trusted third party is called an “ally”.

The application was conceived as a tool for those living with mental illness and experiencing financial difficulty. The idea of shareable SMS alerts was grounded on prior research and recommendations from the Money and Mental Health Policy Institute (Bond et al., 2019), a charity that advocates for the financial rights of those living with mental illness. Their research had unveiled the potential of lightweight forms of financial third party access that enable oversight rather than third party

control over assets. A detailed explanation of the Toucan application and its features is provided in Chapter 6.

Prior to my internship inside the bank, I was invited to attend one of their hackathons. Bailey Kursar, the entrepreneur who developed Toucan, was one of the winners. During my internship, I had the opportunity to meet Bailey several times. She kept me up-to-date on the progress she and her team were making with the development of Toucan, and when they had completed the scope of their minimum viable product, Bailey shared with me her plans for a controlled deployment of the application to better understand its use and viability. There were significant connections between Bailey's interests and my own research questions, particularly in designing for the importance of social relations in money management for those in financial difficulty. Therefore, we agreed to run Toucan's controlled deployment as a joint effort. A collaboration with Bailey was in the spirit of my research grant, which explicitly encouraged partnerships between academia and industry. It also provided me with a unique opportunity to explore potential new forms of financial third party access beyond interviews and concept design workshops. Together with Bailey, I evaluated Toucan between July and October 2019 through a diary study combined with opening and closing semi-structured interviews.

We chose a diary study for several reasons. This method has proved fruitful in both HCI (Lazar et al., 2017) and in research about personal finance by other disciplines (Taylor and Lynch, 2020). From a HCI perspective, the method allowed us to study a new digital system in a real-world setting (Lazar et al., 2017). The Toucan mobile app was intimately integrated with non-digital aspects of our participants' lives, in particular with their personal finances and relationships with close others. Diary studies have been found to be useful for examining this kind of "situations that involve both computer usage and noncomputer usage" (Lazar et al., 2017, p. 141). Diary studies are also considered a useful method for understanding personal finance (Taylor and Lynch, 2020). Collins et al. have pointed out that "finance is the relationship between time and money" (2009, p. 187). Therefore, for finance to be fully understood, "time and money must be observed together" (Collins et al., 2009,

p. 188). Diary studies enable this observation of money over time. In addition, doing research about personal finance is fraught with challenges derived from the sensitive and private nature of the subject. As Collins et al. put it, “If a stranger were to walk into your house and start asking nosy questions about your money, would you be honest? Unlikely” (2009, p. 197). Methods for the study of personal finance must help develop and maintain trust between researchers and participants. Diary studies, with their long-term spans and regular touchpoints, are particularly suitable for trust-building (Collins et al., 2009). Finally, it has been observed that diary studies may help participants develop awareness about their own financial behaviours (Taylor and Lynch, 2020), delivering benefits to participants, and not just to the researchers.

The semi-structured interviews that opened and closed the diary study were phenomenological, since they were concerned with our participants’ lived experiences of mental illness, financial difficulty, and financial technology use. In what follows, I provide details on how the diary study and interviews were carried out.

3.4.1 Participant Recruitment

We deployed the Toucan mobile application for 90 days from July to October 2019 with 14 people who self-identified as living with a mental health condition. The study also engaged with 8 of their chosen collaborators or “allies”, for a total of 22 participants.

Participant recruitment was carried out in partnership with the Money and Mental Health Policy Institute, a charity based in the UK. 14 people were recruited from a sample of 5,000 research volunteers administered by the charity. As part of a survey in April 2019, the Money and Mental Health Policy Institute identified 226 people from their sample who expressed interest in testing the Toucan mobile application. These 226 volunteers were contacted again in May 2019 to share more details about the study and to reconfirm their

willingness to trial the application between July and October 2019. 25 people consented to be contacted by the Toucan researchers, 14 of which enrolled in the study.

Participants were not required to disclose any details about their age, mental health condition or employment status as part of the research protocol, but some chose to do so during their interactions with the researchers. 8 participants shared their age, which ranged from 27 to 60 years old; and 12 mentioned a mental health condition, diagnosis or symptom. 4 participants reported being diagnosed with borderline personality disorder, 3 with bipolar disorder, 2 with post-traumatic stress disorder, 1 with schizophrenia and 1 with agoraphobia. In addition, participants disclosed suffering from depression (6), anxiety (4), panic attacks (2), paranoia (2) and psychosis (1). Conditions and symptoms often co-existed: 7 participants reported more than one of them, and the same number acknowledged some kind of physical ailment. These included osteoarthritis, tinnitus, diabetes, fibromyalgia, chronic fatigue syndrome, irritable bowel syndrome and spinal injury. 2 participants also had a history of addiction to gambling (1) and alcohol (1).

All 14 participants shared their employment status: 5 participants were employed full time; 8 were off work and received social welfare or income protection benefits; and 1 worked part time and received welfare benefits to complement her income. 11 participants had personal experience of debt, either in the past or during the time of the study; and 5 had liaised with debt relief and support services. Debt seemed to derive mostly from credit card and bank account overdraft use.

As part of the process of setting up the Toucan application, participants encountered the possibility of configuring an “ally” with whom to share all or some of the Toucan alerts. All participants identified a suitable ally, even though only 13 of them added the ally to the application (see section 7.2 in Chapter 7 for details). 7 participants chose their partner or spouse, and 5 picked a family member, with only 2 participants selecting someone outside their immediate family circle.

Table 2 provides a summary of participants' conditions, employment situation, debt experience and relationship with chosen ally.

Table 2. Toucan study participants' table

P#	Gender	Age	Mental health	Physical health	Income	Debt history	Debt support	Ally
P1	F	27	Borderline personality disorder, Post-traumatic stress disorder	Endometriosis	Benefits	Yes (unspecified)	-	Partner
P2	F	-	Post-traumatic stress disorder, Depression	Osteoarthritis, Tinnitus	Benefits	Yes (overdraft)	Yes	Daughter
P3	F	48	Depression, Anxiety	-	Employed F/T	Yes (credit cards)	-	Husband
P4	F	42	Depression, Gambling addiction	Chronic pain derived from car accident	Benefits	Yes (overdraft, credit cards, bank loans)	-	Mother
P5	M	46	Schizophrenia	-	Employed F/T	Yes (credit cards)	-	Partner
P6	F	44	Depression, Anxiety	Diabetes, Recovering from surgery	Benefits	Yes (unspecified)	Yes	Partner
P7	M	60	Bipolar disorder	-	Employed F/T	Yes (unspecified)	Yes	Sister
P8	F	41	Borderline personality disorder, Depression, Anxiety, Panic attacks, Paranoia, Psychosis	Fibromyalgia, Chronic fatigue syndrome, Irritable Bowel Syndrome	Benefits	Yes (overdraft)	Yes	Daughter
P9	F	-	-	Unspecified disabling physical condition	Employed P/T + Benefits	-	-	Husband
P10	F	46	Borderline personality disorder, Depression, Agoraphobia	Spinal injury	Benefits	Yes (overdraft)	Yes	Sister
P11	F	-	Bipolar disorder	-	Employed F/T	-	-	Partner
P12	F	-	-	-	Benefits	Yes (overdraft)	-	Support care worker
P13	M	-	Borderline personality disorder, Anxiety, Panic attacks, Paranoia, Alcohol addiction	-	Benefits	-	-	Friend
P14	F	-	Bipolar disorder	-	Employed F/T	Yes (overdraft)	-	Husband

3.4.2 Study Design and Data Collection

During the 90 days of the deployment, participants installed and used the Toucan application on their personal smartphones, while engaging in a diary study through mobile messaging and paper diaries. The duration of the deployment was chosen to match the 90-day customer consent validity established by the UK Open Banking Standard (Open Banking Limited, 2019, p. 60), therefore avoiding the need for participants to re-consent to the Open Banking connection between Toucan and their bank accounts during the study period. As compensation for taking part, participants were offered a £50 Amazon voucher upon completion of the 90-day diary study, and a £50 Amazon voucher upon completion of a closing interview. A further £50 Amazon voucher was offered to Toucan allies willing to volunteer for a closing interview.

The study started with a semi-structured interview with each of the 14 participants who would be using Toucan. During that first interview, participants installed and configured the mobile application. Researchers also enquired about information and communication technology use, financial and banking habits, the alert options offered by Toucan and the chosen ally. The interview guide used for the opening interviews is included in Appendix C (C.12). 12 of the 14 interviews took place remotely via telephone or video calls, with one opening interview conducted face to face and another one via email upon the participant's request.

The 90-day diary study commenced immediately after the opening interview. Participants started the diary study between 8th and 25th July 2019, and completed it between 6th and 23rd October 2019. During the 90 days, participants were sent 2 questions per week, on Thursdays and Sundays, through mobile messaging. The Thursday question asked participants whether they had discussed any money-related subjects with their ally during the past week. The Sunday question asked participants to rate from 1 to 5 how positive they felt about money, with 1 being "not at all positive" and 5

being “very positive”. Although participants were encouraged to choose an end-to-end encrypted mobile messaging application (WhatsApp) to receive and reply to the diary study questions, three of them preferred to communicate via SMS. One participant requested to be excluded from the mobile messaging altogether and was provided instead with additional writing material in the form of blank postcards, 3 of which were written and returned to the researchers. 2 participants stopped responding to the mobile messages during the diary study period, with 11 of them replying regularly until the completion of the 90 days. A total of 283 mobile communications relevant to the study were received from 13 participants: 111 answers to the Thursday question about money conversations; 141 money positivity ratings; and 31 additional comments.

Participants also received a custom-printed paper diary designed by the researchers, which is included in Appendix C (C.8). The diary invited participants to reflect on their financial lives and the role the newly-installed Toucan application played in them. It included prompts about mood, personal finances, the role of the ally and the Toucan application. The diary also featured a non-directed space where participants could write about any subject they wanted to bring up, and included pouches for storing physical financial artifacts such as receipts, statements and bills. 7 participants used the paper diaries to document their experiences during the trial and posted them back to the researchers. One participant also kept a personal diary during the study and handed it over to the researchers as additional material.

The deployment was concluded with a semi-structured interview. This final interview discussed the study period in terms of well-being, mental health and personal finances, the design of the Toucan application, the experience of receiving alerts, the experience of sharing alerts with third parties, and the impact of Toucan use on personal financial habits. The interview guide used for the closing interviews is included in Appendix C (C.13 and C.14). All closing interviews were carried out remotely via telephone or video call, except for one which was done via email upon the participant’s request. 13 of

the 14 participants who installed the Toucan mobile application agreed to take part in the closing interview, as did 8 of their allies. 4 allies decided to join the closing interview of the participant they had supported, and 4 opted for being interviewed separately. This brings the overall number of interviews for this study to 31 - 14 opening interviews and 17 closing interviews - for a total of 22 participants. Interviews lasted between 27 and 105 minutes, with an average duration of 69 minutes for the opening interviews, and 50 minutes for the closing interviews. Interviews resulted in a total of over 28 hours of audio recorded material.

In addition, we collected usage data from the Toucan application database about alerts and allies. Specifically, the number, type, time stamp and recipient of triggered alerts; changes to the ally configuration; and a partial history of changes to the alerts configuration. The latter required a modification to the database schema that was implemented after the starting date of the study. This prevented us from collecting the full change history. No personal financial data from participants was accessed or used for the purposes of the study.

3.5. Ethical Considerations

All fieldwork outlined in the previous section received ethics approval from Northumbria University. In addition, research inside a commercial organisation, and in collaboration with people living with mental illness, raised several ethical issues that I had to address.

Inside the bank, I was introduced as a researcher by the team members' line managers. This immediately generated tensions in terms of consent, since participants may have felt obliged to take part in the research. In both cases, when introducing the research activity and asking for consent, I strived to communicate to my participants that they were under no obligation to take part in the activity, and could withdraw at any time without fear of implications. To ensure informed consent for participant observation, I distributed information about the research activity to all

team members via email, explaining the purpose of the research and what the method entailed. I invited them to object to my observations, explaining that it was possible to minimise my interactions with anybody who would like to be excluded from the study. I also encouraged them to approach me to discuss any questions they may have. Nobody objected to my participant observation activity, and one person contacted me to clarify the research's aims.

A second concern in relation to fieldwork inside the bank was to preserve participants' anonymity within the organisation, and ensure no individual could be identified through the research writing by colleagues or managers (Buscatto, 2018). To do so, Chapter 4, which reports on the findings from this fieldwork, provides few details about individual participants, mixes elements from different people (Buscatto, 2018) and does not use participant IDs as a result. In addition, it references no locations (Lazar et al., 2017), and makes sparse use of verbatim quotes. One of the team's names has also been modified to avoid recognition.

In relation to the Toucan diary study and the collaboration with people living with mental illness, the fieldwork benefited from the expertise of a charity partner. The Money and Mental Health Policy Institute is an organisation based in the UK that advocates for the financial needs and rights of people living with mental health conditions. The charity not only facilitated participant recruitment, but they also provided advice when assessing the ethical risks associated with the research. Upon their recommendation, the researchers developed a safeguarding policy and a set of attached procedures in order to identify and address any incidents arising during our interactions with the participants. This safeguarding policy is included in Appendix C (C.9).

Collaborating with people living with mental illness also required some flexibility in terms of the research execution. Face to face interviews were not possible due to budget and time constraints, so all research engagements with participants had to take place remotely. Since communicating remotely through certain channels can trigger anxiety, we asked our participants how they would like to engage with us during the interviews. Some were happy to use video calling, and spoke to us via

Facetime, Skype, Google Meet and WhatsApp. Others explicitly requested to engage via telephone calls. Finally, one participant wanted to be interviewed by email. In addition, one participant found that digital devices impinged on her ability to concentrate, and asked to be excluded from the mobile messages. We accommodated all our participants' preferences, and adapted the research activity as required.

3.6. Data Analysis

The data collected through all stages of fieldwork was processed as follows: all interviews and fieldnotes were audio recorded and transcribed verbatim; the mobile messages collected during the diary study were exported into text files; and the paper diaries were scanned and transcribed. Usage data from the Toucan application was exported into CSV files. This usage data was employed to support qualitative analysis for the second study of the thesis, through the production of visual histories for some of the Toucan study participants. The money positivity ratings collected through the mobile messages were then incorporated into these visual histories (see Appendix C - C.17 and C.18 - for examples of these visual histories).

All textual data was analysed through reflexive thematic analysis (Braun and Clarke, 2020). As with all approaches to thematic analysis (TA), the goal was to "identify and make sense of patterns of meaning" (Braun and Clarke, 2020, p. 4) across each dataset. However, reflexive TA differs from other approaches in its understanding of the role of the researcher during the process of analysis, its conceptualisation of themes, and its underlying epistemological assumptions. In reflexive TA, the researcher's subjectivity is regarded as an "analytic resource" (Braun and Clarke, 2020, p. 3). Themes, understood as patterns of meaning underpinned by a central idea, are actively developed by the researchers through "reflexive engagement with theory, data and interpretation" (Braun and Clarke, 2020, p. 3). Such themes must always be the outcome of the coding process, an output rather than an input (Braun and Clarke, 2020). Braun and Clarke have positioned reflexive TA as embracing interpretative research paradigms, and as

compatible with both phenomenological and critical qualitative research (Braun and Clarke, 2020). As such, this analytic method suited my research focus on lived experience.

I followed an inductive approach during coding, using NVivo 12 as a supporting tool. The coding was done mostly individually, albeit complemented with frequent discussions with academic supervisors and research partners. There were two coding exercises during analysis: one for the data gathered through the Toucan study, and a second one for all the data gathered during my fieldwork inside the bank. Interviews with the vulnerable customers and the customer experience teams, as well as field notes from participant observation with the latter, were coded together in order to explore connections between the experiences and perspectives of both teams.

Coding was most often done by sentence, but this was not a steadfast rule, with a single code sometimes spanning several sentences, and sentence fragments assigned additional codes. Allocating more than one code to the same text was also common. For instance, in the following excerpt from an interview:

a lot of paperwork. I've been doing phone calls, paperwork having to gather evidence of my mental health and speak to different charities regarding my finances, but because my ally has been part of Toucan app, I have been getting a lot of support from her as well which has been really good actually.

The whole excerpt was assigned the code "Toucan impact on money management"; while the fragment "and speak to different charities regarding my finances" was also given the code "debt advice and support".

Theme development was a collaborative process, with themes debated, iterated and refined with partners and supervisors. Visual materials such as photographs taken inside the bank and financial artifacts from Toucan participants, as well as the usage data from the mobile app, fed into theme development.

Themes were created outside Nvivo 12, which I did not find conducive to the direct manipulation and iteration required by the theme development process. I relied instead on a kanban board application, where each code was imported as a draggable item, and columns represented candidate themes. This application allowed me to easily drag and drop codes into themes, duplicate codes that may fit inside more than one theme, and assess theme coherence. Since the kanban board application was web-based and could be accessed by other authenticated users upon authorisation, I was able to share the theme development process with my collaborators remotely. Themes were developed from the bottom up, working from the codes. In the case of the Toucan study, themes were then further grouped into higher-level themes.

My use of reflexive TA means that these themes are the result of the “particular social, cultural, historical, disciplinary, political and ideological positionings” (Braun and Clarke, 2020, p. 12) of all the researchers involved in the process. The list of themes, and their mapping into thesis chapters, can be seen in figure 1. The exported Nvivo 12 codebooks, indicating the grouping into themes, are included in Appendix B (B.8) and Appendix C (C.16).

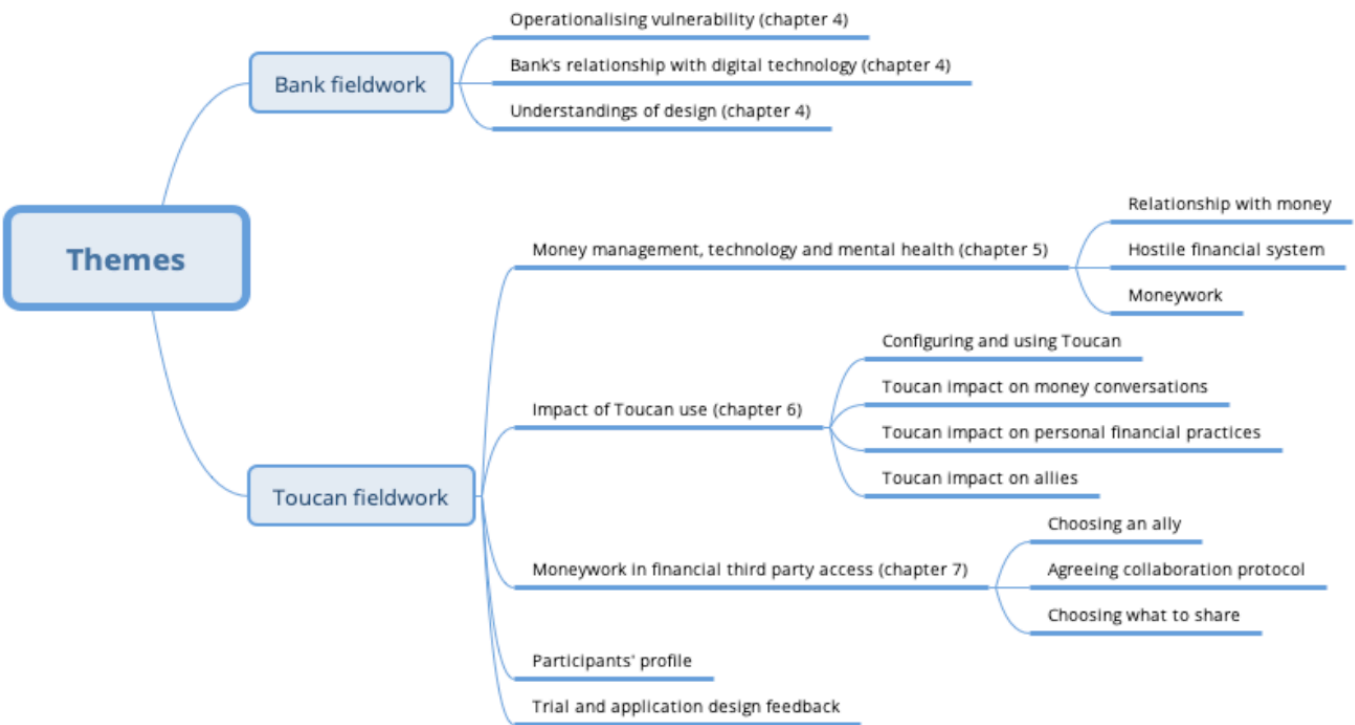


Figure 1 - Summary of fieldwork themes, with their corresponding breakdown by thesis chapter.

3.7. Conclusion

In this chapter, I have explained the phenomenological commitments of my research, and its focus on lived experiences of financial difficulty and collaboration from diverse perspectives: that of the financial industry and of those living with mental illness. I have then outlined my fieldwork and methods, which were qualitative in nature. To close, I have briefly described the reflexive TA approach I employed for data interpretation and sensemaking.

The next chapters of this thesis turn to fieldwork and the findings developed from it. Chapter 4 discusses the interviews and ethnographic study within a commercial bank in the UK. The chapter focuses on how the bank understood and operationalised vulnerability, financial difficulty and third party access, and how these intersected with financial technologies.

Chapters 5, 6 and 7 are about the fieldwork carried out in collaboration with participants living with mental illness. Chapter 5 focuses on their financial coping strategies, in particular how technologies support or hinder them. Chapter 6 describes the experience and effects of using Toucan, a technology purposely designed to encourage and enable financial collaboration amongst those living with mental illness. Chapter 7 dissects the moneywork required to make financial third party access work.

Chapter 4

The “Vulnerability Framework” in the Financial Industry

4.1 Introduction

This chapter discusses what Davies et al. (2015) have called the “vulnerability framework”: the way regulators and industry are approaching situations of difficulty, hardship and relative poverty in the context of financial services. This chapter describes how this “vulnerability framework” is enacted inside a UK retail bank: the policies, teams, cases and actions that make up the framework in practice, and how they intersect with the business of banking, technology and financial third party access.

The chapter is based on ethnographic field notes gathered during a 6-month internship inside the bank, as well as 10 interviews with bank personnel, 5 of whom specialised in customer experience, and 5 on supporting vulnerable customers. Details on how the fieldwork was carried out, how the data was collected and how it was analysed were provided in Chapter 3, section 3.3.

The chapter traces the beginnings of the vulnerability framework inside the bank to the report on “Consumer Vulnerability” published by the UK Financial Conduct Authority (FCA) in 2015 (Coppack et al., 2015). It summarises the main issues raised by that report, and how the bank responded to them.

It proceeds by introducing the two bank teams involved in the fieldwork: the customer experience team and the vulnerability specialists team. The chapter pays particular attention to the latter, providing a snapshot of the work carried out by vulnerability experts, their interactions with colleagues and people in difficulty, the cases they handle, and the actions they take.

The chapter then examines how the vulnerability framework relates to three factors in financial service provision: i) the lack of flexibility in internal banking procedures and service design; ii) the need to facilitate financial third party access; and iii) the assertive move towards technology-mediated service provision.

4.2 The Vulnerability Framework

The last decade saw a flurry of activity within the UK financial sector in relation to what was termed “vulnerability”. Between 2014 and 2021, several inquiries and reports on financial inclusion and vulnerable consumers in the context of financial service provision were published by parliamentary committees (House of Lords Select Committee on Financial Exclusion, 2017; House of Commons Treasury Committee, 2019); the government regulator, known as the Financial Conduct Authority (FCA) (Financial Conduct Authority, 2014; Coppack et al., 2015; Financial Conduct Authority, 2020); and industry organisations such as the Lending Standards Board (LSB) (2014a; 2014b; 2016; 2018) and the British Bankers’ Association (BBA) (2016). A “vulnerability taskforce” constituted by “key industry stakeholders, charities and consumer groups” (Lending Standards Board, 2018) was established to develop a set of principles for the treatment of those deemed vulnerable, to which financial service providers could subscribe on a voluntary basis (British Bankers’ Association, 2016). During 2019 and 2020, the FCA started to develop detailed guidance for financial firms on how “to treat vulnerable consumers fairly” (Financial Conduct Authority, n.d.), with the final version published in February 2021 (Financial Conduct Authority, 2021).

The origins of this activity, and the introduction of vulnerability into the financial industry agenda, can be traced to the report published in February 2015 by the FCA, which was titled “Occasional Paper No. 8 - Consumer Vulnerability” (Coppack et al., 2015). This report, and its attached research (Rowe et al., 2014), provided a definition of vulnerability, identified problem areas in the provision of financial services in relation to vulnerable customers, and issued a set of recommendations for firms.

The FCA defined a vulnerable customer as “someone who, due to their personal circumstances, is especially susceptible to detriment, particularly when a firm is not acting with appropriate levels of care” (Coppack et al., 2015, p. 7). It insisted that vulnerability “can come in a range of guises” (Coppack et al., 2015, p. 8), that it can be “temporary, sporadic or permanent” (Coppack et al., 2015, p. 8), and that it is not an extraordinary circumstance: most customers will find themselves vulnerable at some point during their lifespan (Rowe et al., 2014). The FCA highlighted the fact that vulnerability “is not just to do with the situation of the consumer” (Coppack et al., 2015, p. 8), and that it can be both caused and exacerbated by the behaviour of financial service providers and markets (Coppack et al., 2015).

To accommodate the highly varied and fluid nature of vulnerability, and to help firms identify it, the FCA recommended using a “risk factor approach” (Coppack et al., 2015, p. 8). Risk factors have been defined as “circumstances that might contribute towards a consumer’s vulnerability” (BSI, 2010, p. 4). Risk factors have been classified into 4 groups: i) health (e.g. severe or long-term illness, poor mental health); ii) life events (e.g. bereavement, income shock); iii) resilience (e.g. low or erratic income, over indebtedness); and iv) capability (e.g. learning impairments, poor literacy or numeracy skills) (Financial Conduct Authority, 2019).

The FCA report listed a set of problems with financial service provision and the behaviour of firms that were likely to cause detriment to vulnerable customers. These included the absence of overarching policies and strategies on vulnerability; insufficient staff training on how to identify and address vulnerable customers; the streamlining of consumers in product design, financial processes and systems, which resulted in the inability to accommodate the non-standard needs of those in difficulty; unsuitable processes and systems to handle disclosure of vulnerability risk factors; inconsistent approaches in key areas such as temporary forbearance and third party access; inappropriate sales practices that sought to exploit situations of potential vulnerability; and overzealous interpretation and implementation of regulations such as those related to data protection and product affordability (Coppack et al., 2015).

As an overarching theme cutting across all these issues, the FCA identified a chronic lack of flexibility. Financial providers had become so rigid and strict in the implementation of their own internal policies and processes that they were unable to adequately address any situation out of the ordinary. Even common and natural occurrences such as bereavement or illness diagnosis had turned into insurmountable problems for customers, who found barriers when disclosing the situation, when seeking alternative arrangements, or when trying to support loved ones. What the FCA research called “the stringency of working practices”, and the subsequent absence of all “sophistication in approach”, made it almost impossible for firms to meet “the dynamism of ‘real life’” (Rowe et al., 2014, p. 26).

In order to address these problems and ensure the fair treatment of vulnerable customers, the FCA provided a set of recommended actions. These included the development of a high-level policy and strategy on vulnerability; staff training; and the creation of specialist teams, pockets of expertise to whom vulnerable customers could be referred, and where staff had the training and authority to make flexible decisions in relation to services and procedures (Coppack et al., 2015).

With the involvement of the regulator, the word “vulnerability” entered the vocabulary of British banks, who started to implement various initiatives based on the above FCA recommendations. The bank where I undertook my field research was no exception. A small policy team was put in place, tasked with establishing the recommended high-level policies and strategies. This team developed extensive training on vulnerability that was made available to all bank staff. In addition, they set up a pocket of vulnerability expertise to support service provision for vulnerable customers. This vulnerability “specialist centre” is the focus of much of this chapter.

The experiences and insights collected from this team are complemented with findings gathered through my interactions with a second team of experts: in this case, on customer experience (CX). In what follows, I introduce both teams, their responsibilities, how they were organised and the way they worked.

4.3 The Customer Experience (CX) team

As part of my PhD, I spent 6 months working closely with a customer experience team (not the real team name) inside the bank. Although customer experience (CX) seems to have different meanings across organisations (Thompson, 2018), these experts matched what Thompson has called “CX Hopefuls” (2018, p. 76), i.e. professionals responsible for defining CX metrics, evangelising CX across the organisation, driving organisational change, mapping customer journeys, connecting CX activities to business outcomes, and collaborating with other company areas. Most of the experts’ experience prior to joining the CX team was in digital product delivery and project management, although at least one of them had formal design training and expertise. In practice, their role consisted in introducing processes and activities loosely inspired by design thinking into projects and initiatives from other areas of the bank.

The CX team had been created as part of an overall turn inside the bank towards what was called “customer centricity”: the need to develop products and services that matched “what customers would really want”. The pressure to become more customer centred arose from the expectations and standards set by the big digital platforms such as Facebook and Apple; and from the threat posed by the new smartphone-only, “challenger” banks. Their success in the UK was portrayed by participants as “a big wake up call for” the bank. The notion of customer centricity was thus closely interwoven with ideas about innovation, technology, customer data collection, and data-driven decision making.

As part of their advocacy of customer centricity, the CX experts placed particular emphasis on research with users of banking services (both customers and non-customers), particularly of the qualitative kind. The main goal of these research activities was validating the relevance and format of new product and service ideas with prospective customers before building them and launching them to market. They argued that this type of validation could increase the efficiency of resource allocation practices inside the bank. They explained how, traditionally, the bank had invested in new projects on the basis of personal initiatives and hunches, rather than detailed knowledge of markets, rigorous business plans and careful assessment of customer needs. As a result, there were many instances of money

wasted in very expensive but unsuccessful products and services. By validating ideas with users before committing to fund them, the bank, it is argued, could get more bang from its buck. They could quickly identify and stop initiatives unlikely to succeed, saving money to invest on more promising ones. This was design research understood as an “operational efficiency”, i.e. a money-saving intervention that aligned well with the bank’s commercial responsibilities towards operating profitably.

4.4 The Vulnerability Specialists Team

While the CX team was closely connected to the bank’s strategic turn towards customer centricity, the vulnerability specialists team was very much a tactical customer service intervention. In line with the FCA recommendations, which included the referral of customers to “specialist teams” (Coppack et al., 2015, p. 54), the policy group in charge of vulnerability created a pocket of expertise inside the bank. These experts supported other bank staff by providing guidance on how to handle situations of vulnerability. Their main focus was on helping colleagues on the “front line”, i.e. bank personnel in direct contact with customers, such as those working in bank branches. Occasionally, they would also take requests from the department dealing with suspicious financial activity, known as “SARs” for the suspicious activity reports they filed.

Internal processes and tools were put in place for bank staff to escalate specific cases to the vulnerability experts. These described their role as fundamentally advisory: they could issue recommendations on the best course of action in vulnerability situations, and could make referrals to external organisations - such as the police and social support public services - when necessary. However, the ultimate decision on how to act was made by branches or by the pertinent authorities inside other departments of the bank.

The approach to setting up the vulnerability team was slow and gradual. It started with a small team of experts as a pilot initiative, covering only bank branches in a specific geographic region. By the time I met the experts, the group had been in place for about 18 months, and was coming out of the initial pilot phase. Their remit was expanding to cover branches across the whole country, and there were plans

to extend their support to those working on the telephone banking service. As a result, the team was growing, with new members being recruited and incorporated into the group of vulnerability experts.

I interviewed 5 of the original experts who started on the role at the beginning of the pilot phase. They had been recruited from a team called “financial support”, which dealt with “everyday financial strain”. Staff in this team would take calls from customers struggling to meet their financial commitments, or who had accumulated fees and charges due to overdraft use and late debt repayments. During those calls, staff would discuss with customers how to regain control over their financial situation, and how to avoid fees and charges going forward.

Although one of the experts described the financial support role as an entry-level position, with the team staffed with “a lot of younger people”, all my participants had been experienced employees by the time they were chosen to become vulnerability experts. One was in her 60s and had spent 15 years in the bank. A second one was an “old timer” who had worked in the bank for 20 years. All of them had been through other departments and positions before arriving to financial support. Several had worked in a team called “retail assist”, a telephone “technical helpline” for branches. Retail assist was similar in structure to the vulnerability experts group, in the sense that it also provided support for branch staff, advising them on internal processes and policies.

The vulnerability expert role was not a full-time job at the time I discussed it with the participants. All of them did more than provide guidance on vulnerability to branches, an arrangement they described as multitasking or wearing more than one hat. Vulnerability was not even the majority of the work the experts did, since they were assigned to that task only one day per week. All participants still took financial support calls. One of them also managed requests for alternative communication formats (e.g. braille bank statements). In addition, most handled scam cases, which were referred to them when associated with vulnerability risk factors. For instance, if the scam victim was ill, lived with impaired physical or mental capacity, or could experience financial hardship as a result of the funds lost.

The assignment of financial support, scam assessments and vulnerability to the same staff made sense to my participants, who perceived “a cross over” between all three areas. Older adults were often involved in scams, as well as vulnerability situations related to loss of mental capacity, lasting power of attorney and financial abuse. Many financial support calls were with people experiencing poor mental health, low financial literacy, cognitive decline or learning difficulties, all of them circumstances identified as vulnerability risk factors by the FCA (Coppack et al., 2015). One of the experts explained the vulnerability work as an extension of financial support, but “more tailored”, i.e. requiring more consideration to individual circumstances, and more flexibility in the remedial actions to be undertaken. It is precisely in this matter of flexibility that the most important contribution of these experts resided.

4.5 Lack of Flexibility in the Context of Vulnerability

When introducing the vulnerability framework in section 4.2, I described how the FCA had identified banks’ rigid processes and lack of flexibility as one of the main barriers to appropriate service provision for vulnerable customers. From an operational perspective, the vulnerability experts’ role was precisely the production of the flexibility demanded by the financial regulator, through meticulously managed exceptions to banking internal rules and procedures. The remainder of this section provides some examples that illustrate the production of flexibility and the exceptions it involved.

4.5.1 The Production of Flexibility

The case of a gentleman suddenly incapacitated by a health emergency exemplifies the type of exceptions required by vulnerable customers. The case involved a regular customer who had been hospitalised due to a heart attack. This customer would visit the same branch every month after receiving his pension payment to withdraw a certain amount of money from his account, which he would then deposit into a second account with another bank to pay his mortgage and household bills. While the customer was in hospital, his wife visited the branch in order to arrange the same transaction, as her husband was incapacitated. Without those funds, mortgage and bills would go unpaid.

According to normal procedure, the bank could not agree to carry out the transaction, as the customer's wife did not have lasting power of attorney. Since her husband had now lost capacity, she would need to arrange formal third party access through the Court of Protection, a process that, according to the vulnerability experts, could take up to 8 weeks, and during which the family may fall into arrears. The branch escalated the case to the vulnerability experts, who liaised with risk assessment staff to understand what kind of evidence the bank would require in order to grant an exception and execute the bank transfer. The customer's wife was instructed to provide medical evidence of her husband's hospitalisation and condition, a statement from the account with the second bank to which the funds would be transferred and where she was a joint account holder, as well as proof of which bills were regularly paid and the amounts due. Armed with this evidence, the vulnerability experts were able to obtain an exception from the risk assessment staff, who granted permission for the usual amount to be transferred to the second bank account. In this case, we see how the intervention of the vulnerability experts achieved a carefully managed breaking of the rules, and allowed the customer's family to pay their monthly bills.

This example illustrates how the vulnerability experts introduced flexibility into an organisation that resisted all unscripted action by imposing rigid processes and enforcing strict practices, which were justified in the name of financial regulations and codes of conduct. The experts described this aspect of their work as reaching "the common sense solution", where oftentimes that common sense solution was by default not "allowed because the computer says no, or policies, or reasons, or something".

The FCA seems perfectly aware of the unwillingness of financial firms to bend their own processes in order to offer more tailored solutions to those who need them. The authors of the vulnerability report (Coppack et al., 2015) repeatedly insisted on the importance of flexibility when dealing with customers at times of crisis. According to the FCA, flexibility is needed in the application of terms and conditions, in the requirements for identity verification, and in the available ways of communicating with a firm. It should be built into financial products and services; and it should translate into authority for staff to exercise discretion when offering help and solutions (Coppack et al., 2015). Vulnerability experts seemed to agree

with the FCA. Although they professed to understand the need for processes and rules, their experience exposed the fact that, in their current form, the bank's ways were far too rigid. Internal processes also tended to overemphasise safeguarding and protection over the needs of customers in difficulty.

Another case shared by the experts demonstrates how lack of flexibility could impact people in vulnerable circumstances, and how vulnerability experts strived to work around the restrictions imposed by internal rules and procedures. The story involved an older customer living with dementia and her two daughters, who acted as the customer's attorneys. The daughters had filed a complaint with the Financial Ombudsman Service because the bank had refused their request to reduce the daily withdrawal limit on their mother's card. According to the terms and conditions of the customer's account, the daily withdrawal limit was set to £300. This limit could be raised for select customers, but could not be lowered down. The attorneys argued that the £300 daily limit was too high for their mother's needs and created risks. The customer's condition made her prone to forget prior withdrawals and to accumulate cash in her home. The attorneys were also concerned that the high daily limit could facilitate financial abuse by another family member. While discussing the case internally, one of the vulnerability experts recalled reading in a different context that reductions to daily withdrawal limits were technically feasible, even though they were ruled out by terms and conditions. The experts contacted "one of the heads of cards", who in turn involved "someone in fraud and risk". Together they agreed to grant an exception and authorise the reduction of the customer's daily withdrawal limit from £300 to £50.

4.5.2 The Labour Required to Produce Flexibility

As demonstrated by the above examples, vulnerability experts managed to conjure the flexibility demanded by the FCA where there was essentially none. In the experts own words, creating flexibility inside the bank was about

thinking a little bit outside the box and working with other teams and getting somebody to say: well, under the circumstances, I think we can justify doing something that we wouldn't normally do. Just don't tell anyone! [laughs] We are not going to do it more than once. [laughs]

These slightly sarcastic words, interspersed with much laughter, convey the resistance the experts experienced in their efforts to introduce flexibility into the bank's processes. This was no easy task. It took time, effort, perseverance, knowledge of existing rules, experience with the banking ways, and the ability to reach across departments and develop personal networks.

The production of flexibility started with a careful assessment of the customer's individual circumstances. To carry out these assessments, the vulnerability experts often listened to call recordings, spoke with the referring branches to gather as much detail about the situation as it was deemed necessary, and reviewed customers' accounts and transaction histories. Cases were often discussed within the expert group, in order to leverage prior experience and explore the suitability and appropriateness of actions taken in the past to address similar situations. Other departments of the bank were contacted as required, thus the need to develop personal networks that spanned teams and hierarchical levels.

Some of the functions mentioned as often engaged in vulnerability decision-making included legal, fraud and risk. This list is revealing, since these are the areas capable of spotting actions and initiatives falling foul of regulation and security obligations, as well as those that could cause reputational or financial damage to the bank. Granting exceptions to banking rules involved consideration of the possible negative consequences for customers if they were to be refused. For instance, the hospitalised customer's wife could have fallen into arrears with mortgage and utility bill payments, which in turn could result in penalties, fees and charges that could increase the household's debt and might destabilise their financial situation. Although this kind of impact on customers played a part in internal decision-making, the main factor when considering exceptions was the risk incurred by the bank itself, hence the frequent involvement of risk controllers in vulnerability cases.

Risk assessment processes introduced additional work. They demanded the production of evidence proving that a certain exception to the rules was truly needed, and that the risk the bank would incur was therefore justified. In the case of the hospitalised gentleman, this evidence included medical reports, statements from other bank accounts, and proof of household bills covered by the requested

funds. In another example volunteered by the experts, a name change for a customer living with dementia and in residential care required evidence that the same social security number had been used in official correspondence with both versions of the name - the one currently on the bank's records and the new one - as well as a medical report certifying the customer's health condition and lack of capacity.

The hurdles introduced by risk assessments truly became a problem when combined with a culture of extreme conservatism and risk aversion.

4.5.3 Risk Aversion and its Paradoxes

The vulnerability experts described a general reluctance across the bank to exercise discretion and make decisions outside of the ordinary. This reluctance derived from concerns about being held responsible for the consequences of those decisions, and extended to professionals whose remit was precisely to assess risk and reach conclusions accordingly. Risk aversion caused decisions to be escalated repeatedly up the chain of command. Occasionally, they would come all the way back down to land once more on the vulnerability experts in-tray, in a full circle that was known internally as "the 2-step shuffle". This basically meant a certain query would be forwarded from department to department across the bank, only to arrive back without resolution to the vulnerable experts, where it had started from. This is how one of the participants described "the 2-step shuffle":

the hardest part for me is there's ... we sort of refer to it as the 2-step shuffle. And it's like nobody, nobody ... if somebody in the bank has an opportunity not to make a decision, they will not make the decision, and pass it on somebody else. (...) and the more sort of complicated cases and more complex issues, you go all the way up, and then it goes all the way down, and it goes to the side and it goes all the way up again, and 2 or 3 weeks later you get an email back saying: oh, you need to speak to this team. And you are like: well, we are that team. There's a lot of that.

It had not always been this way. One of the experts recalled a time when employees had more freedom to exercise discretion, as well as the negative consequences this had for the bank. The firm would lose "all sorts of money" through "people just doing stuff for the sake of doing stuff". Rules were tightened as a result, and internal processes strictly enforced. According to this testimony, there

seems to exist a certain tension between flexibility and the exercise of discretion on one side, and the bank's need to operate efficiently and profitably on the other. This matches the analysis of Hughes et al., who linked the introduction of "procedural formalities" (Hughes et al., 1999, p. 31) in banks to processes of standardisation aimed to reduce reliance on employees' knowledge about customers. Bank management suggested that such knowledge was not necessarily "beneficial" (Hughes et al., 1999, p. 31), and had resulted "in inconsistent and 'bad' decisions" (Hughes et al., 1999, p. 31). The shifting of the scales towards rule tightening and risk aversion meant the bank had "lost a little bit of doing things for people, rather than doing things for the bank."

The paradoxes surrounding the team's existence were not lost to its members. One of the vulnerability experts defended the need for core organisational change, and hinted at the fact that such change could not be based on following rules and procedures, since these can never anticipate every single scenario:

It's more about sort of making the improvements and the changes further up to minimise our need in the first place. Although we are here and we are here to help, we shouldn't really need to be here in the first place. I am talking myself out of a job ... but at the same time, you can't write a rulebook for every scenario.

The ideal situation would be doing away with the need for a team of vulnerability experts, by introducing flexibility and discretion as overarching principles for the bank's operations. This, however, could not be achieved through reliance on rulebooks. In addition, the very existence of the vulnerability experts team provided an incentive for not undertaking the necessary change. The establishment of a group of experts tasked with introducing flexibility when indispensable reduced the pressure to transform the internal workings of the bank and its services in any fundamental way. Things could essentially continue the way they were, because a team had been formed to carefully work around the constraints imposed by processes designed to protect the bank's profitability and efficiency.

One of the core regulatory recommendations to improve service for vulnerable customers is thus backfiring in unexpected ways. Seen in this light, the vulnerability specialist centre becomes an instrument to minimise the threat posed by flexibility

to the bank's profitability and efficiency. It allows the bank to preserve its highly standardised regime by carefully overseeing and rigorously managing every single one of the exceptions granted. As such, the vulnerability specialist centre helps maintain the very same rigid status quo that the FCA's call for flexibility wanted to reform.

A persistent lack of flexibility in internal procedures, terms and conditions, and in the design of products and services, feeds issues related to financial third party access, i.e. the mechanisms for accessing someone else's funds and transacting on someone else's behalf. Financial products and services are designed for "the individual consumer" (Pahl, 2008). This design assumption of the individuality of finance, coupled with strict terms and conditions, make accommodating financial third party access difficult, as illustrated by the pervasiveness of the matter in vulnerability cases.

4.6 Financial Third Party Access in the Context of Vulnerability

Vulnerability cases often grappled with problems related to financial third party access. Both examples in section 4.5.1 had a third party access component. In the first one, sudden and unexpected incapacity due to a health crisis (a heart attack) required temporary and urgent access to someone's account by a family member who had no formal third party access arrangements in place. The second example involved a formal third party access mechanism - lasting power of attorney - with the request to lower down the daily withdrawal limit put forth by the customer's attorneys.

Informal financial third party access mechanisms also featured prominently in situations of vulnerability, as exemplified by the cases in the next section.

4.6.1 Informal Mechanisms for Financial Third Party Access in the Context of Vulnerability

The examples shared by participants reflected the dangers involved in informal workarounds for financial third party access, both for asset owners and the bank.

The risks attached to the practice of sharing bank cards with others are clearly illustrated by the case of a housebound customer who was handing out her bank card to a friend she relied on for shopping and cash withdrawals. This “friend” had started to take money from the customer. The customer would call the bank to monitor the transactions her friend carried out with her card, and to warn the bank they had been done without her authorisation. All the front line staff could do to prevent further abuse was to block the card.

Vulnerability experts usually liaise with bank employees only, and have no direct contact with customers. However, given the urgency of the situation, one of the experts telephoned the customer to enquire about her circumstances. They found out the customer’s professional carer had taken sick leave months before and had never returned. The customer found herself without care support, which explained the reliance on her friend. The vulnerability expert contacted the social services government department to notify them of the customer’s plight. A few months later, the experts received an email alerting them that the customer was being financially abused once again. Inferring that the social services department had not taken action upon the initial report, the same expert had to contact them a second time about the matter.

Joint accounts were also used by some customers as a way to informally enable financial help when needed, replacing formal arrangements like lasting power of attorney and third party mandates. This behaviour entailed significant risks as well. Participants told the story of an independent older adult who registered a younger family member as a joint account holder as a means to enable assistance with financial matters if she were to need it in the future. The family member proceeded to spend liberally from the joint account without informing her older relative. Since in a joint account all holders share ownership of the funds and can freely transact on the account, the spending by the younger family member did not contravene terms and conditions, and did not raise any warnings inside the bank until it was reported. As illustrated by this example, the use of joint accounts as a replacement for formal financial third party access mechanisms not only entails risks for the asset owner, but it also impairs the banks’ ability to detect and prevent financial abuse.

In addition, there were examples that touched upon the difficulties of facilitating help with money management by professional carers. Professional carers were not allowed to transact on behalf of the customers they supported, in spite of being the ones often accompanying them into bank branches. Participants described the case of a middle-aged man with severe learning difficulties who could not communicate directly with branch staff, and would visit the bank accompanied by his carer. The branch staff refused to carry out any transactions requested by the carer because they could not be validated directly with the customer. The case was referred to the social services department where they would need to contact the customer's next of kin, as this was deemed the most appropriate person to be appointed as the customer's attorney.

The prevalence of issues related to financial third party access in situations of vulnerability is clearly demonstrated by these examples, and also by how vulnerability itself was defined.

4.6.2 Financial Third Party Access as an Indicator of Vulnerability

At the end of each interview, the vulnerability experts were asked to define vulnerability in their own words and based on their own experiences as subject-matter experts inside the bank. Their understanding of vulnerability rested on two elements: i) individual resilience to risk factors and ii) the involvement of a third party in financial matters.

In relation to resilience in the presence of risk factors, the experts insisted that life events and circumstances did not by themselves determine the presence of vulnerability. What truly caused vulnerability was individual responses to those life events and circumstances. Unemployment, low literacy, bereavement, chronic illness, poor mental health or impairment - what the FCA called "risk factors" (Coppack et al., 2015) - did not make someone vulnerable. How people reacted to such factors, and one's lack of resilience in their presence, were the source of vulnerability.

This understanding of vulnerability reflects the systematic individualisation of hardship criticised by Davies et al. (2015). The authors identify such

individualisation as one of the main characteristics of the “vulnerability framework” (Davies et al., 2015, p. 28) underpinning government and policy interventions, which had also taken hold inside the bank through the influence of the financial regulator. In this vulnerability framework, “personal responsibility” (Davies et al., 2015, p. 7) and “individual failure” (Davies et al., 2015, p. 28) are presented as the underlying reasons behind financial difficulty. In a similar fashion, our experts pinned down vulnerability to personal reactions and individual resilience to certain situations. From this individualised perspective, life events and circumstances become “risk factors”, elements “that might contribute towards a consumer’s vulnerability” (BSI, 2010, p. 4) but are not directly responsible for it. Such “risk factors” only turn into vulnerability when combined with an individual’s inability to deploy sufficient and appropriate resilience in their presence, making those vulnerable ultimately responsible for their own vulnerability.

In addition to lack of resilience to vulnerability risk factors, as far as the bank was concerned a second element was required in order to be in the presence of a vulnerable customer: the loss of autonomy in money management. What truly defined vulnerability from an operational perspective was the fact that a customer was no longer capable of handling their finances by themselves and needed support from a third party. This definition of vulnerability from one of the experts succinctly explains the matter:

a vulnerability is, in the context of the bank, (...) anything that impacts your ability to be able to manage and monitor your finances without help or support.

A second expert elaborated the point by comparing customers referred to the “financial support” service - the telephone line dealing with “everyday financial strain” - with customers escalated to the vulnerability specialist centre:

[a vulnerable customer is] Someone that can’t act for themselves, can’t speak for themselves. (...) We speak to a lot of customers through the financial support line. Sometimes when you are speaking to them you know that they’re not maybe as mentally developed for their age as they should be. Some will tell you they have learning difficulties (...) But we can always help those customers, because they’re still able to come through, pass security, you know, go through the details, so they will always get the resolution by the end of the call, so that’s fine. But from the vulnerable support side, is in my opinion people that can’t protect themselves, or put things in place to help themselves.

According to these experts, what determined the difference between someone in financial difficulty and a vulnerable customer was the need to enable financial third party access. This emphasis on third party access does not seem to be intrinsic to vulnerability itself. According to the FCA, vulnerability in financial services is about “susceptibility to detriment” (Coppack et al., 2015, p. 34). The need for assistance with minding money does not feature in the definition provided by the regulator, and although mentioned in their report, it is not presented as a condition for vulnerability.

The emphasis on third party access in matters of vulnerability seems to emerge instead from the way financial products and services are designed, and the operational problems such design creates for the bank. As Pahl has observed, banking products and services “have always been based on the idea of the individual consumer” (2008, p. 579), and assume that finances are strictly personal affairs. Designed under this overarching principle, the resulting interaction structures and terms of service cannot easily accommodate giving and receiving help with financial tasks, compounding the challenges the bank encounters when trying to provide appropriate service to those who find themselves in difficult circumstances. The assumption of individuality underlying the design of financial products and services turns third party access into a problematic subject that becomes, in the FCA parlance, difficult to “operationalise” (Coppack et al., 2015, p. 19).

4.7 Technology-Mediated Service Provision in the Context of Vulnerability

In addition to the production of flexibility to work around “the stringency” (Rowe et al., 2014, p. 26) of banking practices, and the difficulties operationalising financial third party access, there was one more aspect of financial service provision that affected the bank’s relationship with vulnerable customers: the move towards technology-mediated banking channels.

During my interactions with the CX team, it became clear that financial technologies were a fundamental component of the bank’s business strategy. For the CX team, they had become the default delivery channel for any new products, services and

initiatives. The relationship with these technologies, however, was full of tensions. For instance, digital technologies were viewed as holding enormous potential for revenue generation. At the same time, these same technologies were perceived as a threat, particularly through the presence of new “challenger”, smartphone-only banks. These were thought to be leaner organisations, better prepared for the running of digital-first business models; with no technical legacy infrastructure to maintain, nothing impaired their ability to quickly experiment and evolve based on customers’ demand. According to the CX team, these new banks had yet to negatively impact the bank’s bottom line: they were still small, and most of their customers did not use them as their primary bank. However, they were expected to pose a threat to the bank’s revenue and profitability in the future. For now, their main impact on the bank had been related to internal business culture. It was the challenger banks’ approach to financial service provision that had driven the shift towards customer centricity, and had led to the creation of the CX team. As one of the participants explained, the “biggest effect” of the challengers on the legacy banks “is that it has scared them. And that's why every single bank, traditional bank, is spending billions of pounds on their infrastructure, in digital transformation and innovation and that sort of stuff.”

This expenditure generated a second tension in the bank’s relationship with technology. On one side, financial technologies were supposed to be an operational efficiency, i.e. a way to carry out business and provide service at reduced cost. It was this expected cost efficiency that had made technically-mediated channels the default option for service delivery. However, at the same time, and in the short term at least, these technologies demanded significant investment. Much of it was connected to the need to update legacy systems and infrastructure that were not “set up for what we want to be able to do today”. The need to update and maintain legacy technology meant that, in order to reap technology’s cost-efficiency benefits, the bank had to boost their spending first, at a time when they were trying to reduce costs.

The tensions that surrounded the introduction of financial technologies in the business of banking manifested as well within the vulnerability specialist team. The vulnerability experts described an assertive push inside the bank towards making digital and telephone banking the default service channels for all customers. This

had consequences when it came to serving vulnerable people. Technology-mediated service provision was perceived as a source of new dangers for already vulnerable customers, and as undermining the bank's ability to identify situations of vulnerability.

4.7.1 Technology as a Source of New Dangers for Vulnerable Customers

While in management circles digital and telephone banking were first and foremost an operational efficiency, for the vulnerability experts they were exacerbating vulnerability and even accelerating its onset. They commented on the eagerness with which the bank embraced digital and telephone banking, and the determination with which customers were encouraged to adopt and use them. These remote ways of banking were undoubtedly beneficial for some, such as those with reduced mobility or who found themselves housebound. However, for others, the turn towards digital and telephone banking increased the risk of becoming vulnerable. Customers with impaired mental capacity, and those unfamiliar with technology, struggled the most.

The strict identification and security criteria applied in telephone banking, which demanded from customers the prompt recall of personal details and random passwords, became an insurmountable barrier for some people. Those living with dementia were the most referred to example, but they were not the only ones affected. One of the vulnerability experts acknowledged she did not bank with her employer because she was “useless with online banking” and struggled to get through their telephone security. Compounding the problem, failed attempts to get through security processes would be logged as suspicious calls, and may cause a customer's bank account to be locked, which stopped all transactions and prevented customers from getting access to their own money.

Digital banking was also perceived as enabling fraud and scams. People with low digital literacy were easily confused while using computing devices, and prone to believe and engage with fraudsters when contacted through cold calling or social media. They may download malicious software, grant remote access to their banking web interface, or transfer funds at a scammer's request. The fact that

digital devices were often used while alone and isolated facilitated the work of scammers, since there was not a trusted person at hand one could call upon for advice, or who could issue a friendly warning. The approaches deployed by the bank to prevent customers from falling for these technology-mediated scams, mostly based on educational messages and warnings embedded in digital interfaces, were considered grossly ineffective by the experts.

The final issue discussed by vulnerability experts in relation to the expansion of digital and telephone banking related to the much publicised branch closures (e.g. Jolly, 2020; Brignall, 2019a; Brignall, 2019b). As more customers moved onto these new banking channels, branches emptied, providing justification for their demise. However, bank branches were described by our experts as a “lifeline”, particularly for older adults. Their closing put those unable or unwilling to bank online or over the phone at risk of financial exclusion.

The assertive move towards telephone and digital banking, the increasing number and frequency of scams, and the demise of bank branches combined with the complexity of financial products to turn banking itself into a vulnerability risk factor. Exacerbating the problem, the diminishing role of branches in financial service provision undermined the bank’s ability to identify situations of vulnerability, as explained in the next section.

4.7.2 Technology as Undermining the Bank’s Ability to Identify Vulnerability

The prevalence of mobile and digital banking was bringing change to the ways the bank came to know their customers. When reporting on their ethnographic study of a retail bank, Hughes et al. described how employees attempted to make sense of the customer representations provided by technology systems, what they called “the customer in the machine” (1999, p. 30). These virtual representations of customers were made of a list of all transactions and interactions between the customer and the bank: a “relationship history” (Hughes et al., 1999, p. 30) of sorts. These records were very different from the intimate, local and highly distributed knowledge developed through face-to-face interactions at bank branches. Such

“local knowledge” (Hughes et al., 1999, p. 31) was considered inconsistent and unreliable by managerial circles, and should therefore be replaced by data-driven and centralised customer records.

More than 20 years have passed since Hughes et al.’s ethnography, but the idea of “the customer in the machine” was still very much at the core of this bank’s conception of customer relationships. The widespread adoption of digital and telephone banking, and the availability of massive databases of personal information, have expanded the scale and scope of what can be captured and inferred from such virtual customer histories. Together with call recordings and transaction lists, all interactions with digital banking interfaces, even those not involving money movements, can be logged and stored. Telephone calls were also recorded, stored, and classified according to their nature. The bank combined its own customer histories with databases purchased from external organisations, which contained information about people’s attitudes and values; personal income; lifestyle data such as hobbies, holidays and shopping behaviour; as well as digital habits beyond financial services (Fresco, n.d.).

For the CX experts, the intelligence gathered through this systematic data collection had become the true way of owning the customer relationship, the gateway to deliver an excellent customer experience, and the key to develop new sources of revenue. This was in spite of the fact that much of the research the team engaged in, either directly or through external contractors, was qualitative in nature. For the CX team, qualitative research enabled safer idea exploration, and more efficient deployment of budgets. But customer data was what truly powered excellent customer experiences. This is how one of the CX experts explained the importance of customer data for the bank:

CRM [Customer Relationship Management] and data is so important, actually everything that we do deliver needs to be connected so that you can create that seamless experience (...) in order to have a good single view of the customer, so that we can talk to them about relevant things at the right time, everything needs to feed into a single source of truth and therefore technology needs to - I guess - enable that.

The pursuit of “a single source of truth” about customers was fraught with problems. The CX experts complained about the poor quality of the customer data collected, about the way it was structured, and about the scarcity of data analysis expertise inside the bank. The customer classifications the bank constructed from the data available were coarse and “simplistic”, and did not capture the complexity of people’s lives and behaviours. In spite of these difficulties, a sense of opportunity endured. It might be hard to achieve, but the development of a reliable centralised source of data-truth about customers was not only possible, but absolutely necessary in order to guarantee the future of the bank in an increasingly competitive environment.

The perspective of the vulnerability experts, however, was somehow different. From their point of view, the intimate, highly localised knowledge about customers generated through branch interactions was absolutely essential. It played a fundamental role in identifying and supporting customers in difficulty, and in that capacity it was hard to replace.

Branch personnel were able to detect changes in people’s presence and behaviour that may signal the onset of vulnerability, such as physical signs of illness, forgetting recent visits, becoming confused during transactions, or loss of confidence. No amount of data could match the ability of branch staff to spot such changes in the circumstances and behaviours of long-term customers.

While in branches relationships developed over time, interactions over the telephone were quick paced and created no rapport. With the shallow relationships afforded by telephone interactions, spotting vulnerability became much more challenging. It was of course possible to detect severe distress, but for more subtle cues it took “a really good advisor” to pick up the signs. The progressive demise of branches superseded by digital banking, and the subsequent disappearance of the rich and nuanced customer knowledge they enabled, impaired the bank’s ability to detect and address situations of vulnerability.

4.8 Conclusion

In this chapter, I have explored the question of how the financial industry constructs and operationalises vulnerability, and how that impacts financial third party access arrangements and processes for people experiencing financial difficulty. I have described three factors that influence the way a bank in the UK deals with situations of vulnerability amongst their customers: i) lack of flexibility; ii) difficulties operationalising financial third party access; and iii) the assertive move towards technology-mediated banking channels.

The first factor is the lack of flexibility, both in the bank's operations, which are subjected to rigid procedures; and in the design of services and technologies, which are created under the assumption that finances are exclusively an individual affair. This assumption is enforced through strict terms and conditions (Vines et al., 2011; Edgar et al., 2017; Singh et al., 2006).

With regards to rigid procedures, the vulnerability specialist team undertook the labour of producing the flexibility that is often necessary in situations of financial difficulty, by enabling risk assessments and carefully managed exceptions to the bank's internal processes. In doing so, the very existence of the team became an incentive for not introducing flexibility and discretion as core principles for the bank's operations, perpetuating the rule-bound and rigid status quo.

Meanwhile, the assumption of individuality underpinning the design of financial services and technologies evokes the economic ideas about the nature of money outlined in section 2.2 of the literature review. According to this economic paradigm, money emerges spontaneously from numerous, bilateral, and essentially subjective, barter exchanges (Ingham, 2004), a perspective that emphasises the individual essence of money. Financial services and technologies that assume finances are purely an individual matter ignore the cooperative nature of our interactions with and through money, as illustrated in the literature review (section 2.4). By erecting barriers and penalising collaborative behaviours, these services and technologies disproportionately impact those who rely on, or could benefit from, involving others in the management of their personal finances. These include people living under the "double trouble" (Topor et al., 2016) of mental illness and financial difficulty, as highlighted in section 2.6 of the literature review.

The second factor impacting banking service provision to vulnerable customers is the difficulties in operationalising financial third party access. These were a consequence of the aforementioned lack of flexibility in internal procedures, and of the individualising assumptions built into services and technologies. Financial third party access became the condition that determined who is and who is not deemed vulnerable from the bank's perspective, as illustrated by the definitions of vulnerability provided by bank employees.

Finally, the assertive move towards technology-mediated ways to bank introduced new risks for vulnerable customers, and undermined the bank's ability to identify situations of vulnerability, by progressively eroding the long-term, localised and highly personal customer relationships characteristic of branch service provision.

As illustrated by these three factors, the delivery of fair and appropriate service to vulnerable customers in the financial industry is deeply intertwined with the deployment of financial technologies, and the need to facilitate financial third party access. These are the subjects covered by the remaining fieldwork.

The next chapter explores financial technology use in populations deemed at risk of vulnerability. In it, I analyse the role that technology plays in the financial coping strategies of people living with mental illness, one of the vulnerability risk factors identified by the financial regulator.

Chapter 5

Technology, Financial Coping Strategies and Living with Mental Illness

5.1 Introduction

In the previous chapter, I described how financial difficulty, articulated through the “vulnerability framework” (Davies et al., 2015), was understood within the financial industry and the regulatory environment. In this chapter, I turn to how financial difficulty is experienced by those deemed at risk of vulnerability. I focus on the financial lives of people living with mental illness. As already discussed in Chapter 2, people struggling with their mental health are more likely to find themselves in financial difficulty. This includes relative poverty, i.e. disposable income well below median (Frankham et al., 2020); hardship, i.e. insufficient financial resources to cover basic needs (Frankham et al., 2020); and problem debt, i.e. “seriously behind on payments for a range of bills and credit obligations” (Evans, 2018, p. 487). This association between money and mental health has been called the “double trouble” (Topor et al., 2016), where financial difficulty and poor mental health feed into each other and trap people into a hard to break cycle (Forchuk et al., 2017).

This chapter explores the intersection of money and mental health with a particular focus on financial technologies. The data I report on was gathered during the deployment of a mobile application called Toucan with 14 participants who self-identified as living with a mental health condition. Details on how the study was carried out, which data was collected and how it was analysed were provided in Chapter 3 (section 3.4). The current chapter focuses on the role technology played in the participants’ financial coping strategies. It reports on general technology use, rather than the Toucan app itself; and the findings are drawn primarily from the semi-structured interviews conducted at the start of the study. Chapters 6 and 7, on the other hand, focus specifically on the Toucan application. They describe the

effects of Toucan use on participants' financial practices, and the moneywork involved in the form of financial collaboration mediated by the app.

This chapter starts by describing the particular challenges participants faced in terms of money management as a result of their mental health conditions, in order to contextualise their experiences with financial technologies. It then discusses the role of those technologies in supporting and burdening the participants' financial practices. In particular, I describe how technology exhibited dual and contradictory roles. On one hand, it was successfully deployed in support of certain financial coping strategies. On the other hand, it exacerbated the participants' money management challenges, hindering their efforts to minimise the impact of mental illness on their financial situation. The chapter concludes by outlining how individualised conceptions of finance manifest in the design of financial technologies.

To identify the source of participants' quotes within this chapter, participants' unique identifiers will be followed by “_opening” for the opening interviews, “_closing” for the closing interviews, “_mobile” for the mobile messages, and “_diary” for the paper diaries.

5.2 The Challenges of Money Management and Mental Health

Most participants in the Toucan study had a “turbulent” (P7_opening) relationship with money that was severely impacted by their mental health. Their conditions affected their ability to work and therefore their income, their spending behaviour and their motivation to attend to financial affairs. Money matters also triggered participants' symptoms, such as low or depressive moods; and were the source of significant stress and anxiety. As a result of these challenges related to their conditions, many of the participants had experienced debt and financial hardship, and considered themselves “bad with money”.

Poor health strained the participants' financial situation by impairing their capacity to work. For the 8 participants who were off work (P1, P2, P4, P6, P8, P10, P12 and P13), unemployment seemed a direct consequence of their health situation. For

instance, P10 told us that she “had to (...) stop working last year. I’ve had two spinal operations and then my mental health got worse” (P10_opening). P6 had “a number of long term health conditions including significant mental health difficulties, restricting my daily activities and preventing me from currently working.” (P6_diary).

Being forced out of work reduced participants’ income, which in turn negatively affected their mental health, locking them into a hard to break cycle. P10 and P12 found this situation particularly distressing. P10 wanted “to go back to work and be independent again” (P10_closing), but until that was possible she had to grapple “with the anxiety of lack of money” (P10_messages). P12 was similarly caught within this cycle of ill health and reduced income. She had hoped to return to her job as a support worker earlier, and was forced to cope with little money for longer than she expected. The pressures of managing on a low income further deteriorated her mental health.

A second money-related challenge reported by participants was spending control. Nine of them (P1, P2, P3, P4, P7, P8, P9, P11 and P14) told us their mental health conditions affected their spending behaviour. The relationship between spending and mental health is well documented, particularly for Bipolar Disorder. Richardson et al. describe how their participants spent impulsively when (hypo)manic (2017). Overspending then contributed to depression, during which people “were inclined to buy items to self-soothe and comfort themselves” (Richardson et al., 2017). This generated a “vicious” (Richardson et al., 2017) spending cycle. The Toucan participants described spending as an escape and protection mechanism for dealing with depression and stress, comparing it to “comfort eating” (P4_closing). Their experiences showed that spending was not an irresponsible or reckless behaviour, and was not an indicator of financial incapacity: it was a symptom during episodes of poor mental health, and a strategy to cope with low or depressive moods.

Finally, participants pointed out that poor mental health sapped all motivation to confront and manage money affairs. P9 explained that when “you aren’t having a particularly good day (...) you can’t check your bank account, or check what’s gone out of your bank account, or what you’ve been spending” (P9_opening). P3 told us that when unwell “you’re not managing bills, you’re not paying, you might be

accumulating debts or not paying the bills because you're not opening your post" (P3_closing). P2 described days when she "would totally ignore" her financial affairs and could not "be arsed knowing what the consequence is" (P2_opening). Participants explained that, at difficult times, money simply disappeared from the equation: "during times when I am really kind of ill it is difficult to focus on financial matters (...) when things are bad, finances become the least of your worries" (P13_closing).

Reduced income, spending as a symptom or a self-protection strategy, and lack of motivation to manage their finances help explain why so many of the participants had personal experience of debt and financial hardship. 8 participants (P1, P2, P4, P5, P6, P8, P9 and P13) told us about struggling to pay bills and make ends meet; and a few, such as P1 and P10, shared stories of dire straits, going "through a lot of days with nothing" (P1_closing), and resorting to foodbanks. 11 of the 14 participants also had personal experience of debt, either prior to or during the study. For instance, P7 had accumulated debt during a manic phase and owed money to a bank as a result. P10 was in a similar situation. In her case, debt accumulated after being forced out of work due to ill health, and was exacerbated by the long process of arranging welfare benefits, during which she had no income. P2, P4, P12 and P14 were overdrawn to different degrees. P4 had also accrued some credit card debt, as had P5. P3 had been in debt in the past, and so had P2 and P6. The latter had "battled hard to dig" herself out and felt "in a much stronger position than I once was" (P6_diary). Coming out of debt was difficult - it had taken P2 four years to do so - but also a source of personal pride.

Despite the clear links between their health and their money situation, participants tended to blame themselves for being in debt and for suffering financial hardship. Although acknowledging the impact of their mental health conditions, many still believed they were bad at managing money. For example, P13 told me he was "very crap with money" (P13_closing), and P1 that she was "terrible with money" (P1_closing). P8 portrayed herself as "A person who is not good with money" (P8_closing), as did P11. P3 said she was "not very good on numbers" and "not a plan ahead girl" (P3_closing); and P14 found "quite hard managing money on my own" (P14_opening).

During my research, however, it became clear that participants had developed a keen awareness of their own financial behaviours, and invested significant effort in building strategies to minimise the impact their mental health had on their finances. I found them to be rather good with money, and extraordinarily committed to becoming even better. In what follows, I describe some of the participants' financial coping strategies, and how they were supported by financial technology.

5.3 Technology-Supported Financial Coping Strategies

As described in the previous section, participants had to contend with the impact of their health conditions over their finances. To get by, they made use of every “coping strategy” (Ejrnæs et al., 2020) identified by the literature on living on a low income (e.g. Ejrnæs et al., 2020; Snow et al., 2017; Caplan, 2014; Vines et al., 2014; Kaye et al., 2014a; Buckland et al., 2013), including earmarking (Vines et al., 2014; Kaye et al., 2014a); monitoring (Snow et al., 2017; Vines et al., 2014); budgeting (Caplan, 2014; Vines et al., 2014; Kaye et al., 2014a); making use of subsidies, community programmes and support from personal networks (Caplan, 2014; Snow et al., 2017; Ejrnæs et al., 2020; Buckland et al., 2013); cost-effective spending (Caplan, 2014; Snow et al., 2017); raising income through informal or semi-formal activities (Ejrnæs et al., 2020; Snow et al., 2017); debt management (Caplan, 2014; Snow et al., 2017); saving (Caplan, 2014); and spending control (Snow et al., 2017; Buckland et al., 2013).

Several of these financial coping strategies were supported by technology, which played a fundamental role in making them possible. In what follows, I provide examples of how earmarking, financial monitoring, budgeting, cost-effective spending, and raising additional income were undertaken using technology.

5.3.1 Earmarking

Earmarking refers to the practice of designating “separate uses for particular kinds of monies” (Zelizer, 1989, p. 343). Vines et al. (2014) explained how some of their low-income participants still used cash and “little jars” (Vines et al., 2014, p. 505) for earmarking, but none of the Toucan participants earmarked with cash any longer. Earmarking was done through bank accounts and credit cards instead.

Current accounts, joint accounts and savings accounts were all used for earmarking. For instance, P8 had designated the income from one of her welfare payments “to cover the bills” (P8_opening). That money was paid fortnightly into her current account, but she would move it into a separate savings account to ensure it would not be spent on anything else: “I have no choice because if I had all the money in my current account, I couldn’t guarantee that it would be there to pay the bills” (P8_opening). For P8, this allocation of funds to essentials in advance was a strategy against her difficulties with spending control, which were related to her borderline personality disorder:

part of my symptoms of my borderline personality disorder is that I have this tendency to obsess over things. So like when I get an obsession it becomes all consuming. So like I had a thing about Kipling handbags and I ended up with about 30 of them. I had a thing about tarot cards and I’ve got about 60 odd decks now. God knows. So I go through those phases. (P8_closing)

P4 similarly used a separate current account for the money arriving from her Christmas savings club. That way she stopped the funds she had earmarked for Christmas shopping from being used to pay bills or her overdraft. Once more, strict allocation shielded P4 against overspending, in particular her tendency to buy items to self-soothe during depressive episodes.

Participants also used credit cards for earmarking based on different criteria, such as the type of spending (essential vs. luxury) and the transaction amounts. P14 had two credit cards: she used one of them for essentials like food and fuel, and the other one for non-essential spending and small treats like “hair and beauty” (P14_opening). P14 found money management difficult and avoided financial matters while unwell, so this division between essential and non-essential credit cards was likely to support her financial monitoring efforts. P11 also had two credit cards: one that offered 0% interest for purchases, and a second one that offered free cash withdrawals abroad. She used the former for sizable purchases, such as furniture for her new home. The latter was “mostly just for holidays” (P11_opening), and day-to-day spending like fuel and shopping. P11’s credit card use was marked by negative prior experiences, where the instant availability of credit had fed the impulse and comfort spending that often accompany bipolar disorder (Richardson et al., 2017):

last year when I was manic, I'd made a £6000 investment in someone who had claimed to be a psychologist who was not a psychologist (...) I've done it with depressive episodes as well and emotional spending. (P11_opening)

P3 also had several credit cards that were carefully managed due to her past experiences of debt partly caused by comfort spending:

I don't think I have excessive spending habits now, but I know that definitely did. I would buy all sorts of nonsense that I didn't and never would need, but I did it in an attempt to try to make myself feel better. (P3_opening)

P3 would use one of the cards for any household-related spending over £100 in order to benefit from purchase protection. She had a second credit card with a higher credit limit that would be used only occasionally for big items like booking holidays. Finally, she had a third credit card that offered free foreign currency transactions, and would be used only when abroad. That card "just sits tucked away. It's actually in with our passports somewhere ready for the next holiday. (...)" Then there's no temptation to have some nonsense that you don't need in your life." (P3_opening). P3's credit card discipline was rooted in her experience of debt. In spite of the dangers of easy credit, she trusted the system she had put in place: "it's easy to get out of control but I think I'm managing relatively okay." (P3_opening).

The availability of almost instant money transfer functionality via digital banking facilitated widespread use of bank accounts for earmarking. Six participants (P1, P2, P4, P7, P8 and P12) specifically mentioned transferring money when describing their digital banking use. In the case of credit cards, participants were apt at identifying and assessing their different features and perks, and carefully allocated spending based on them.

5.3.2 Financial Monitoring

Financial monitoring refers to the habit of checking one's finances through "occasional glimpses" (Kaye et al., 2014a, p. 526) in order to maintain a "peripheral awareness" (Vines et al., 2014, p. 504) of the state of one's financial affairs. Kaye et al. (2014a) observed that the most common means of financial monitoring between their participants was accessing Internet banking via a personal computer, with only "some" (Kaye et al., 2014a) using their mobile phones. In the case of Toucan

participants, all of them used mobile banking apps for financial monitoring. In fact, that was the main reason for engaging with such apps.

For some participants, mobile app use came with additional challenges related to their mental health. For instance, P2 had decided to give up using her bank's mobile banking application, along with other apps on her smartphone, in an effort to minimise distractions and address her concentration and attention problems. However, she had started using mobile banking again six months before our study because her account had started falling into overdraft. She felt she needed "to keep tabs on things" (P2_opening), and reinstalled her mobile banking app specifically for that purpose in spite of the negative effects it could have on her concentration. Financial monitoring involved checking balances, verifying incomings, tracking automated bill payments, and keeping an eye on outgoing transactions:

I'm double checking transactions have gone through and when they went through. I double check direct debit dates. (...) I check the amounts are correct and I particularly check not going below a certain amount as well. (P9_opening)

These activities not only contributed to awareness; they also allowed participants to ensure they had enough funds in the right places to meet their financial commitments: "I just check my direct debits. I check the dates when they are coming out so I know then that I need more money in there at that particular time" (P4_opening). P6 and P9 felt that this monitoring also protected them against fraud, and checked their accounts to ensure "that there hasn't been any fraudulent activity" (P6_opening).

For the participants in this study, digital banking in general, and mobile banking in particular, had become the main ways of monitoring their finances. Tracking money was particularly crucial for them, given the negative impact mental health conditions had on their income. Eight participants (P1, P2, P4, P6, P8, P10, P12 and P13) were forced to stay out of work altogether, which meant getting by on meagre welfare benefits. For others, like P11 and P9, poor health affected the amount of

time they could dedicate to work. For instance, P9 was forced to work only part-time, and had to rely on state benefits to top up her income. Having to survive on a reduced income was also the main factor behind budgeting efforts, to which I turn next.

5.3.3 Budgeting

According to Caplan, budgeting “describes a systematic way to track and plan for expenses” (2014, p. 412). Three of the Toucan participants engaged in this kind of systematic budgeting (P5, P9 and P11) with the support of digital tools. P9 also maintained a paper tray in order to aid coordination with her husband - who disliked digital financial tools - and as an insurance policy against technology glitches and annoyances:

we’ve created a paper folder between us so that all of the direct debits are all printed out and we’ve got copies (...) for each, whether it’s utility or it’s [mobile phone provider] or whatever, so that any time, you now, technology decides to be annoying or just overcomplicated, we have got that file.
(P9_closing)

For herself, P9 had experimented with several money tracking apps, and had settled on a particular one because of its short-term planning capabilities:

I have been using some other apps (...) to try and keep a handle on things, particularly Emma because you can track your future payments. Sometimes it is not just about what you have spent or are spending or amounts of money. It’s that future thing: what have I got coming up in the next week or two that we need to be aware of? (P9_closing)

P5 and P11 instead made copious use of spreadsheets, which required substantial manual data entry and tracking. For both participants, this monitoring habit had been prompted by a sudden period of financial difficulty. This is similar to findings from Buckland et al., who reported that participants’ drop in income “forced them to either begin budgeting or to budget more strictly” (2013, p. 347). P11 had recently started her spreadsheet after ill health prevented her from working:

I’ve had to take time off work for a little while with ill health so we are putting a spreadsheet together to make sure we can cover these periods for future occurrences. (P11_mobile)

P5's spreadsheet started with his divorce:

because of divorce that started 3 years ago, my financial situation was quite dire let's say. So I really had to be very, very anal in managing my money because it was, you know: I was struggling to pay for food, let's say. Even though I had a good income the situation dictated that. I had to be really strict on myself with finances. (P5_opening)

P11 tracked her personal spending with the spreadsheet, and made "personal budgets" that included "best case / work case" scenarios "for a couple of months at a time" (P11_opening). P5 kept his spreadsheet "on a cloud" (P5_closing), so that he could access it from anywhere and any device. In it, he included all his bank accounts and credit cards, all automated bill payments with their due dates, and all regular payments such as rowing club fees and child maintenance. He added manually all card transactions and cash withdrawals on a daily basis. He also took the trouble of reconciling it with the mobile banking app: "I go on [the mobile banking app] to check my balance and my transactions and tick it off my Excel spreadsheet" (P5_opening). This detailed tracking system allowed him to "know exactly where I am" (P5_closing) in financial terms.

5.3.4 Cost-Effective Spending

Cost-effective spending (Caplan, 2014) refers to the various means by which people attempt to pay as little as possible for products and services. These include, for instance, "carefully checking catalogs and supermarket shelves" (Snow et al., 2017, p. 350) for special offers, buying in second-hand or discount stores, buying in bulk, using coupons and loyalty cards.

Many of the participants' cost-effective spending strategies involved digital technology. P7, for example, made the best of the features provided by traveling websites in order to spend as little as possible on trips, and to protect himself from losing money if he could not travel for mental health-related reasons:

I like to travel as much as possible and do it on an extremely tight budget. As opposed to looking for a specific destination I look for the best deals on flight, as cheap as £32 return for my next one. I then book budget accommodation on [hotel booking website], only bookings that I can cancel up to the day before arrival. I do this in case I get hype or depressed and can't travel. It means I'd only lose the cost of the flight. (P7_diary)

P2, P6 and P19 mentioned buying through cashback websites. P2 and P6 happened to use the same one: TopCashback, which is popular in the UK. P2 explained how you can get pretty much anything through it: “your new mobile phone contract, change your new broadband provider, or even your electricity or gas” (P2_closing). During the diary study, P6 used TopCashback to buy a tin of paint for her mother, and her new iPhone. P3 used her bank’s cashback programme instead, which was available via her mobile banking app:

they have this retailer offer thing where you get cash back if you spend with them. Sometimes you think, well I shop there frequently so I might as well just use it, get these bonuses. It’s not much, it’s not a fortune, but it’s worth a look. (P3_opening)

She would also check this cashback programme for restaurant offers before treating the family to a meal out. P5, P6 and P9 used price comparison websites to get the best possible deals. P5 described how he used them to review his bank and utility providers every year:

I joined [my bank] three months ago, four months ago because they were offering £125. Plus, if you stay with them 12 months, you get £50. I pretty much each year look at all that kind of stuff. Utility bills, I make sure each year I go onto a comparison site and get the best deals. If there’s a bank account that’s offering me some money to change, it’s so easy to change nowadays, why not do it.... £125 is £125 at the end of the day. (P5_opening)

Finally, P5 and P7 had opened accounts with some of the new UK smartphone-only banks, known as “neobanks” (Joyce, 2019b), to save on foreign transaction fees: “if you use it abroad, there is no charges from that and it’s like a really good exchange rate you get” (P7_closing). P5 used his neobank account exclusively for traveling: “I’ve just used it for going abroad. (...) they don’t charge you a percentage for the exchange rate and you get the best exchange rate as well. If you’re going abroad, it’s stupid not to use it really” (P5_opening).

As illustrated by the examples above, participants made the best of digital services to optimise their spending.

5.3.5 Raising Additional Income

Studies about living on a low income have shown that people often resort to informal or semi-formal activities to raise additional money (e.g. Ejrnæs et al., 2020; Snow et al., 2017; Harper 2015; Harper et al., 2018; Topor et al., 2016). For instance, some of Snow et al.'s participants sold "household items through informal economies such as Gumtree, Facebook and local markets or jumble sales" (2017, p. 350). Three participants did so as well (P3, P5 and P10), but exclusively through digital marketplaces: no brick-and-mortar markets were mentioned.

When going through the apps installed on his phone, P5 listed Shpock and Gumtree, which he used "if I want to sell some stuff" (P5_opening). P3 wrote in her diary about "trying to turn items into cash. It feels productive." (P3_diary). She mentioned listing her items on Facebook Marketplace and eBay.

This income-generating activity was particularly meaningful for P10, for whom the impact of poor mental health had been sudden and severe. P10 was a teacher and had been in full-time employment until relatively recently, when her health situation deteriorated and caused her to stop working. Unable to keep up her mortgage payments after losing her income, she had been forced to put her house up for sale and move in with her mother. She felt ashamed about her situation, and was eager to return to work and recover her independence. With help from her sister, she had started to look "at practical ways that I can improve my finances and selling things that I don't need on eBay, (...) I do give a lot of things to charity, but I've set up eBay for the first time ever instead of giving it to charity." (P10_closing). For P10, the ability to engage in this income-generating activity represented a step towards regaining control over her life.

5.4 The Negative Impact of Digitising Financial Service Provision

All of the participants were smartphone users, banked online and on their mobile phones. They found Internet banking useful, and seemed satisfied with their banks' mobile banking applications. As demonstrated by the coping strategies described above, they made the best out of the opportunities offered by financial technologies.

However, they also identified aspects of the digitisation of financial service provision that significantly hampered their ability to keep on top of their finances. These included adding difficulty to financial monitoring and cashflow management, constant temptations to spend, lack of friction and increased money management work.

5.4.1 Barriers to Financial Monitoring

Participants brought up the consequences of the move from cash to cards. P8 believed that “since we took the physicality out of money, it’s made it harder for people to realise what they are spending” (P8_opening). P3 explained that sometimes she would “try to just take the cash out and not touch any cards. (...) Sometimes having the money in your hand seems a little bit more real than bits of plastic” (P3_opening).

Some participants disliked the delay between paying by card and the transaction appearing in their bank accounts. P8 explained that “sometimes you pay in a shop and it doesn’t come off your balance for a couple of days.” (P8_opening). P5 observed how, after paying by card, merchants “don’t necessarily like to give you a receipt, so you don’t have a record particularly. So you only find out a few days after.” (P5_closing). Delays in transaction recording made it harder to maintain an up-to-date awareness of the state of one’s finances, and introduced doubt and uncertainty in reported balances. The consequences of the dematerialisation of money and the impact of delays on financial monitoring may have been particularly noticeable for these participants, given their difficulties with spending control, their struggles with motivation, and their reduced income.

P9 found that the move to digital banking had made it harder for her and her husband to collaborate in the management of their household finances. Digital banking required them to access their joint account separately through their personal banking credentials, something P9 perceived as isolating. The strictly individualised digital access to the joint account compared badly to the experience of paper statements:

we've got a joint bank account, but we are often not viewed as a couple. (...) He's always seen as a separate entity, but he is not a separate entity. We've never thought of ourselves in that way (...) you'd get your statement in the post previously that you were both immediately able to open because it was Mr & Mrs. It was to both of you and therefore you can both look at it together. That's completely gone, you're now treated as two separate people. (P9_opening)

P9 believed her and her husband should have a joint way of accessing digital banking that replicated the experience of reading the same paper statement. Because this did not exist, they developed their own workaround: P9 would access the account using the mobile banking app on her smartphone, and her and her husband would look at the information on the screen together.

Existing digital banking tools, albeit useful, did not compensate for these shortcomings. Participants asked for improvements in terms of "reporting and tracking" (P11_opening) of expenses, particularly those involving small amounts. They also also wanted tools that helped them with short-term planning, calculation of "projected spend" (P9_opening), and ring-fencing money for essential bills. They observed that, in spite of all the technologies available, they still needed to calculate for themselves simple and obvious personal financial metrics, such as what their disposable income would be for the month, or whether their balance would cover their bill payments within the next 2 weeks.

5.4.2 Managing Cashflow

Participants described difficulties coordinating the timing of income arriving and payments going out. Many of their problems derived from automated bill payments, which are called Direct Debits in the UK. In their paper about the role of financial technology in managing a low income, Vines et al. observed that many of their participants did not use automated bill payments "due to their unpredictability" (2014, p. 507). Although all Toucan participants made use of this technology, they still remarked on its unpredictability. As P9 pointed out, there was always some uncertainty as to when these payments would actually leave one's account:

you're not sure when, particularly if it's Bank Holiday or it's an over weekend payment that's going out, and you're never sure whether it's going to go out on the Friday, or it is going to go out on Monday, or Tuesday. (P9_closing)

The lack of coordination between these automated outgoings and income flows caused participants to miss payments. For instance, P2's benefits were paid at the end of the month, but her automated bill payments triggered around the middle of the month, when her funds were already low. This made her miss some bill payments. She managed to change the automated payment dates to a more convenient time of the month, but not without significant effort:

when I received those warning letters about my council tax, when I phoned them up and I explained the situation and she said: she can't change it for me. So, they had to cancel those and set up a new one because they can not be set up on the day that I actually receive my universal credit.
(P2_opening)

P4 had a similar timing problem, and also had to contact her provider to change her bill payment date:

I've got in contact with [mobile phone company] and told them that I want to change the date that the money comes out of my account. (...) because it was falling on the 15th and that week is when I haven't got money going in and then it cocks me up (...) I've changed them now so it's not so bad.
(P4_opening)

Those receiving multiple benefits also described irregular or unusual income schedules. For instance, one of P8's benefits was paid monthly, while the other one was paid every 2 weeks. P4 would "have payday every two weeks & also monthly money on a Wednesday every 4 weekly" (P4_diary), plus a carers' allowance being paid every week. 3 different benefits: 3 different payment schedules. As a result, she had to deal with significant fluctuations on her income during the month:

there is a week without money for two weeks. The only thing that goes in is carers' allowance every week, but there's one week where it's two weeks I've got to wait, and that's when my bank goes like down (...) and I can't spend any more money type of thing. (P4_opening)

Some benefits would only be paid upon submitting a claim, so they would have no fixed timing. P9 explained how that worked in her case:

I get [benefit] money coming in (...) that's always very unpredictable. It is never paid in on the same date because you have to send your claim off in the post and then the post goes through and then it goes through a convoluted system of theirs. (P9_opening)

P9 also complained about the difference in hers and her husband's pay dates, which made their joint account harder to manage:

My payday and my husband's payday are both different days as well. So I then need to account for the differences. I was into overdraft just this week and my husband gets paid on the 11th, which is today (...) because he is paid today, I thought, right I am not going to move any money. I will just leave it sitting there overnight knowing that his payday is today. (...) Otherwise if his payday was next week, I would be moving money into the current account. (P9_closing)

Finally, 2 participants (P3 and P13) commented on the challenges of moving from weekly to monthly payments. P13 was expecting this change to happen sometime in the future, and was concerned that adapting to it would "be a real struggle" (P13_closing). P3 was going through the process at the time of the study, and shared some of her anxieties:

Part of me is a little bit nervous because I'm now employed as a staff member as opposed to being a locum where I was paid weekly. I'm now paid monthly. Somehow being weekly paid seemed to flow really smoothly. I never went into my overdraft, blah, blah, blah. I've only been paid once having been permanent staff and I have already gone into my overdraft because they didn't pay me the first time. It was late, there was some kind of cock up. (P3_opening)

By the end of the study, P3 had grown more confident in her ability to manage a monthly income, but she still had not fully adapted to her new payment schedule:

I don't like getting towards the end of the month and I see that I haven't been paid and the money has gone down. I'm not liking that. I quite like how it would sort of regularly top up, but at the same time, as I said earlier, I haven't gone into my overdraft, so I am obviously managing it okay. It just feels weird not having a top up each week and having one bigger payment at the end of the month. It is just getting into that really, but it seems to be working alright. (P3_closing)

These narratives surface the little control participants had over financial timings. Automated payments gave control to creditors and to those who paid their salaries, leaving participants at the mercy of their schedules. Participants' had no choice but to adapt to those schedules, and to budget carefully to minimise their impact.

5.4.3 Constant Temptations to Spend

Participants appeared subjected to constant temptations to spend, particularly from online services. This posed a serious challenge to their financial stability, since it compounded with the negative impact of their mental health conditions on their spending behaviour. Each participant had their own “downfall” (P4_opening). For P2, P8 and P13 it was e-commerce services like Amazon and eBay: “I shouldn’t have the Amazon app and I shouldn’t have the eBay app. They’re dangerous” (P8_opening). For P4, who had a history of problem gambling, it was freemium mobile games and online bingo. She was trying hard to keep away from online gambling sites, which for her acted as a comfort mechanism:

last week I went back on to [online bingo service] (...) but I haven’t been on any gambling sites. I’ve kept away from them... but that’s what I go back to. I go back to a familiar place. That like settles my head, but then, you know, it is not good. (P4_closing)

For P3, the problem was offers delivered by text or email:

the text comes or on email: ‘try this’. And you know actually, before it came through, you weren’t going to try it. Suddenly you might have gone and spent £40 that you weren’t going to. (P3_closing)

P3 also commented on how the lack of friction in contactless payments could lead to overspending, and called this payment technology “a danger zone” (P3_closing). Even financial mobile apps could act as an invitation to spend. P14 considered her mobile banking app a useful tool “to keep track of things” (P14_opening), but she also pointed out that the app had a darker side:

sometimes it will work in the opposite way, because then it’s like I see I’ve got a little bit of credit or I’ve got some money in my account, so I spend it rather than just leaving it alone and not thinking about it. So yes [laughs] good and bad sometimes. (P14_opening)

She had the same issue with the mobile apps offered by her credit card providers:

again sometimes that can be a bit negative because if my credit’s gone up, I will apply for more credit, so sometimes that can have an adverse effect. [Laughs] (P14_opening)

Participants also felt it was far too easy to obtain credit. According to P4, the availability of this “easy money” (P4_closing) caused an over-reliance on borrowing and contributed to untenable amounts of personal debt. One of P4’s purchases provided an example of this technology-enabled easy credit. With her first grandchild on the way, P4 stumbled upon what appeared to be a heavily discounted nursery set. Since she couldn’t afford to pay it outright, and could not borrow any further from her bank, she used PayPal’s credit facility instead:

I didn’t pay that out of my normal account. I got PayPal credit (...) you get 4 months interest free to pay it. So as long as you pay within the 4 months, you’re alright like, so that’s not a problem. (...) I have to pay £100 a month now for the next 4 months. (P4_closing)

She reflected on this experience, noting how in reality she did not have the spare funds for several months in a row to pay back what she owed, and could not really afford the amount she had borrowed via PayPal. Through constant temptation, both in terms of spending and credit, financial technologies undermined participants’ efforts to keep their spending under control.

5.4.4 Bringing Friction Back

Several participants had developed strategies to compensate for the lack of friction in both spending and getting credit. For instance, to stop himself from spending, P7 handed over funds to a trusted third party for safeguarding:

I had an insurance policy which is due to pay out in a few weeks. It’s not a huge amount but will get me on a few trips. I’ve given half of it to my wife so I won’t spend it. I’m keeping it if I ever need a replacement car. (P7_diary)

Motivated by the risk of impulse spending connected to his bipolar disorder, P7 had also started to experiment with lockable “saving pots”, a feature provided by a neobank with which he had opened an account: “The saving pots (...) you can lock them, so you can’t try to spend it on anything. So then, if I was feeling manic, I would ... you know what I mean” (P7_opening). In terms of credit, P7 also protected himself by opening a “basic” bank account that did not offer an overdraft facility, an

action often recommended by debt support charities in the UK (StepChange, n.d.). At the time of the study, P7 was repaying credit card debt accrued during a manic phase when he was unable to control his spending, an experience that made him wary of credit facilities:

I'm down to a basic bank account so I can't go overdrawn or anything like that. I'll not be able to get credit which I don't want. I'm quite happy with that. I've had enough of credit cards and things like that. They're just not for me and my problems. (P7_opening)

P10 had a basic bank account as well, which she opened as part of her debt repayment plan. In her case, debt accumulated after being forced out of work for health reasons, and due to the lengthy process of applying for welfare benefits, during which she had no income. P10's basic bank account came with a top up debit card. She appreciated how the card added friction into her spending by introducing an opportunity to reflect:

I like how I can't just spend money, I have to actually think about it and transfer it onto the card first. I can't just walk into a shop and just spend money without thinking. (P10_opening)

Giving oneself the chance to think seemed a simple but effective way of exercising control. This approach was also behind P3's strategy of letting online baskets rest overnight as a way of managing spending impulses:

So this sounds really weird, but I am going to tell you anyway. When I feel I need to buy stuff, I go online and fill a shopping basket and then I don't actually go any further with it. I just leave it overnight then go back to it in the morning and delete everything because actually I don't need any of it. So it is really funny, if you just leave it a few hours how it can change. So I have saved myself a fortune doing that. (P3_closing)

P2 had developed a similar habit, that in her case involved deleting items after filling the shopping basket: "I browse buy up to 200 (...) then after that I just go through and delete, delete, delete. [Laughs] Kind of crazy" (P2_closing).

Perhaps the most extreme attempt to bring friction back was provided by P14 who, during a mental health crisis, decided to put all her money in the hands of her husband:

I think that I need to have some checks and balances in place. We've tried different things in the past (...) and for a little while, when I had my last really bad episode, my husband just dealt with all the finances (...) he took charge of everything and I had to (...) say if I wanted to go to the hairdressers, I had to say: can I borrow a card or could I have the money type of thing.
(P14_opening)

This strategy proved unsustainable, but illustrates the difficulty of finding a “happy medium” (P14_opening) in terms of financial friction: “I found it too constricting, and it's quite hard to find a middle ground really where you don't feel like you're being, sort of, not exactly controlled, but being monitored” (P14_opening).

Left to their own devices, participants had to develop their own workarounds to compensate for the lack of friction, since financial tools offered little or no support in this regard.

5.4.5 Additional Moneywork

Although financial technologies delivered convenience and streamlined certain tasks such as bill payments and bank transfers, they also introduced new forms of moneywork. In some cases, they required extraordinary amounts of time, energy and effort. P9 wrote in her diary about using “different apps, voucher schemes + cashback sites to save money. It can be time consuming and hard work but it's gotta be done” (P9_diary).

Cashback services and price comparison websites seemed particularly demanding, often for little returns. P6 described for us in great detail what was involved in purchasing her new smartphone through one of the cashback services available in the UK:

I purchased my new phone contract via TopCashBack (TCB), as I do with all my online purchases where possible. First irritant was that the day before I placed my order, the cash back rate was £130 however it had decreased to £70 when I came to order. I then found that Quidco were offering £120 so I took a screen print of it so that I could send to TCB for processing under their highest cashback guarantee policy. Second irritant was that for some reason my cashback transaction didn't track properly and failed to show in my account after seven days so I had to submit a query ticket to TCB for them to investigate. (P6_diary)

In order to get an amount close to the £130 initially offered, P6 had to check how much cash back was offered by a competitor, get evidence of it being higher than the amount offered by her chosen service, and submit the corresponding claim. In addition, she was forced to query the transaction, since it somehow managed not to appear in her account after 7 days. Finding that out would of course have required her to remember checking her cashback account after the 7 days had passed. P6 ended up receiving £120 for the transaction, which seems a sizable amount. However, P2's testimony paints a different picture of the returns one can expect from the time and effort invested in using these cashback services. She told us that 4 years using TopCashback had yielded £800: just a little over £16 per month.

The returns of price comparison websites seemed even lower, but participants used them following recommendations from money advice services that position comparing products to get the best deal as financially responsible. P6 described for us what was involved in following this advice when renewing car insurance:

I always make the effort each year to shop around to see if I can get a better price (...) As per my usual routine, I followed the guidance provided by Martin Lewis and began by obtaining quotes from the comparison sites Money Supermarket, Confused.com, Go Compare, Compare The Market and Quotezone. (P6_diary)

As if comparing prices across 5 different websites wasn't enough, P6 also obtained quotes from 2 additional providers: "Direct Line and Aviva, as these don't feature on comparison sites" (P6_diary). In addition, she "ran a 'new customer' quote" (P6_diary) using the website of her current insurance provider. After half an hour on the phone with them, her "haggling paid off" (P6_diary) and P6 managed to obtain a discounted price for new customers in her insurance renewal.

This participant invested a whole afternoon running price comparisons across 5 websites, obtained quotes from 3 additional insurance companies, and spent half an hour on the phone in order to save £60 a year: just £5 per month in return for a whole afternoon of intense moneywork. It is those for whom small amounts like this can make a difference who take on the disproportionate amount of work needed to save them.

5.5 Conclusion

In this chapter, I have provided an overview of the money lives of 14 people who find themselves under the shadow of a vulnerability factor: poor mental health. I have described the challenges they encounter when attempting to manage their money, which include reduced income, difficulties with spending control and lack of motivation. These challenges often contribute to situations of indebtedness and financial hardship, and to feelings of inadequacy and lack of confidence in money matters.

Despite such self-perceptions, participants successfully appropriated and deployed financial technologies in support of coping strategies to better manage their money, and to minimise the impact of their health conditions on their economic circumstances. I described how five of those strategies - earmarking, monitoring, budgeting, cost-effective spending and raising additional income - were undertaken through technologies such as digital banking, mobile applications, spreadsheets, aggregators, price comparison services and cashback websites. These same technologies, however, introduced additional problems into the money lives of the participants. They made it harder to monitor the state of one's finances and to manage cashflow; they removed all friction in both spending and obtaining credit; they delivered constant temptations to spend; and demanded additional labour and energy. These issues illustrate the dual and conflictive role financial technologies are currently playing in our day-to-day financial tasks, simultaneously enabling and disabling, affording and refusing.

Perhaps as a result of their difficult economic circumstances, many of the participants considered themselves "bad with money". This chapter questions that self-perception. The participants' financial practices and coping strategies demonstrate self-awareness, knowledge about their health conditions, financial capacity, as well as motivation and willingness to improve their economic situation. This resonates with prior research, which found those living under the "double trouble" (Topor et al., 2016) of financial hardship and mental illness resourceful (Caplan, 2014), hard working (Harper et al., 2015), and "essentially able to manage living under strained financial circumstances" (Topor et al., 2016, p. 207). Participants not only displayed significant financial competence: it seems that, for

most, their fragile economic situation made them better with money. This is similar to what is reported in Buckland et al., where the “financial crisis of job loss deepened” people’s “commitment to healthy finances” (2013, p. 348). For these 14 people struggling with their mental health, financial capacity was, for the most part, not the problem.

In spite of this evidence, interventions in the area of money and mental health seem to mostly focus on individual capacity, with initiatives such as providing financial literacy training (Harper et al., 2018) and coaching (Davies et al., 2015). This emphasis on individual capacity reflects a broader trend to responsabilise individuals for their own financial wellbeing, and to understand financial affairs as an exclusively personal matter where neither others nor structural factors are involved.

This assumption of strict individuality when it comes to money is the same one that underpins the design of financial services, and that creates difficulties for banks when facilitating financial third party access, as highlighted in the previous chapter. It can also be appreciated in many of the technologies that participants integrated into their financial coping strategies. Online and mobile banking, like the vast majority of digital services, are constructed upon the principle of one account - one person (Adams and Williams, 2013), even when giving access to shared products like joint bank accounts. The focus on optimising personal income, which seems to be the main concern in financial technologies such as price comparison services and money management mobile apps, can be also understood as a manifestation of this individualised conception of finance. In their drive for optimisation, these fintech tools effectively transfer all responsibility for financial well-being to the individuals who use them. They never question whether the income they are attempting to optimise is actually sufficient to cover the users’ needs, or whether the data they are collecting indicates financial strain.

The understanding of our financial lives as strictly individual ignores evidence of their communal and collaborative nature, as uncovered by the literature review in Chapter 2. It also disregards the evidence showing that involving others in money management can have positive effects for the well-being of those living with mental illness (e.g. Marson et al., 2006; Elbogen et al., 2007). There is therefore an alternative assumption that could inspire the design of financial technologies: that

money management is essentially collaborative, that our financial lives are always shared with others, and that supporting and enabling cooperation in money matters should be a fundamental use case for any financial service and / or technology.

These are the assumptions behind the design of Toucan, the mobile application that is the subject of the next two chapters of this thesis. Toucan was developed to encourage and facilitate financial collaboration between people living with mental illness and those they trust. In the next chapter, I introduce the Toucan mobile app, its functionality, how it was used, and its effects on participants' money practices.

Chapter 6

Supporting and Enabling Financial Collaboration for People Living with Mental Illness

6.1 Introduction

In the previous chapter, I reported on the financial lives of 14 people who self-identify as living with a mental health condition, one of the circumstances listed as a “vulnerability factor” by the FCA. Participants’ “turbulent” (P7_opening) relationship with money was marked by the difficulties introduced into money management by their health conditions, as well as the opportunities and the challenges generated by the adoption and use of financial technologies. It is against this backdrop that our participants volunteered to try a new mobile application called Toucan.

Toucan provides a financial third party access service that relies exclusively on information disclosure. App users configure SMS-based money alerts that can be delivered not only to themselves, but also to a trusted third party of their choice. This trusted third party is referred to as an “ally”. Through these alerts, third parties maintain some awareness of their counterparts’ financial activity, but do not receive any power to transact with their counterparts’ financial assets. Through these shareable SMS alerts, Toucan effectively enables a form of light supervision over someone else’s money affairs, without delegating any control over accounts or assets.

Our 14 participants installed and used the Toucan mobile app on their personal smartphones for 90 days. During this time, they engaged in a diary study through custom-designed paper diaries and mobile messaging that started and ended with a semi-structured interview. Details on how the diary study was carried out were provided in Chapter 3 (section 3.4).

The chapter starts with a detailed description of the Toucan app, how it works and its functionality. I then provide a portrait of two of the participants, who found themselves in quite different circumstances during the time they used Toucan. The chapter proceeds by outlining participants' expectations about Toucan, how they configured and used the application, and how the use of Toucan affected participants' money practices and financial habits. To close, I describe the limitations participants identified in the design of Toucan, how these impacted the experience of using the app, and the changes and features participants proposed to address them.

To identify the source of participants' quotes within this chapter, unique identifiers are followed by “_opening” for the opening interviews, “_closing” for the closing interviews, “_mobile” for the mobile messages, and “_diary” for the paper diaries. Toucan users are identified by a “P” followed by a number (e.g. P5). Toucan allies are identified by “AP” followed by the number of the participant they supported and their relationship to them (e.g. AP5:partner indicates P5's ally).

6.2 The Toucan Mobile Application

Toucan is a native mobile application for Android and iOS that allows people to collaborate on money management with someone they know and trust. This new financial third party access service was specifically designed for people living with mental health conditions. As explained in Chapter 2, this demographic can draw significant benefits from engaging others in the management of their money (Marson et al., 2006; Murray, 2016; Bond et al., 2019).

Toucan challenges the usual ways financial third party access is handled by banks in the context of vulnerability as were described in Chapter 4. It does so by enabling carefully-controlled visibility and secure sharing of financial status with trusted others, something that UK banks do not currently support.

In addition, and as opposed to existing third party access mechanisms such as lasting or enduring power of attorney, the Toucan app enables financial third party access exclusively through information sharing. Third parties cannot access Toucan users' money, or carry out financial transactions on their behalf. This approach

derived from the recognition that many people living with mental health conditions fluctuate between highly functional periods and episodes of impaired capacity. Toucan's design aimed to facilitate support during the latter, while preserving autonomy during the former.

Toucan was developed by a technology startup based in London that became my research partner during my fieldwork on financial third party access. The app uses the Open Banking APIs available in the UK to connect to a user's bank account. Open banking allows authorised third party services to access customers' data held by banks (UK Competition and Markets Authority, 2016) through application programming interfaces (APIs). In doing so, open banking provides new ways of sharing our financial information with others, and could enable new approaches to financial third party access (Bew et al., 2017). Initiated in the European Union by the Second Payment Services Directive (PSD2) (Manthorpe, 2017), the idea has been adopted throughout the world (ndgit, 2019). In the UK, development of the Open Banking APIs started under the auspices of the Competition and Markets Authority (CMA), which wanted to promote competition and innovation in the provision of financial services, enable customers to better compare and assess products, and empower them to securely share their financial data with third parties (CMA, 2016). The Open Banking APIs allow UK banks to disclose highly sensitive personal financial data in a way that is compliant with data protection regulations and addresses security and fraud risks. At the time of writing, almost 300 companies were already registered to use the Open Banking APIs in the UK (Open Banking Limited, n.d.). These companies have enabled numerous new services and novel integrations (Elsden et al., 2019), Toucan being one of them.

Once the open banking connection between the Toucan app and the user's bank account has been established, users can configure a set of SMS alerts that will be triggered by certain bank account activity. Users can choose to send those alerts only to themselves, or to deliver them also to a trusted third party of their choice. In order to generate the SMS alerts, Toucan checks users' bank accounts for new activity. Subject to the limitations of the UK Open Banking standard, it can only do so 4 times a day, and not in real time. This, together with the 2-to-3 day clearing

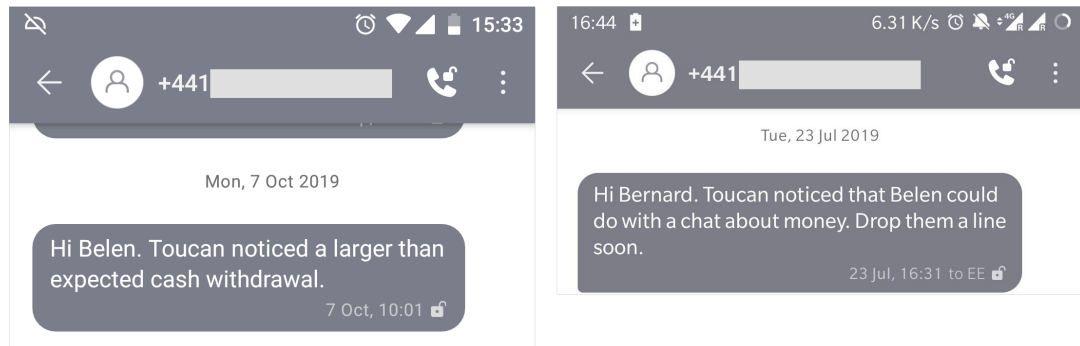
time for most payment transactions in UK legacy banking systems, means that there can be significant delays between bank account activity and the delivery of the corresponding SMS alert.

Toucan offers three different SMS alerts: a balance alert, a daily spending alert and a cash withdrawal alert. The balance alert is triggered whenever the connected bank account balance falls below a certain amount. The daily spending alert is triggered whenever the sum of all outgoing account transactions within a day exceeds a certain amount. The cash withdrawal alert is triggered whenever a cash withdrawal over a certain amount takes place. The choice of alerts was based on the results of an earlier survey carried out by the startup in collaboration with the Money and Mental Health Policy Institute. In that survey, respondents identified running low on money, unusually high spending, and specific transaction categories such as gambling as the financial events that should be notified to a trusted third party. Toucan provides default amounts for all three alerts, but users can edit them to suit their own financial habits. Toucan users can also choose which of the three alerts they wish to activate.

Once the SMS alerts are configured, Toucan users can designate a trusted third party who will also receive Toucan alerts. In the application, the trusted third party is called an “ally”. Users can choose which alert types they want to share with their ally. Only one ally can be configured, who can be removed or changed at any time. Users can also skip the ally configuration altogether and use Toucan without a designated ally.

Once added to Toucan, the ally receives an invitation via email that they can accept or reject. If an ally accepts the invitation, they will start receiving an alert whenever one is sent to the Toucan user. Toucan delivers different alerts to users and allies. Alerts sent to users include the alert type, indicating the kind of bank account activity that triggered the alert: low balance, spending or cash withdrawal. Alerts to allies, however, contain no financial details whatsoever: they simply suggest to the ally they should get in touch with the person they support via Toucan. This conservative approach sets Toucan apart from existing financial third party access mechanisms, both formal and informal, since Toucan neither transfers the power to transact to the third party, nor discloses any financial details to them.

**Figure 2. Toucan user alerts (left) and ally alerts (right).
The ally alerts contain no financial details.**



Together with the London-based startup, we evaluated Toucan between July and October 2019 through a controlled deployment of the mobile app that included a diary study, opening and closing semi-structured interviews. Details on how the diary study was carried out, which data was collected and how it was analysed were provided in Chapter 3 (section 3.4).

In the remainder of this chapter, I delve into the ways participants configured, used and experienced Toucan's functionality. But before getting started, I provide examples of how two very different participants lived the 90 days of the Toucan trial.

6.3 A Tale of Two Participants

Chapter 3 included profile information about the participants that took part in the deployment of Toucan: their age and gender, health conditions, income sources and experience of debt (section 3.4.1). For some of those participants, the time they spent using the Toucan app was more or less uneventful: their mental health conditions were well managed, and their financial situation was stable. Others, however, lived through challenging times in terms of mental and financial well-being. P5 is an example of the former, and P10 one of the latter.

In what follows, I provide some detail on how these two very different participants experienced the Toucan app, in order to illustrate how application use unfolded during the 90 days of the study. I include some background on participants' money and mental health circumstances, how they configured the app, the changes they made and the alerts they received.

6.3.1 Participant 5

P5, a 46-year old male, was diagnosed with schizophrenia in the year 2000, and managed his condition very successfully with the help of medication. After dropping out of university and working for some years, he had returned to third-level education and had become an engineer. He was employed full time and expressed a high degree of satisfaction with his professional situation. A keen rower, he also enjoyed a healthy and active lifestyle.

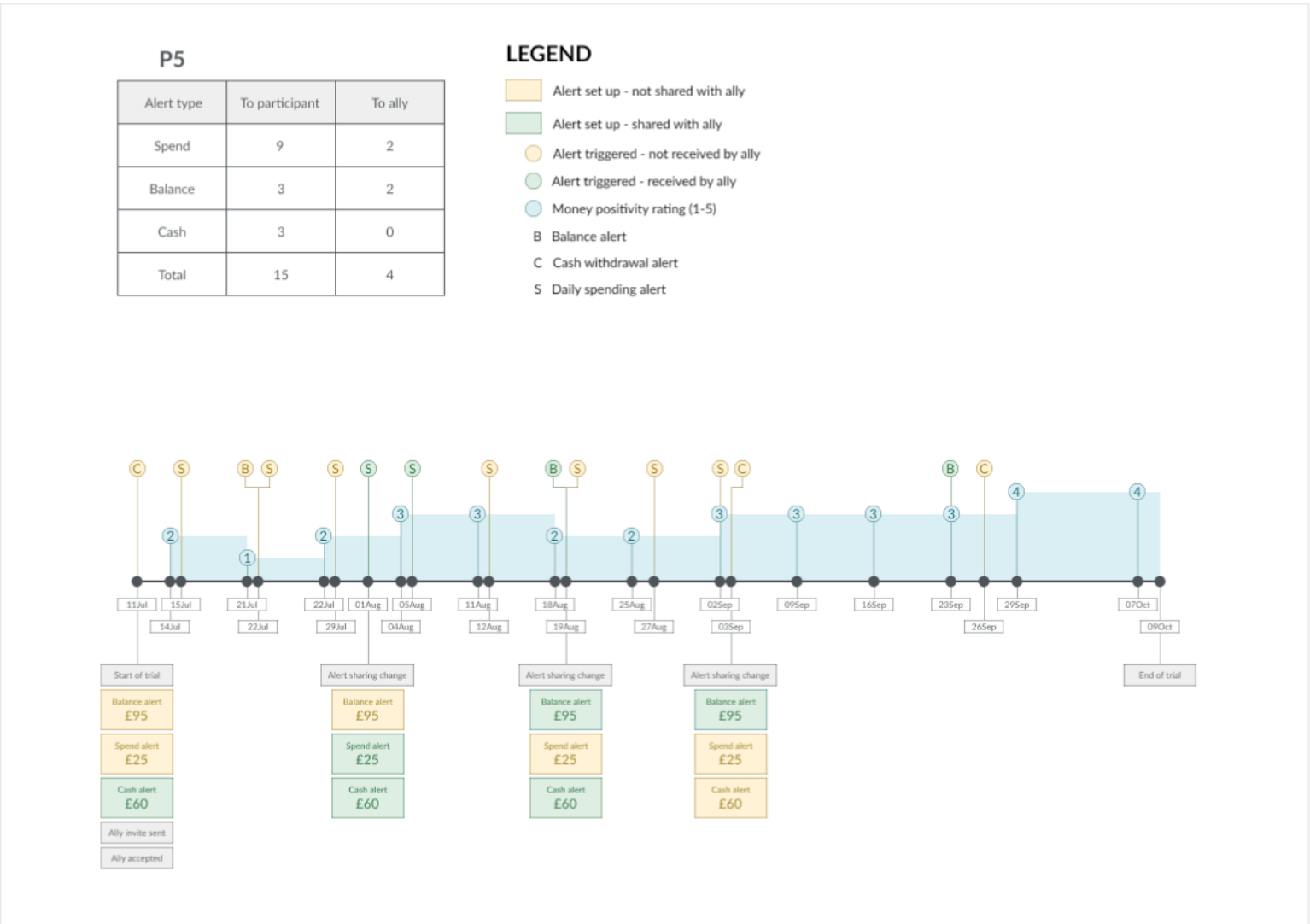
This participant was going through a divorce at the time of the study that had brought additional financial obligations, such as lawyer costs and child maintenance service payments. They had caused some financial stress and had forced him to manage his money carefully. P5 maintained a spreadsheet with all his bank accounts and credit cards where he recorded all outgoings and income, in order to keep an up-to-date picture of the state of his finances at all times. He reported some credit card debt that his new romantic partner, who was also his Toucan ally, was encouraging him to pay back.

P5 installed the Toucan application on July 11th. He switched on the 3 alerts provided by Toucan and configured them with the following amounts: £60 for the cash withdrawal alert, £25 for the spending alert, and £95 for the balance alert. He chose the balance alert amount to ensure there was always enough funds in his account to cover his £90 weekly child maintenance service payment. As far as we can tell from the application usage data available, he kept these amounts during the whole trial.

The participant set up his new partner as his Toucan ally during the opening interview, and decided to share with her only the cash withdrawal alert, perhaps as a way of protecting his privacy and preserving boundaries in what was still a

relatively new relationship. His ally accepted the email invitation later that same day. Some time in July, P5 changed his mind about the types of alerts he wanted to share with his ally, and he started sharing the spending alert. As a result of that change, 2 spending alerts were delivered to his ally on August 1st and August 5th. Soon after that, P5 made a new change and decided to share with his ally the balance alert, but not the spending or cash withdrawal ones. These changes resulted in a spending alert on August 12th and a cash withdrawal alert on September 3rd delivered only to himself, but a balance alert triggered on August 19th was delivered to his ally. He kept that alert sharing configuration until the end of the trial on October 9th. P5 received a total of 15 alerts during the pilot: 9 spending alerts, 3 balance alerts and 3 cash withdrawal alerts. As a result of the ally sharing modifications outlined above, his ally received only 4 alerts: 2 spending and 2 balance. Figure 3 summarises the app trial configuration and activity for P5, as well as his self-reported money positivity ratings.

Figure 3. P5's visual history of events during the Toucan trial, including alerts triggered, alerts shared, changes to alert configuration and money positivity ratings. P5 changed the alert sharing configuration with his ally 3 times during the study period.



6.3.2 Participant 10

P10 was representative of the group of participants who experienced health and financial difficulties during the study. This 46-year old teacher was in full time employment until two spinal operations and a deterioration of her mental health forced her out of work. She was diagnosed with borderline personality disorder, depression and agoraphobia. She started the process of applying for welfare benefits, put her house for sale and moved in with her mother to reduce her financial burden. Despite her efforts, she found herself spiralling into debt due to the lack of income while going through the lengthy benefits application process. As the Toucan trial was taking place, P10 was still trying to recover from this situation:

I've been really busy trying to sort out my mental health and my finances. It has been a bit of a roller coaster (...) I am just at the very beginning of getting everything sorted (...) I had to stop working due to physical disability and then my mental health flared up. So the past 3 months it's been, it's been times where I have been having to apply for benefits and get advice over my financial situation and my debts. (P10_closing)

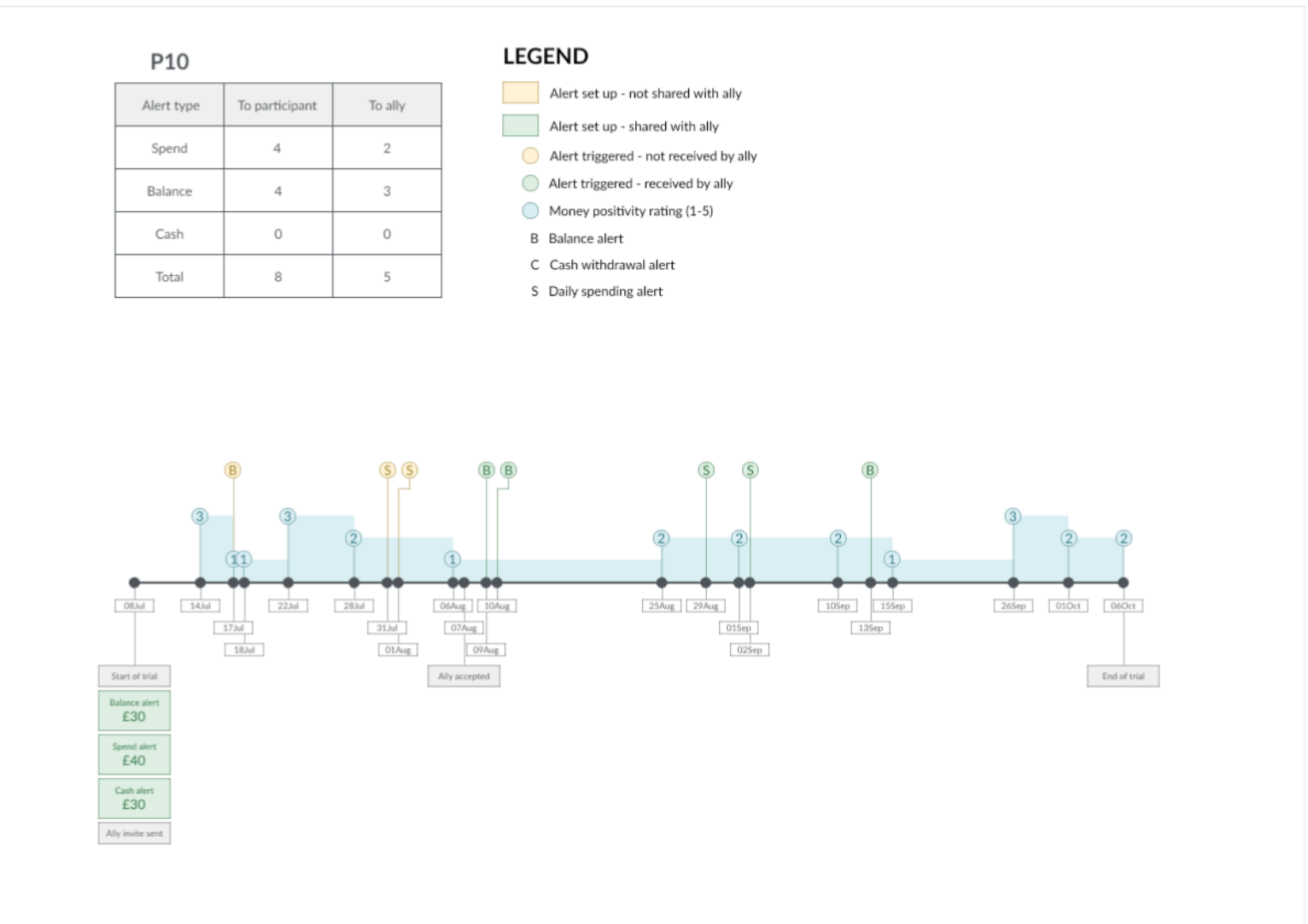
With support from her sister, who was also her Toucan ally, P10 sought the advice of a debt support charity, where they helped her freeze interest charges and put a repayment plan in place. By the time the study finished, that plan was coming to an end, but P10 still owed £4000 to various companies.

P10 set up the Toucan application by herself on July 8th ahead of the opening interview. She switched on the 3 alerts provided by Toucan and configured them with the following amounts: £25 for the cash withdrawal alert, £20 for the spending alert and £30 for the balance alert. During the opening interview, she modified 2 of the amounts: changed the cash withdrawal alert to £30, and the spending alert to £40. As far as we can tell from the application usage data available, she kept these amounts for the whole trial.

P10 set up her sister as her Toucan ally and shared with her all 3 alerts. Unfortunately, the Toucan invitation email was flagged as spam by P10's ally's email provider. That caused a delay in the invite acceptance, which didn't happen

until August 7th. This explains why P10's ally did not receive all the Toucan alerts. P10 received a total of 8 alerts during the pilot: 4 spending alerts and 4 balance alerts. Her ally received 5 alerts: 2 spending and 3 balance. Figure 4 summarises the application trial configuration and activity for P10, as well as her self-reported money positivity ratings.

Figure 4. P10's visual history of events during the Toucan trial, including alerts triggered, alerts shared and money positivity ratings. P10 shared all alerts with her ally and did not change the alert configuration during the trial.



6.4 Participants' Expectations of Toucan's Alert Sharing Functionality

Before being introduced to Toucan, many of the participants were already familiar with the concept of money alerts. 9 of them (P2, P3, P4, P6, P8, P9, P10, P11 and P13) were using them as provided by their banks, credit card companies and, in the case of P3, her children's school pre-paid card. These alerts were mainly delivered by SMS, although P3 was receiving money-related communications also via email. Alerts were triggered by low bank balances; by balances below or above a certain amount (P2, P3, P9, P10 and P13); by outgoings over a certain amount (P2 and P10); and by upcoming direct debit or credit card payments (P6, P8 and P11). In addition, P4 told us she received a daily text from her bank with her balance amount; P6 one when her credit card statement was issued; and P3 was sent an email if she was about to be charged for an overdraft.

Toucan offered participants the already familiar balance below alert, plus new daily spending and cash withdrawal alerts. The daily spending alert was well received, was activated by all participants, and was the one triggered more often, with 300 of them delivered to participants and 160 to allies during the 90-day study period. The cash withdrawal was less popular, with several participants telling us that they rarely took cash out.

However, Toucan's main contribution from our participants' perspective was not the new alert types, but the possibility of sharing those alerts with a trusted third party. Participants quickly saw the utility of that simple feature during the opening interviews:

I think for me, it's the alerts I think will be particularly useful and setting those up in terms of spending (...) In terms of managing money but also, I think that connection to my other half as well (P9_opening).

For P14, the alert sharing functionality looked like a suitable balance between autonomy and protection during periods of poor mental health. She told us that Toucan's alerts sounded "like a happy medium" (P14_opening) between total independence and excessive third party control.

Participants expected shared alerts to increase the engagement of their chosen ally with their financial affairs: “I want to involve my sister in my financial situation more than what I have done, so that she’s aware of what’s going on” (P10_opening).

They also hoped that the shared alerts would act as a money conversation starter and encouraged them to discuss the subject more often:

what I really like is the having somebody to just say, I’ve just noticed something’s come up and perhaps, just allow us to talk about money a bit more as well. It will be like, you know, give us an opportunity to discuss things rather than ignoring them or trying to sweep them under the carpet. (P14_opening)

Shared alerts could relieve participants from the responsibility of initiating such conversations, by enabling the allies to do so. P10 explained that her bank’s money alerts, albeit useful, “didn’t open the conversation with my family (...) if I’m struggling or I need some advice, I have to go to them. Whereas the Toucan app, I’ve got my trusted ally and they can respond to me” (P10_opening). P6 made a similar remark:

I think it’s quite useful particularly if you’re not talking about money, which a lot of people aren’t. It just opens that door, some sort of conversation without physically going and asking for someone. It’s like, because they will get the alert, they will come to you to check: is everything okay? (P6_opening)

Participants also hoped alerts would empower their allies to provide support and safeguarding: “I find it quite hard managing money on my own really. So, it is useful just to have that... something to fall back on” (P14_opening). P11 reflected on how an alert to a third party may have avoided a recent financial scam of which she was a victim. She had made a £6000 transaction with her credit card, an amount that was “completely abnormal” (P11_opening) for her spending habits:

If that flagged straight away to [ally] or my mum and dad (...), they could check in and see (...) can we recover that? Because it’s on credit card or cancel whatever has been spent (...) So, it is massively safeguarding myself. (P11_opening)

Finally, P13 and P14 speculated about shared alerts acting as an spending deterrent, since expenses may trigger a message to their trusted third party: “hopefully it will just keep me a bit more mindful about what I’m doing knowing that [my ally] is going to be alerted” (P14_opening).

6.5 Toucan Alert Configuration and Management

A lot of the moneywork associated with Toucan was collaborative in nature and involved the ally in one way or another. That collaborative moneywork is the subject of Chapter 7. However, configuring the alerts was something that participants did mostly on their own. In fact, allies seemed to know little about the Toucan app itself or its configuration process. AP3:husband told us he wasn't "quite sure what triggers those text messages" (AP3:husband_closing); AP7:sister did not know that it was P7 himself who set the rules for alert triggering; and AP6:partner told us that his counterpart had kept the alert configuration to herself, and that he had stayed "away from that" (AP6:partner_closing), although he did know that P6 had modified the alert amounts: "I know that she kept adjusting amounts to sort of like make it work better" (AP6:partner_closing).

When installing the Toucan app, participants had to make decisions about which alerts to activate, and about the amounts suitable for each. The former did not pose much trouble. Perhaps because they considered it beneficial for the research study, all but one participant activated the 3 alerts provided by Toucan when installing the application: balance below, daily spending over, and cash withdrawal. This was in spite of several participants telling us that they seldom used cash (P1, P6, P9, P11 and P14), or that this alert was not relevant to them because they would always remember taking money out from an ATM (P5). Only one participant (P9) did not activate the cash withdrawal alert.

Table 3 shows the alerts activated and the amounts chosen for each alert at installation time. The first table row displays the default amounts Toucan provided for each alert. Grey cells indicate the alerts where participants opted for the default amounts. P13 did not modify any of the default amounts. This participant installed the application by himself before the opening interview, and explained that he had not realised he could change the alert amounts.

Table 3 - Alerts activated and amounts set at installation time / opening interview. Grey cells indicate amounts left unchanged from the application defaults.

Participant	Spend alert	Balance alert	Cash alert
App defaults	£25	£50	£30
P1	£40	£25	£50
P2	£30	£200	£50
P3	£150	£100	£30
P4	£25	-£500	£30
P5	£30	£95	£60
P6	£50	£1,000	£100
P7	£50	£50	£50
P8	£60	£50	£50
P9	£40	£50	OFF
P10	£40	£30	£30
P11	£160	£20	£45
P12	£40	-£180	£30
P13	£25	£50	£30
P14	£50	-£250	£50

Choosing suitable amounts presented some difficulty, particularly for the daily spending alert. For the balance alert, participants seemed to have a good sense of what amounts would signal trouble. Those who often resorted to overdraft facilities used their negative limit as a reference. For example, P4 set an amount close to her minus £600 limit: “my balance, I’m in my overdraft (...) So, I would have to put that to maybe, can you put minus on there? (...) Yeah, I put minus £500, I want an alert” (P4_opening). P14 set the amount to half her allowed overdraft (-£250): “I’m just trying to work out... If I did half my overdraft, yeah that’s fine.” (P14_opening).

As noted in section 6.3.1, P5 based the amount for his balance alert on his weekly childcare payment, in order to ensure he always had enough funds to cover that commitment:

balance falls under £50, to be honest I need it to be more than that. Balance falls under £95 because of the CMS [Child Maintenance Service] payment every Monday. If my balance goes under £90 and they try to do the CMS payment that’s going to bite, so I’m going to actually make that probably £95. (P5_opening)

P3 simply reused the amount of the balance alert she had configured with her bank:

Balance falls under £50. Yeah, that’s where I’ve had one from [bank] when it falls under £100, so I can edit that number, can’t I? So, I will put it up to [£100] because that kind of works for me. (P3_opening)

Setting the amount for the daily spending alert was harder. P3 and P6 remarked that daily spending could vary significantly based on, for example, shopping routines, day-to-day activities or life circumstances:

If someone said to me, how much do you spend on an average day? I’d have no idea because one day it could be the week’s shopping and the next three days I do nothing bar maybe get a coffee at McDonald’s as a treat... £2. I don’t know because I make sandwiches to take to work and then other times my shoes might be falling apart, so I don’t really know. (P3_opening)

P8 apparently tried to address this problem by deactivating the spending alert for certain days of the week: “my mum said she had it turned off for Mondays or Tuesdays when she paid her bills and did her food shopping. So it blocked it for those days” (AP8:daughter_closing).

A few participants told us during the closing interview that the amounts they set at installation time turned out to be too low, but they did not take action to change this. P1 was one of them. She tried to use her money habits as a reference to determine the amounts, particularly for the spending alert: “I thought about what I would spend when I was doing OK, and decided any amount higher than that would be when an alert should be sent” (P1_closing). In retrospect, she found that those amounts were “unrealistic” (P1_closing):

I haven't edited alerts, though I wish I had. I think they were a bit unrealistic considering my income changed and how little money I was receiving at the time, but at least I really tested the app and the alerts. (P1_closing)

P4 and P14 had a similar experience:

I probably would have altered the levels a bit because I did set it a bit low, I think, particularly the debit card transactions. (...) I'm not even entirely sure what I set it at, but I think it was about £50... probably £100, I think, may be a bit more realistic. (P14_closing)

Other participants showed more purpose and a willingness to experiment. 3 of them (P6, P7 and P8) set the alert amounts deliberately low initially in order to verify that the Toucan app was working as intended, and to explore their ally's reactions. P7 wrote in his diary that he had set his alerts so that his ally would get “plenty of notifications” (P7_diary). P6 told us that she “started fairly low in the beginning” because she “just wanted to see what I would get through” (P6_closing). P8 said that she had set the amounts low initially so “that we could make sure that it was kind of working okay” (P8_closing). These 3 participants, together with another 4 (P2, P3, P10 and P12), changed the alert amounts during the study period. The reasons behind the changes varied. Some, like P7 and P8, increased the amounts in the spending alert in order to accommodate extraordinary expenses, such as holidays or childcare:

I do have out of the ordinary expenses, you know with having kids and school stuff and uniforms and that to buy, but day to day if it is any more than £50, it's kind of like [groans], you know, what's the story? So, I set it first at £30, then we upped it to £50, but yeah, it kind of went off a few times [laughs] (P8_closing)

Others, like P3 and P6, wanted to reduce the number of alerts they were receiving. P6 felt this was needed due to Toucan's inability to identify routine transactions, such as direct debits:

As it's not possible to set a preference to ignore payments going to certain accounts as yet, I'm considering potentially increasing the limit on the alert for spending over £50 in a day although I haven't made my mind up on it yet. (P6_diary)

Concerns about her ally worrying unnecessarily finally convinced her to increase the amount of the spending alert:

Had another Toucan alert and decided to change the setting in the app to increase the daily spend allowance as I felt it was being triggered too quickly. It also began to worry [my ally] getting too many ally alerts and questioned whether I was constantly spending. (P6_diary)

P12 adjusted the balance alert based on the income she received each month, and the cash alert based on how much she was expecting to withdraw:

I would edit it. Sometimes like one month I would be getting a little bit more and (...) I edited that bit; and then the cash withdrawal it was high and I thought: hang on a minute, I am not going to be taking out that much, let me edit it. So I edited it lower. So yeah (...) I didn't do it like every week or every day. I would say like maybe two or three times out of the trial. (P12_closing)

These changes illustrate our participants' attempts to compensate for the limitations of Toucan's functionality, which lacked the sophistication and flexibility necessary to accommodate the ebbs and flows of their personal money lives.

6.6 Alerts Delivered to Participants and Their Allies

Other than to configure the alerts, participants engaged little with the Toucan application itself, since it provided very few features. What drove engagement with the Toucan functionality were the alerts, and in particular alerts delivered to allies. The most illustrative example in this regard was P13. This participant stopped using his smartphone soon after the beginning of the trial, which meant he could no longer access the Toucan mobile application. In spite of that, his ally continued

receiving alerts, and got in touch with him when that happened. P13 explained that, although he did not use the app itself, the alerts to his ally still sparked “plenty of conversations about my spending” (P13_closing).

Of the 13 allies configured during the study period, 10 received alerts. 3 of them (AP2:daughter, AP9:husband and AP11:partner) did not for various reasons. For instance, AP2:daughter never managed to accept the ally email invitation; and P9 shared only the balance alert with her ally, but no alerts of this type were triggered during the study period.

Participants received a total of 430 alerts, 213 of which were shared with their allies. The most triggered alert was the spending one (300 to participants and 160 to allies), followed by the balance alert (82 to participants and 31 to allies), and the cash withdrawal alert (48 to participants and 22 to allies). Table 4 provides a breakdown of the alerts delivered to each participant and their allies.

Table 4 - Alerts delivered to each Toucan participant and their allies.

P#	Cash self	Cash ally	Balance self	Balance ally	Spending self	Spending ally	Total self	Total ally
P1	0	0	7	0	7	7	14	7
P2	0	0	5	0	23	0	28	0
P3	18	10	2	2	39	36	59	48
P4	9	2	14	4	43	18	66	24
P5	3	0	3	2	9	2	15	4
P6	0	0	0	0	20	12	20	12
P7	1	0	10	10	10	9	21	19
P8	1	0	4	4	40	31	45	35
P9	0	0	0	0	15	0	15	0
P10	0	0	4	3	4	2	8	5
P11	1	0	4	0	6	0	11	0
P12	1	0	16	0	35	0	52	0
P13	13	10	7	0	19	14	39	24
P14	1	0	6	6	30	29	37	35
Total	48	22	82	31	300	160	430	213

In general, participants whose allies received alerts seemed more engaged with the study and with the Toucan functionality. The exceptions were P12 and P14. P14's ally seemed confused by the alerts, with the participant telling us her ally "didn't quite know what to do" (P14_closing) when he received one: "he kept on answering: okay, and he didn't know if that was the right thing to do or not. [Laughs]" (P14_closing). For P14, the lack of cooperation from her ally seemed to reduce the significance of the alert sharing functionality.

P12's situation was somehow the opposite. This participant wanted one of her professional support workers to become her ally, but they could not do so due to employment rules restricting mobile communication with clients. Although P12 did not configure her support workers as Toucan allies, they still used the application and its alerts as a way of starting conversations about money with P12:

they would say, have you got any kind of alerts, sort of thing. So (...) even though they weren't directly getting the messages, they were still asking me about my financial situation and like supporting, if that makes sense, in a positive way. (P12_closing)

For P12, the Toucan alerts were an effective way of generating conversations about money, even though no ally existed formally in the mobile application. The cases of P14 and P12 exemplify the important role the ally played in delivering the Toucan functionality effectively. In the next section, I discuss the influence that such functionality had in the participants' financial practices.

6.7 The Influence of Light Oversight on Participants' Financial Practices

Engaging with the Toucan app made a difference to the way people spoke about money, and induced some changes in our participants' financial habits. I explain both effects in turn.

6.7.1 Influence on Money Conversations

As described in section 6.4, during the opening interviews 4 participants (P6, P10, P13 and P14) expected Toucan to have an impact on their conversations about money. For instance, P10 hoped the Toucan alerts would generate opportunities to

discuss her financial struggles with her family, and to further involve them in the process of bringing up the subject of money:

the alerts for [my ally] will (...) open a conversation up, whereas before it was just left to me and I just put it off and put it off, but now it will alert [my ally] when I need it and then she can approach me and we can discuss things instead of leaving it. (P10_opening)

P10 also anticipated Toucan alerts would “make it more regular, make it more normal to talk about finances” (P10_opening). That was precisely the main outcome of engaging with the Toucan app. During the study period, most participants experienced a change in the frequency, nature and quality of the money conversations they had with their allies. Only P1, P6 and P9 reported no significant changes in this regard. These 3 participants already spoke about finances regularly with their allies before installing the application, and so the alerts had little effect on the way they discussed money:

I don't think the alerts changed how my partner and I talk about money, I've always openly spoken about it with him if there's a problem. Plus we are both on my [welfare benefits] claim so I kind of have to chat about money with him. (P1_closing).

To assess the frequency of money conversations during the diary study, we asked our participants every week if they had spoken to their allies about finances. We received 111 replies to that question, 82 of which answered affirmatively. 15 of those replies explicitly mentioned that conversations were initiated by, or were about, Toucan alerts. For instance, P10 told us her ally had “been in touch because she received some Toucan alerts. We talked about money and how I can budget better.” (P10_mobile). P1 said her ally “received a text from the app” and “they spoke about money issues a bit.” (P1_mobile). P3 explained the “Toucan app has generated a few messages so this has spurred conversations.” (P3_mobile). During the closing interviews, 2 allies (AP8:daughter and AP10:sister) and 3 participants (P4, P12 and P14) reported discussing finances more often with their counterparts. Based on this evidence, we can conclude that Toucan use encouraged participants to speak about money more frequently.

Regarding the nature of money conversations, Toucan seemed to contribute to their normalisation. For P14 and AP7:sister, money opened up as a regular subject for discussion, rather than a matter brought up only in emergency situations. P3 thought Toucan had put “talking about money on the agenda” (P3_closing), and that it helped her “verbalise + be open about my spending” (P3_diary). P10 felt speaking about money had become less daunting:

It is still daunting, don't get me wrong, because I am an anxious person and I don't like having to face my finances. But because it's opened a dialogue with my family it is not as daunting as what it was. I'm not burying my head in the sand any more. (P10_closing)

This normalisation took place through the alerts, which provided a conversational prompt, a regular entry point for bringing up the subject of money that was not tainted by the stigma of financial difficulty. The conversations started through those alerts were “very gentle” (P5_closing) and “not confrontational” (P14_closing):

the way we kind of went about it. It was more of a light hearted matter (...) It was more of a just casual thing to mention (...) because we would just be having a discussion and I'd just be like: oh, by the way, the money people texted me. Whereas before, I would never dream of mentioning it like: by the way (...) Do you think you've been spending too much? (AP8:daughter_closing)

The fact that the conversation was expected may have also contributed to a more relaxed and informal tone:

because [my ally] was aware that for whatever reason she's been made alert and I (...) know because I will have had the same alert, (...) it wasn't like: right we need to sit down and talk about money. It was just very gentle. (P5_closing).

Similarly, AP8:daughter explained that, when she brought up the subject, her counterpart “would just be like: I was expecting it. And I think she said she noticed after a while that she would get some kind of alert and that within a day or so I'd be like ... So?” (AP8:daughter_closing). Since both the ally and the Toucan user received the alert at the same time, both parties were aware in advance that a conversation about money may be coming, which allowed them to prepare for it.

Finally, money conversations between Toucan users and allies also changed in terms of quality, gaining depth and detail:

I didn't really think much about it until I started getting the alerts and I started (...) contacting [P10] and seeing how she was going. And I found that she opened up a lot more to me, rather than just saying the odd comment: oh, I've got no money. We would talk about it in more detail. How much money have you got left? When do you next get paid? I can make your tea a few nights. (AP10:sister_closing)

Conversations about money went from generic expressions of trouble and requests for help to discussing specifics. Some of the issues spoken about included planning for Christmas shopping and summer holidays, spending related to family events such as birthdays and weddings, budgeting for furniture and decorating, applications for welfare benefits, reliance on overdrafts, unexpected expenses like car repairs and veterinary bills, car fine payments, improving credit ratings, home and car financing, reimbursements for weekly shopping, and changes in utility suppliers. On one occasion, P8 even brought up the list of her bank account transactions in order to talk about her outgoings.

In general, participants shared more information about their financial affairs with their allies, who in turn became more aware of the challenges their counterparts faced, and of the impact of their mental health conditions. P3 told us her ally was now "a lot more supportive." (P3_closing), and more conscious of the pressure she was under when she was managing all the household finances alone. P1 explained the alerts made her ally "aware that even if I looked okay, I wasn't, and I'd resorted to buying myself something nice to cheer myself up." (P1_closing). AP4:mother felt Toucan had put her "in the picture with everything" (AP4:mother_closing) related to P4's money. P10 explained using Toucan had helped her ally better understand "what I am going through", because before she was "hiding a lot of things out of shame" (P10_closing). AP10:sister felt more capable of supporting her counterpart with her finances, and believed the experience had brought them closer. For P8, her ally, who has her 19-year-old daughter, had become "a bit more compassionate" (P8_closing), and was able to engage with her health and money issues in a more mature way: "It's a weird one, it's almost like she understood that I have a bit of an issue, but she also kind of became, in a way she became the parent in that regard." (P8_closing).

Changes on frequency, nature and quality of money conversations also happened when only one party was receiving the alerts. P12 did not configure her chosen ally in the app, and was therefore the only one receiving the messages from Toucan. In spite of that, those supporting her still used the alerts as a way to enquire about her financial well-being. P12 also felt that Toucan made her “open up more and (...) ask for support” (P12_closing): “I just feel more able to talk to [my allies] about (...) money (...). Not feel like just ashamed and worried.” (P12_closing). P13 stopped using his smartphone soon after installing the Toucan app. As a result of this, only his ally was receiving the alerts, but they still generated conversations about his finances:

I'm sorry that this smartphone thing meant that I wasn't able to use the app (...) but obviously with my ally still getting the alerts, (...) it has led to conversations that we've had with regards to looking after my finances. (P13_closing).

During those conversations, they talked about his spending, and about “hints and tips on how I can budget and try and spend less.” (P13_closing).

This move from raising money problems towards discussing remedial action reveals one of the ways in which Toucan affected the financial habits of our participants, a subject to which I turn in the next section.

6.7.2 Influence on Financial Habits

Participants discussed the effects Toucan had in their day-to-day financial habits and practices. They explained Toucan incited them to check their bank accounts more often, helped them rein in their spending, made them more aware of the overall state of their finances, and encouraged them to plan ahead and take action to improve their financial situation.

Participants often reacted to Toucan alerts by checking their bank accounts in order to verify what transaction(s) had triggered the message. P6 recorded in her diary several instances of this behaviour, such as this one: “I had another alert from the Toucan app this morning, again saying my spending may be higher than expected. It prompted me to check my account.” (P6_diary). The fact that Toucan alerts did not provide transaction details may have encouraged this practice, since the lack of

specifics required Toucan users to make sense of the financial situation by themselves:

When I first got the alert, I was like, hang on a minute [laughs]. I was a bit confused. Then obviously I went straight to my account (...) I checked it, and then I realised what it was and obviously I was relieved, but then I thought: actually, that is a good thing, because it made me straight away look and (...) just check and see what is going on with my account. (P12_closing)

Participants also described how the alerts helped them overcome their passivity and the tendency to ignore their financial affairs, encouraging them to keep an eye on their bank accounts:

it had a massively positive impact. It helped me to stop ignoring my bank and open my bank account and look at it and budget. It helped me do that regularly, not just once. It also helped me check my bank more often without the alert. (P10_closing).

The result was participants checking on their bank accounts more regularly, more often and “a bit more thoroughly” (P14_closing).

Some participants (P1, P3, P6, P8, P12 and P13) also claimed Toucan helped them rein in their spending. For 4 of them (P1, P3, P8 and P13), the fact that the alerts triggered by it would be delivered to someone else had a deterring effect. As P3 put it: “my secret spending is no longer secret.” (P3_closing). P8 had a similar experience:

at times when I have been in bed and flipping buy this, buy that on Amazon, eBay or whatever. At times it has helped me go, oh my God, [my ally] is going to get a text. I have kind of gone, do I need to really buy that? (P8_closing)

Although, at least for P1, that deterring effect wore off as she and her ally became used to the Toucan messages.

Besides this deterrence, alerts made participants reflect on the nature of their spending, and on the impact it had in their financial situation. P3 described it as receiving “a little wake up call when I get lots of texts which make me check the spend is necessary.” (P3_diary). P1 claimed “The alerts definitely made me more

aware of how much I was spending and I was as careful as I could be when it came to spending my money.” (P1_closing).

Overall, and probably as a result of the outcomes described above, participants felt “more aware” (P14_closing) of the state of their finances: “having used the app has made me on top of my spending and aware a lot more (...) it’s helped me to flag things up that I wouldn’t think and be aware of my limits” (P12_closing). They also discovered aspects of their own financial practices that had remained hidden until then. For instance, P5 came to realise that his “greatest financial struggle is with the use of credit cards.” (P5_diary). P3 noticed she was not using the joint account she and her ally had created for household expenses:

I found that I was forgetting to use the joint account for the shopping. (...) it wasn’t until I got a few of those messages that I sort of realised, hang on a minute, we’ve got a joint account for shopping for the house and I am still using my account. Habit, habit. (P3_closing).

Perhaps encouraged by this increased awareness, participants started to devise strategies to improve their financial situation and to take action. P3 explained how she overspent “when I don’t feel so great and it can be pointless spending” (P3_closing). To tackle this issue, she started to fill up online shopping baskets without proceeding to the payment stage immediately, letting them rest overnight. She would then revisit the basket the day after and delete the items. In this way, P3 introduced friction and time for reflection in the online shopping process, which helped her reduce unnecessary spending.

Other participants explored solutions in collaboration with their allies. For instance, P13’s ally encouraged him to budget and “to get a bit more control” (P13_closing). She also shared with him some shopping advice:

recently, the amount of help that [my ally] will give me financially has decreased considerably and she is sort of trying to encourage me to budget. We had a conversation, when I told her I was doing this, we talked about my shopping and she said, why not go to Aldi and get loads of stuff from there instead of getting it from Tesco if you can? (P13_closing)

P5 worked with his ally to reduce his reliance on credit, and his tendency to spend money he did not have:

getting better with waiting until payday. That's been my biggest change really. I know that payday is coming, I know that I want something. So before I thought: well, I want it now. I get payday in a week so, I will get it on credit now because I know next week that I can pay off the credit, but now I'm waiting until payday. (...) that is a better habit to be in. (P5_closing)

P12's allies were able to identify additional sources of support available, discuss them with her, and apply for the ones she deemed appropriate. For instance, P12 chose to apply for a particular grant, but decided against a full financial assessment:

to see if I can get (...) some of my debts wiped off. I said at the moment I don't want to do that because it will affect my credit history long term and, in the future, I want to be able to get a mortgage. They still did approach me and say, if I changed my mind, or if I want that, that is there. (P12_closing)

This type of financial cooperation was particularly fruitful for P10 and her ally:

the more alerts you get, I found that the better it was. We started coming up with ideas on how to make money [laughs]. Not just survive the next few weeks (...) It's started to be a long term thing (...) rather than just do quick fixes, it's like what can we look at long term to help her financially. (AP10:sister_closing)

P10's ally helped her switch to electronic cigarettes to save money, together they reviewed online shopping baskets to remove unnecessary items, discussed how to budget better, and 2 days before our closing interview they opened an eBay account to sell the many things P10 no longer needed:

I normally just pile it all up and take it to charity and I thought, do you know what? I could use some of this money for Christmas. It was my ally's idea. My last text, she came round and we were like thinking of a way that I can make money while I am waiting for all of this help and support to come through. (...) There's stuff that I don't need any longer that is just sitting in boxes. Yeah, she's helped me get it out and photograph it and post it up on eBay. (P10_closing)

Throughout the Toucan pilot, participants progressively moved from sharing and reflecting on their finances to taking action, and to actively work on improving their money situation.

6.8 The Shortcomings of the Toucan App

As it can be appreciated from the previous section, engaging with the Toucan app had some positive effects on participants' financial habits. This was in spite of the considerable shortcomings of the application, whose features were still rather simple and underdeveloped.

Participants described three main problems with the Toucan app: the inability to identify regular payments; the delays between transactions and alerts; and the fact that the alert effects faded over time. I discuss each of these issues in turn.

6.8.1 Inability to Identify Regular Payments

Toucan's inability to filter out regular payments was the main source of frustration for participants. The Toucan spending alert claimed to be able to create exceptions for "rent and bills", something participants asked about and commented on during the configuration process: "it says excluding rent and bills. So that's quite clever because I know if something comes out but it's not my rent or my bills then: what is it? kind of thing. Which is good" (P12_opening).

This turned out not to be true. In practice, Toucan was not capable of identifying regular outgoings. As a result, spending alerts were triggered by rent and mortgage payments, direct debits, standing orders and other ordinary transactions that were not cause for concern, generating unnecessary alerts:

The main problem I had with the alerts is that you can't actually segregate and pinpoint the regular expected payments. So alerts are being triggered at the moment by direct debits which you are expecting. (P6_closing)

Some participants tried to compensate for this shortcoming by adjusting the alert configuration. For instance, P8 turned off the spending alert the day of the week she usually paid her bills; and P6 increased the alert amount:

the app does not yet recognise routine payments which have been triggering alerts unnecessarily and I updated the alert criteria for daily spend allowance, increasing it from £50 to £200. (P6_diary)

Not filtering out regular payments increased the frequency of the alerts, undermined their relevance, caused unnecessary worry to allies and became a source of frustration: “every time she buys a bar of chocolate, I get a text message. It felt like [groans]” (AP3:husband_closing). It also contributed to alerts being ignored as time went by: “I’d prefer to receive alerts for more random or unexpected spending patterns as it could be tempting to ignore the standard alerts if it’s being triggered too often” (P6_diary). As AP3:husband observed, “it is a little bit like the boy who cried wolf” (AP3:husband_closing).

Overall, the inability to exclude regular payments and its effects severely diminished the utility of the Toucan application. Not surprisingly, the capacity to filter out certain outgoing transactions was the number one feature request from study participants, who insisted that Toucan should only fire alerts upon out-of-the-ordinary financial transactions. Participants were willing to exclude payments manually as part of the configuration process if the application could not automate the recognition of regular payments: “I think maybe an initial sort of check list where I can say: this will come out once a month, twice a month, once a week and it’s a usual activity. It might be a good thing” (P5_closing).

6.8.2 Delays Between Transactions and Alerts

Toucan triggered alerts based on confirmed transactions listed in users’ bank accounts, but the card payment process can introduce a significant lag between the act of paying and the transaction being registered as complete in a bank account. As a result, participants reported delays between card payments and receiving the corresponding Toucan spending alert:

when I spend money, my ally won’t always receive a text the same day. He’ll receive one when it’s no longer a pending transaction, and sometimes days worth of payments all go out at once so days where I haven’t actually spent anything, he will receive a text saying I did. (P1_closing)

Alert delays meant the reactions of allies were out of sync with participants' spending, and undermined their ability to provide timely support:

The downside that I have found about Toucan is it doesn't kind of alert until it hits the bank account. So I am there maybe, just for example, I am there on a Monday having a bad day going: right, I need to buy 101 crystals or whatever. Going buy, buy, buy, buy, and then it doesn't come out until Wednesday. (P8_closing)

Delays also decontextualised the alerts, making it harder for participants to interpret them and to link them to their financial activity: "[Toucan] is generating these text messages. Then I'm going: I don't know what I have spent money on today. I have not spent money today." (P8_closing). P1 described how this made her panic: "The one that really stands out is an alert my ally received, I panicked as I hadn't spent any money that day! Turns out it was my bank catching up, so pending transactions had all cleared at once" (P1_closing).

Toucan's delayed alerts compared badly with the instant push notifications provided by neobanks (Joyce, 2019b):

you spend something on your card, bang it shows up on your card, bang it shows up on your phone, you know exactly where you are. I really liked that about the [neobank] app, that instantaneous... A normal bank, it can take 2-3 days before it shows up on your account. If you've used your card a few times, you are not 100% sure where you are at. (P5_closing)

As the participants' words illustrate, timeliness in transaction and spending reporting is of great importance to build and maintain financial awareness. Instant notifications supported participants' financial monitoring strategies, and were highly valued by those who had experience of them:

I got a [neobank] card a few months ago. I mean, this is maybe peculiar to me, but the one thing that I find great about it is you get an instant notification whenever you use it. (...) I've found that really, really helpful, because the likes of your bank, you maybe pay for something and it doesn't come off for two or three days or something like that (...) I don't look at my banking that often. So I think that is brilliant that particular feature in [neobank]. I don't know if other people would agree with me, but I don't know: there is just something about it that makes you keep an eye on things. (P7_closing)

Participants agreed that instant notifications from Toucan would be beneficial: “obviously real time, if it was kind of the same time, then yeah, it does help a lot” (P12_closing).

Although participants complained about the delays between transactions and alerts, this timeliness issue also had desirable outcomes. For instance, the disconnections between triggered alerts, participants’ expectations and their financial behaviour forced them to make sense of the situation. Participants had to work out by themselves what had triggered the alerts, and doing so required checking their bank accounts, something many considered a positive behaviour:

I do remember another time that I got an alert. I couldn’t figure out why I’d had the alert (...) I was like: has someone got my card? Because I haven’t spent any money all weekend and this flagged up. But it was actually a standing order (...) I set up a standing order and that flagged up. I mean, it was good because it prompted me to check my account (...) Any prompt is probably a good thing for someone who is struggling with money, but it was an unnecessary prompt. (P5_closing)

In addition, delayed alerts gave P1 time to recover from dissociative states, and meant that Toucan messages arrived when she was in a position to act on them:

I’ve had a few alerts that have made me realise that whilst in a dissociative state, I had bought stuff online and hadn’t remembered the next morning so I was able to get online and cancel the order in time! (P1_closing)

If these alerts had been triggered immediately upon payment, they may have reached P1 during the dissociative episode, during which she may not have been able to request the cancellation.

The unexpected positive effects of what was perceived as a defect in the application hint at the potential of imperfect technologies, i.e. those that require humans to engage with their context in order to make sense of the technology’s behaviour and output.

6.8.3 Alerts’ Effects Fading Over Time

Perhaps as a result of the above shortcomings, some participants told us that once the novelty of the alerts wore off, their effects started to fade away. At the beginning, participants received the alerts with certain nervousness and anxiety:

“when it first came, I was very happy that it was working and then I felt a bit daunted because I thought: I’m going to have to face it now and look at my bank” (P10_closing). Allies also experienced some worry initially, caused by a combination of lack of detail in the alert content about the triggering circumstances; the alert frequency, which was higher than expected; and in the case of AP7:sister, her counterpart’s prior history of financial difficulty:

there is a wee bit of anxiety (...) but you know I contacted him and he just sort of said everything is fine and you will probably get more of these because of this, this and this... and so that was fine. So after that I didn’t really worry. Although there is always a wee bit of underlying concern because, you know, there’s a track record there and difficulties in the past. (AP7:sister_closing)

As time went by, participants became more relaxed, and for many of them the effect of the alerts started to wane:

I found it helpful at the beginning, I was careful about how much I was spending as I was aware my ally would receive a text. As he became more relaxed with receiving them, I became more relaxed with spending. (P1_closing)

P14 also experienced this waning effect: “I did start off doing quite... checking my bank account regularly and stuff like that, but then I just stopped” (P14_closing). For a few, such as AP3:husband, the alerts finally became irrelevant:

At first, they came fairly thick and fast so they kind of lost their impact a bit. So when I saw it, I heard my phone beep, I’d look at it and it was Toucan. Okay, same again. Carried on with my day, didn’t really think about it too much. So the messages did lose their impact after the first few. (AP3:husband_closing)

A combination of factors may have contributed to this waning effect. For instance the triggering of unnecessary alerts due to Toucan’s inability to identify regular payments, and the lack of sophistication in the alert configuration options. The latter was discussed at length by the participants, who proposed numerous additions to the alert functionality. These are described in detail in the next section.

6.9 Additional Alert Configurations

As mentioned in the previous section, several participants wanted to customise their alerts in order to exclude regular, expected or unproblematic transactions from triggering notifications. In addition to that, suggestions for new alerts fell into 4 categories: payment related, merchant related, timing related and event related.

Payment related suggestions were connected to payment types and amounts. Participants wanted Toucan to recognise card transactions made online; distinguish which payments were made physically in a store (i.e. card present), and which were not; and identify contactless payments. They also wanted alerts triggered by the amount of a single payment and by the frequency of transactions.

Merchant related suggestions referred to the nature of the trader taking the payment. Participants mentioned merchants considered generally problematic, such as gambling and alcohol purchases; but also merchant categories and single traders that were troublesome to them personally, such as airlines or Amazon.

Timing related suggestions included the ability to configure alerts based on the days of the week in order to accommodate financial routines (e.g. house shopping); spending done within a certain period of time (e.g. per week), or at certain times of day:

My main issue regarding money shopping whilst I'm unwell is shopping through the night, so like an alert for some spending during certain hours would be pretty helpful, like between 11pm and 7am for example.
(P1_opening)

They also wanted time-based reminders, such as weekly prompts to check one's bank account:

perhaps a weekly prompt just to check your account for anomalies? It may seem obvious and good practice to keep a close eye on your account but when you're struggling with your mental health, the obvious becomes invisible so it could act as a reminder. (P6_diary)

Event related alerts encompassed reminders for upcoming direct debits or bills (e.g. credit card bills); notifications for funds leaving (e.g. direct debit payments) or arriving in the account (e.g. benefit payments); alerts triggered by payment fees, overdraft fees and other unauthorised charges; and messages about potentially fraudulent transactions, such as setting up new payees, payments to new merchants or payees, and transactions abroad. Participants also wanted to see the details of the event that had triggered the alert.

The value was often in combining the above criteria in order to create highly targeted alerts carefully tuned to personal financial behaviour. For instance, P8 wanted to combine payment type (online), number of transactions and time period in order to trigger an alert when “you do more than 3 internet transactions within a 4 hour period” (P8_closing). P12 wanted to couple transaction amount and new payee set up: “what will be helpful is an alert if you are adding a new payee and it’s over a certain amount, for example 50” (P12_messages). P3 would like to be told when her contactless payments combined went over a certain amount:

if you’re spending, I don’t know £6 here, £5 there. I don’t know if there is a way of (...) just sort of say: be aware of your contactless spending, or something like that. Because I think they’re the ones... that’s a danger, a danger zone. (P3_closing)

Participants also requested automated, short-term financial planning functionality, in particular warnings about insufficient balance to cover upcoming payments within the current income cycle:

it would be good to know a sort of predictive element (...) Sort of a prediction of, you know, you will run out of money in such and such date in the future on your current pattern of spending or something. (P5_opening)

Finally, they suggested “positive” (P10_closing) messages, for instance reassurance when everything seems OK with their bank account, praise for keeping expenses within their means, notifications of left over funds for saving, or when “you can afford to treat yourself to something” (P13_closing).

6.10 Conclusion

The experiences with Toucan described in this chapter demonstrate how simple technical interventions to enable financial collaboration, such as shareable SMS alerts, can contribute to the financial well-being of those living with mental illness. Configurable alerts can enhance and bolster existing financial coping strategies. Shareable alerts can enable a productive and non-judgemental kind of financial oversight that preserves users' autonomy and privacy, while opening opportunities for financial support when needed. Shareable alerts can also act as a spending deterrent; develop awareness about financial behaviours and habits; encourage reflection; and improve the frequency, quality and nature of money conversations.

These benefits were realised despite the obvious limitations of the Toucan app: alerts were too simple and unsophisticated to accommodate personal behaviour patterns; the application was unable to identify regular outgoings from unusual ones; and there were significant delays between events such as payments and alert delivery. In spite of these issues, using Toucan was perceived as a positive experience.

The involvement of a trusted third party was the most significant aspect of the service. This feature kept participants engaged with the application, and delivered the biggest benefits by prompting discussions about money that were free from the stigma often attached to financial difficulty. This lightweight form of financial collaboration was fundamental to Toucan's proposition.

Toucan illustrates that it is possible to design financial technologies grounded in alternative, sociologically-inspired ideas about the nature of money. Rather than considering money an exclusively personal matter, and financial management a fundamentally solitary undertaking, Toucan was designed from the assumption that money and the practices that surround it are essentially collaborative. Toucan is, therefore, fundamentally different to mainstream financial technologies, at least with regards to the assumptions that underpin its design. As seen in Chapter 4, most financial technologies are created under extreme individualised notions of money influenced by economic perspectives. Toucan, however, draws closer to sociological ideas of money as a social relation (Ingham, 1996).

Perhaps also as result of its alternative ontological grounding, Toucan yielded a set of features that enabled a very different kind of financial third party access. Existing mechanisms for financial third party access, both formal (e.g. lasting power of attorney) and informal (e.g. disclosing Internet banking credentials) delegate the power to transact with assets to the third party, and disclose most or all financial information. Toucan, however, yielded a set of features that did neither. Toucan allies could not transact with their counterparts' money, and did not have access to their financial data. In practice, Toucan made possible a lightweight form of financial third party access, whereby allies could engage in a "very gentle" (P5_closing) and "not confrontational" (P14_closing) kind of financial oversight.

Like all financial technologies, Toucan demanded additional moneywork. Some of that moneywork, such as the initial application installation, set up, and alert configuration, was born mostly by the Toucan app users. That labour was discussed in this chapter. However, there was further work involved in using Toucan, a kind of moneywork linked to the financial collaboration dynamics enabled by the app. That collaborative labour is perhaps less obvious, and it is an aspect of financial third party access that has been overlooked in discussions and publications on the subject. With this research, I argue that understanding this hidden labour can help us design flexible, proportionate and practice-sensitive services and technologies for financial third party access. As a way to draw attention to the importance of this collaborative moneywork, I have dedicated to it its own chapter: Chapter 7. In it, I explore the labour demanded by Toucan's light oversight approach to financial third party access, and by extension the types of moneywork that are involved in financial collaboration.

Chapter 7

Moneywork in Financial Third Party Access

7.1 Introduction

As we saw in the previous chapter, the Toucan study participants found the mobile application valuable. Using it had an effect on the nature and quality of money conversations with their allies. These conversations became more frequent, less stigmatised and more oriented towards financial planning and problem solving. Participants also reported feeling more reflective about their spending and their money habits. The ability to engage in financial collaboration by sharing money alerts with trusted allies was considered the most valuable aspect of the Toucan app. This speaks to the benefits that support with money matters can deliver to those struggling with their mental health.

Having discussed the interplay between Toucan and participants' financial practices, and the mostly individual labour of setting up and configuring the application in Chapter 6, in this chapter I focus instead on the moneywork required by financial collaboration. Collaborative moneywork may be less obvious, and it has been overlooked in discussion and publications about financial third party access. However, understanding this collaborative labour can be particularly valuable for design purposes, helping us develop flexible, proportionate and practice-sensitive services and technologies for financial third party access. Accordingly, this chapter dissects the moneywork demanded by Toucan's light oversight approach to financial third party access, identifying and describing the main activities, interactions and decisions involved in making Toucan work.

Engaging with the financial third party access service provided by Toucan required participants to undertake unusual forms of moneywork. First, participants had to identify a suitable third party for financial collaboration. Then, participants had to communicate to their chosen third parties what Toucan was and what was required

from a financial ally. In order to secure their agreement to engage with the app, participants also had to address any questions and concerns raised by the third parties. Once allies had consented to engage with Toucan, participants had to make decisions regarding what to share with them. Finally, participants and allies also had to establish a collaboration protocol within the framework provided to them by the Toucan functionality. I describe each of these activities in more detail in the sections below.

The chapter applies the same source identification scheme as in the previous chapter: unique participant identifiers followed by “_opening” for the opening interviews, “_closing” for the closing interviews, “_mobile” for the mobile messages, and “_diary” for the paper diaries. Toucan users are identified by a “P” followed by a number (e.g. P5). Toucan allies are identified by “AP” followed by the number of the participant they supported and their relationship to them (e.g. AP5:partner indicates P5’s ally).

7.2 Choosing a Suitable Third Party

All participants were able to choose a third party to engage through the Toucan app, apparently without much difficulty. Although all 14 participants picked someone, only 13 configured the ally details in the app. P12 decided she would like someone from her professional care team to play that role. Unfortunately, because they supported her in a professional capacity, they were barred by their employer from communicating with the participant via mobile. That circumstance prevented P12 from setting up her chosen ally in the app. P12 and P13 were the only participants choosing a person outside their immediate family circle as their allies. All other participants picked their partner / spouse (7) or a family member (2 daughters, 2 sisters, 1 mother). All but one participant (P4) kept the chosen ally for the whole trial. P4 switched between her husband and mother until finally settling on the latter.

Table 5. Allies chosen by the Toucan participants

Participant ID	Ally description
P1	Partner
P2	Daughter
P3	Husband
P4	Mother
P5	Partner
P6	Partner
P7	Sister
P8	Daughter
P9	Husband
P10	Sister
P11	Partner
P12	Support care worker
P13	Friend
P14	Husband

The apparent ease with which people selected the third party conceals the true extent of the challenges involved. The task of picking a Toucan ally required participants to accept their own need for help, confronted them with the prospect of disclosing intimate information about their mental health and financial circumstances, and involved careful assessment of several relational factors. Participants considered the following when choosing their allies: degree of trust and closeness; “comfort” to discuss difficult subjects; ability to be firm when required; familiarity with the participant’s mental health condition and consequences; degree and nature of prior financial support provided; money-management abilities; and pressures and life responsibilities of potential allies.

7.2.1 Trust and Closeness

Both allies and Toucan users spoke about their relationship in terms of trust and closeness. Trust was considered a baseline or precondition to engage in financial collaboration: “I suppose that I have to be somebody that [P7] trusts and presumably I am or he wouldn’t do this” (AP7:sister_closing).

Several participants also described their relationship in terms of closeness. For some, closeness seemed to have an emotional meaning. AP8 was “really close” (AP8:daughter_closing) to her mother, as were AP10 and her sister; P13 and his ally were “quite close as friends” (P13_closing). For others, such as AP3:husband and P4, closeness referred to kinship ties. In this case, closeness was seen as a way of protecting the privacy of the Toucan user, given the personal and sensitive nature of the subjects at hand:

I think to be an ally, especially as something as sensitive as their finances, I think you need to be fairly close. (...) It would have to be someone really particularly close, a sibling or a spouse. (...) I am very close to all of my friends, but I wouldn't necessarily want them to know what is going on with my finances (...) With [P3] and I doing it between us, I suppose it kept it private and kept it amongst ourselves. (AP3:husband_closing)

This helps explain why participants gravitated towards family members when choosing their allies: they seemed to consider money and mental health as belonging to the private sphere, and wanted to ensure it remained that way.

Closeness was also referred to in a physical sense. Geographic proximity played a role in the ally decision for at least two participants. P10 had two sisters, and she chose the sister living closer to her to be her ally. Between her two daughters, P2 selected the one living with her. Proximity makes allies more accessible, and equips them with valuable contextual knowledge that supports their role as financial collaborators:

My daughter knows what day I go grocery shopping. She knows if I'm going to be making any big purchases (...) if she knows I'm ill in bed and she is getting an alert to say that I've spent over £100, she'd be like: Amazon app, cancel, cancel, cancel. (P8_opening)

However, closeness by itself was not sufficient: it was necessary to identify the right degree of closeness. AP7:sister, for instance, believed she had been chosen by her brother as his ally because she was one step removed from his immediate family. P7's wife had been directly impacted by the consequences of his bipolar condition over the years, and because of that “It may be too difficult for her (...) she might get really upset and she might worry more, whereas I can be a bit more objective” (AP7:sister_closing). P11 chose her partner, rather than her parents, for similar reasons:

[my ally] is part of my inner support network when I am really poorly and I didn't want it to be my mum or dad. [Laughs] (...) Because I think he will be more relaxed about these things. They would maybe be like, oh God what have you done? Panic or whatever. (P11_opening)

It was this search for the appropriate degree of closeness that led P12 away from choosing a family member and into selecting her care providers instead. She “felt more at ease” and “more able to talk” (P12_closing) about money with her professional support than with her family: “I would say don't pick a family member (...) not a total stranger, but I think someone outside the family maybe more able to kind of help you more and be less judgemental.” (P12_closing). The right level of closeness protected allies from emotionally-charged situations, provided them with a certain degree of objectivity, and shielded Toucan users against judgemental reactions, something to which participants gave great importance.

7.2.2 Relationship Depth and Resilience

Participants seemed to have a deep and resilient relationship that manifested in the allies' ability to discuss sensitive subjects, being firm when required, their knowledge about health conditions and symptoms, and their prior financial support. The quality of the relationship also showed in the Toucan users' careful consideration of their allies' personal circumstances and life responsibilities.

Participants brought up the need to discuss difficult subjects with their allies, and many spoke about it in terms of being comfortable with such conversations. For instance, P1 described her relationship with her ally as one “where I'm comfortable talking about money and also my mental health.” (P1_closing). For a few participants, a good ally would also be firm when required. P8 was particularly emphatic about this point:

pick someone who can kick your ass when needed (...) You don't want someone who is going to mollycoddle you and say: oh, it's going to be okay. You need somebody who is going to say: what the hell are you doing? (P8_closing)

According to our participants, a good ally should also be familiar with their mental health conditions, symptoms and consequences. P7 observed allies “need to really know the person and know, not just what illness they have, but know how the illness affects people.” (P7_closing). P10 chose the same person who accompanied

her to psychiatric appointments: “[my ally] comes to my psychiatrist meetings and things, so she really understands what’s going on.” (P10_opening).

Participants also considered financial aspects of the relationship with their allies. Some picked the person they usually turned to when requiring direct financial assistance. 7 participants (P1, P2, P4, P6, P10, P11 and P13) mentioned their allies had lent them money or had paid for things on their behalf. For others, financial support took a different shape. AP7:sister had never lent money to her brother, and supported him through listening and advice instead:

when he talks about his money problems I just listen really, I never offer to help him in any way financially (...) I would rather just give him moral support or practical suggestions and that is all that I have ever done throughout the years. (AP7:sister_closing)

P12 received help for grant and emergency loan applications from the professional care staff she chose for the ally role; and P5 got encouragement to be sensible with money and to pay back his debts. For some participants it was also important to choose someone who was “good with money” (P8_closing). P13 considered his ally “brilliant at budgeting” and recommended others to pick somebody “who is good with their money and manages their finances well.” (P13_closing).

Finally, our participants took into account the life responsibilities and personal circumstances of their potential allies, and picked those who they believed could take on the role without being overwhelmed. P10 wanted to spare her mother any worries: “I can speak to my mum, but I rather speak to my sister just so that my mum is not worried. She’s got enough on her plate.” (P10_opening). P13 decided not to ask his sister, who already had caring responsibilities towards their father and also struggled with her mental health. P2 didn’t pick her other daughter because “she’s busy working, as well as having a health problem (...) she has plenty on her plate” (P2_opening). From our participants’ point of view, a financial ally must have the time, energy and capacity to support others without it becoming a burden on their own lives.

7.3 Securing Agreement from the Third Party

Once participants had decided who their ally would be, they started the process of onboarding them into the role. The first step was introducing the Toucan application, what it did, and the concept of financial allies.

7.3.1 Introducing and Explaining Toucan

Most participants reached out to their allies before installing the Toucan app. Those who did not speak to their allies before installation (P2 and P12) postponed the ally configuration step at install time to ensure they spoke to their allies first. P6 also skipped the ally configuration step during the installation process. This participant had made her ally aware of the fact she was trialling Toucan before installing the app, but decided she would discuss it in detail only when ready to add him to the application: “I had initially held off setting my ally up during the first weeks of the trial so that I could get a feel for it myself first, which also helped me to explain it better to [my ally] when the time came.” (P6_diary).

By the time P6 confronted the task of explaining Toucan to her ally, she already had first-hand experience of the service. Those who did not do this found it difficult to convey what Toucan did. P13 acknowledged that when he first engaged his ally, he “wasn’t quite sure what her involvement would be and what she would be doing” (P13_opening). Other participants (P3, P4, P7, P8 and P10) used the information for allies the researchers provided at the beginning of the study. P10 and her ally took the time to review that information together. To make sure her ally understood the service, P3 went through the app with her ally after installing it:

I sat with [my ally] once you kind of added the information to Toucan. I showed [my ally] what it led to and we were looking at that together (...) I just wanted him to be aware as to what this was all about. (P3_closing)

7.3.2 Addressing Allies’ Concerns

The introduction to Toucan raised questions and concerns for many of the allies. The most common one related to the legitimacy of the application. Since the trial involved connecting the Toucan app to the participants’ main bank account, many allies wanted to make sure Toucan was “kosher” (P5_opening). 6 allies (AP3:husband, AP4:mother, AP5:partner, AP8:daughter, AP12:support_worker and

AP13_friend) expressed concerns about Toucan's legitimacy: "When I first heard about it, when [P3] mentioned it, I suppose my first thoughts were: who are these people and why do they want access to your finances and bank account?" (AP3:husband_closing). This mirrored participants' own worries. 8 of them (P1, P2, P5, P6, P7, P9, P11 and P13) brought up security and access to financial data during the interviews. The fact that they were engaging with a research study, and the researchers' partnership with the Money and Mental Health Policy Institute, helped ease those concerns:

normally I would have reservations about giving people access to my account but because I understand the ethics behind this research then I am happy for that to go ahead (P6_opening).

Participants overcame their allies' objections by referring to the connection with the Money and Mental Health Policy Institute, and by demonstrating they had done what AP3:husband called "due diligence" (AP3:husband_closing):

I also said to [P5] please go away and do some more research on this company because I have not heard of them. (...) I was actually quite concerned about it initially... but then obviously he did what he needed to do and he looked at it and he said, actually, you know, it's fine. Then I relaxed about it." (AP5:partner_closing)

There were some additional questions raised by allies upon being introduced to the Toucan concept. AP5:partner and AP7:sister enquired about data confidentiality and privacy. AP8:daughter worried about the degree of information disclosure on P8's financial affairs, and the impact that would have on her privacy:

just like what it could see and so on and what it would tell me, because as much as I want to help her and stuff, I don't need to know every single penny my mum spends and even though she's unwell, she is entitled to that sense of privacy. (...) I didn't want to be told, you know, where every single penny of her money was going. (AP8:daughter_closing)

As a young adult put in the position of having to raise difficult subjects with a parent, AP8:daughter was also concerned about the alerts and subsequent money conversations leading to conflict or tense situations: "I was worried it would (...) create a bit of tension with me being like, why are you spending money? And her

being like: back off ...” (AP8:daughter_closing). Finally, AP10:sister wondered about the time demands of the role and how they would impact her busy life as a working mother with young children.

7.3.3 Securing Agreement from Third Parties

At that early stage, neither Toucan users nor allies seemed to have a clear view of what the service would mean in practice, how it would impact their money affairs or their existing relationships. AP10:sister told us she “really didn’t understand it at first” (AP10:sister_closing), and AP7:sister that she “wasn’t really sure how it would work” (AP7:sister_closing). In spite of this uncertainty, all allies agreed to take on the role. Allies accepted because they wanted to help - “I was fine with it... because I was just like, okay, if it helps mum, it helps mum.” (AP8:daughter_closing) -, and because they believed that the Toucan service was a good idea with the potential to bring “real benefit for people that do struggle with finances.” (AP5:partner_closing). Only P12’s care support workers refused due to professional restrictions, even though they would have been “happy to do it” (P12_closing).

7.4 Configuring Access

Once participants had secured the agreement of their chosen third party to become their Toucan ally, they were confronted with the need to make decisions about what was appropriate to share with their allies. They faced this issue for the first time during the Toucan installation, which required them to select which of the 3 alerts (spend, balance and cash withdrawal) they would like to share. Table 6 provides a breakdown of what each participant chose to share at the time of installation.

Table 6. Alerts shared with Toucan allies at installation time. “Shared” alerts were activated and shared with allies; “not shared” alerts were activated but not shared with allies; “off” alerts were not activated. P12 did not configure an ally on the Toucan application.

Participant ID	Spend alert	Balance alert	Withdrawal alert
P1	SHARED	NOT SHARED	SHARED
P2	SHARED	SHARED	SHARED
P3	SHARED	SHARED	SHARED
P4	NOT SHARED	SHARED	NOT SHARED
P5	NOT SHARED	NOT SHARED	SHARED
P6	SHARED	SHARED	SHARED
P7	SHARED	SHARED	SHARED
P8	SHARED	SHARED	SHARED
P9	NOT SHARED	SHARED	OFF
P10	SHARED	SHARED	SHARED
P11	SHARED	NOT SHARED	NOT SHARED
P12	NO ALLY	NO ALLY	NO ALLY
P13	SHARED	NOT SHARED	SHARED
P14	SHARED	SHARED	SHARED

Of the 13 participants who configured an ally during the study, 7 shared all 3 alerts (P2, P3, P6, P7, P8, P10 and P14). Of the remaining 6 participants, 4 decided to keep the balance alert private (P1, P5, P11 and P13); 3 decided to keep the spend alert private (P4, P5 and P9); and 2 decided to keep the cash withdrawal alert private (P4 and P11).

When deciding which alerts to share, P1 took into consideration her financial behaviour when she was unwell. She explained she was prone to “spend online at 3 am when I can’t sleep” (P1_closing), and how she had in the past “bought things without knowing” (P1_opening). Based on those behaviours, she concluded that the spend and cash withdrawal alerts were the ones that could better signal to her ally that she needed support, and shared them with him. In contrast, P1 considered the balance alert a poor indicator of her mental and financial well-being, so she decided to keep it private:

I decided to keep [private] the alerts that let me know that my balance was low as I felt that was something I could deal with on my own. At the time, I really didn’t have a lot of income so I guessed I’d receive those alerts often and that it wasn’t a sign that my mental health had declined. (P1_closing)

P11 seemed to apply a similar rationale. In her case, the cash withdrawal alert was a poor indicator of financial distress: “I don’t really withdraw cash and I think your bank only lets you take a maximum of £250 or £300 in a day anyway, so if I was poorly, it would be difficult to spend a large sum” (P11_opening). The most reliable signal for P11 was her spending behaviour, so she decided to share the spending alert with her ally.

P9 decided to share only the balance alert. Her motivation was to compensate for her ally’s lack of access to information about their joint bank account. P9’s ally did not like using telephone or online banking, and he no longer received the paper statements he relied on in the past to keep track of the household finances. As a result, P9 felt her ally was being left “in the dark” (P9_opening). She hoped the balance alerts would get her ally more involved in overseeing their common finances.

P4 seemed to be more concerned about not divulging certain financial affairs of which her ally was not aware: “I have got credit cards, which my [ally] will kill me (...) She’s going to find out just now isn’t she, with the ally?” (P4_opening). Given

her personal history of debt, and the financial assistance she had received from her ally in the past to recover from it, having credit cards was something P4 was not happy to disclose. She decided to share with her ally only the balance alert, which she set to a negative amount. Since the ally was well aware of P4's money situation, and often supported her financially when her overdraft was too close to its limit, sharing the balance alert did not reveal any new information to the ally.

A similar privacy-seeking motivation may have been behind P5's decision to share only the alert that he found irrelevant - the cash withdrawal one:

my mental health is managed pretty well to be honest. So, if (...) I'd taken £60 out of the cash point... there isn't a time I wouldn't know I'd done that. (...) For me it's not really relevant, to be honest, the cash withdrawal [alert]. (P5_opening)

Still going through a divorce, P5 chose his new partner, who he had recently met, as his ally. He initially decided to share with her an alert he thought was unlikely to provide a reliable indication of financial difficulty. However, as the study progressed, P5 changed his mind about what was appropriate to share with his ally. He shared the spend alert some time in July and, in early August, he stopped sharing the cash withdrawal and spend alerts and started sharing the balance alert instead. As he developed trust in his new partner and Toucan ally, P5 proceeded to share more meaningful alerts.

7.5 Establishing a Collaboration Protocol

Given the lack of clear expectations about what using Toucan would entail in practice, it is perhaps not surprising that participants engaged in little preparation and planning before the alerts started. The researchers recommended participants to agree with their allies in advance a course of action for when an alert was received. This, however, did not happen, or happened only at a very high level. AP8 told us they "agreed that I would (...) bring it up or something, like I would just mention it." (AP8:daughter_closing). P1 explained they didn't arrange anything specific: "As we are so close whatever he'd do would be right. He's pretty level headed and knows how best to support me." (P1_opening). At most, pairs agreed on a certain communication channel (e.g. a phone call), or on a question that would be asked. For instance, P1 and her ally decided that "one of the things he'll do is

ask me if I remember making a purchase. I dissociate frequently and have in the past bought things without knowing. Hopefully if I don't remember I might have a chance to cancel it!" (P1_opening). With so little prior preparation, the protocol for responding to alerts developed organically and through practice.

7.5.1 Communication Channels and Contact Frequency

Allies understood Toucan alerts as a prompt to get in touch with their counterparts, and each pair did so in their own way. For instance, AP8:daughter always brought it up in conversation, mostly face to face. When away at university, she would call her mother rather than sending a message. When bringing up the subject, she did so in a lighthearted way. She would not broach the subject if her mother "was in a bad mood" (AP8:daughter_closing). AP8 also used contextual cues to start the conversation, for instance if she saw something new at home, or a delivery arrived: "if Amazon turned up, she would be like, there you go, I've gotten a text message." (P8_closing). After a while, P8 came to expect her ally to raise the subject within a day or two of receiving a Toucan alert.

AP10:sister also preferred to visit in person, but that was not always possible. If she was at work, she would send a text or contact P10 via Facebook Messenger: "when my [ally] was at work and she would get an alert, she would text me saying: Is everything okay? I've had an alert. Check your bank and I will ring you later." (P10_closing). Some allies, like AP10:sister here and AP4:mother, contacted their counterparts after every alert. Others, like AP3:husband, took a more relaxed approach, and didn't feel the need to mention every one of them:

I discussed the account with [P3] (...) on the first few occasions. (...) I didn't go into any great depth. We are pretty close in that respect so I didn't feel the need to interrogate her every time I got a text message.
(AP3:husband_closing)

It was the same with AP6:partner, who would mention the alerts when receiving several of them within a short period of time: "I didn't talk to her about every single one. (...) It all depends just how many came through." (AP6:partner_closing).

In general, allies who met their counterparts daily or frequently showed a preference for discussing the alerts in person. Those who didn't meet often resorted mostly to phone calls, with messages used as a way to acknowledge the reception

of the alert and quickly confirm there were no major issues. AP6:partner represented this pattern: being on the road most of the week for professional reasons, he would see P6 only on the weekends. That cadence determined how he would react: he would text P6 if he received alerts at the beginning of the week, but would wait until the weekend to discuss them in person if he received the alerts towards the end of the week.

7.5.2 Reacting to Allies' Responses

Toucan users adjusted the app configuration and adapted their behaviour in response to their allies' reactions and their interactions with them after alerts were triggered. For example, P6 increased her spending alert threshold to avoid unnecessarily worrying her ally: "I ended up increasing the daily spend allowance alert to minimise the frequency of the alerts. It was beginning to sort of worry him a bit." (P6_closing). She also started to anticipate the triggering of alerts, and proactively let her ally know when one was likely to arrive:

he gets the alerts and when he is not with me at the time, it sort of starts making him worry until he can speak to me later that day (...) it got to the point, sort of part way through, where I was saying: I've just paid this, I'm expecting a Toucan alert. [Laughs] And we did get it. [Laughs] (P6_closing)

P7 and P8 adopted a similar behaviour. P8 started to notify her ally about her big purchases before an alert was triggered: "Whenever my mum bought (...) big things, like she recently redid her bedroom and she bought a wardrobe. She told me about that kind of thing in advance." (AP8:daughter_closing). P7 told us how "a few times I'd phone [my ally] and tell her that she was going to get some [alerts], in case she was getting browned off with them (...) or think there was problems developing." (P7_closing). In that process, P7 would share information about his financial affairs with the person he trusted. These participants moved from reacting to Toucan alerts to proactively sharing details of their money lives with those close to them.

7.6 Negotiating Information Disclosure with Allies

Participants discussed at length the consequences of Toucan's non-disclosure of financial information. Toucan sent different messages to users and allies. While user alerts specified the type of financial event that triggered the message (low

balance, spending or cash withdrawal), ally alerts always showed the same generic text, which simply suggested getting in touch with their counterpart without revealing any financial details. Toucan users and their allies were torn between the privacy and control this non-disclosure afforded to application users, and the vulnerabilities it caused for allies.

7.6.1 The Impact of Non-Disclosure

In general, Toucan users seemed determined to remain in control of their money, and rejected any form of support or assistance that was perceived as too overbearing. Toucan's lack of financial information disclosure aligned with this desire to retain control, and was well received. P9 thought this approach protected her privacy and contributed to her security. For P1 and P11, it preserved their "autonomy" (P11_opening), and meant they could keep control over their finances: "I like that even though my ally is made aware of my spending, they don't know the amount etc, so I still have control over my finances and stuff is still kept private." (P1_closing).

Many of the allies we spoke to were also satisfied with Toucan's non-disclosure approach. They felt it protected the privacy and dignity of their loved ones, and shielded them from intruding into their counterparts' affairs. For AP8:daughter, Toucan non-committal alerts meant she "was invading less", and that her mother "didn't feel like she had to be held accountable" (AP8:daughter_closing). AP4:mother and AP5:partner thought that what Toucan said was "sufficient" (AP4:mother_closing) and didn't "need any more detail" (AP5:partner_closing).

Although Toucan's non-disclosure approach had significant advantages, some allies believed it negatively impacted their ability to support their counterparts. Since they knew nothing about the circumstances that had triggered the alerts, it was difficult for them to assess what would be an appropriate reaction:

I'm not completely sure what triggers them, what happens at Toucan's end for that message to go out. (...) I'm not sure if I'm supposed to run around the house with arms waving or not [laughs]. (AP3:husband_closing)

The lack of detail also generated some anxiety, since after receiving an alert allies did not know whether there was cause for concern or it simply had been triggered by routine spending:

I was getting texts, I could be getting 5 texts and they could all be bills, but because I don't know that, I'm thinking: oh no, what money is going out on what? You don't know if it is something to worry about or not.
(AP6:partner_closing)

Toucan's non-disclosure approach also meant allies could be easily deceived.

AP7:sister, P7 and P8 observed that alert configurations could be changed in order to avoid triggering alerts:

it would be easy to kind of up everything to an excess without everyone else knowing. (...) I personally didn't do it, but it's easy to manipulate the app when you're the only person in control of it and that's the one thing that I do feel strongly about. (...) and if you're then changing round the numbers without [allies] knowing then they don't know... they're not fully aware of what is going on. (P8_closing)

Allies may not be told the whole truth, as AP7:sister observed:

it didn't give me any indication if it was really something to worry about or not. I had to rely on [P7] telling me that, which is fair enough but he might have not told me the truth, because he maybe might not want me to know if he was having problems. (AP7:sister_closing)

AP8:daughter actually believed her counterpart had lied to her at some point: "I am aware that people lie and I know sometimes [P8] lied" (AP8:daughter_closing). She brought it up in conversation: "[AP8] has pointed out to me: you could lie to me at any point and there is nothing to tell me that." (P8_closing). Perhaps as a result of discussing this subject with their allies, P7, P8 and P13 expressed a willingness to share more information with them, albeit always subject to their explicit consent: "I would be more than happy to authorise [my ally] knowing more specifics with regards to where the money had been spent or how much I'd spent." (P13_closing).

7.6.2 Striking a Balance Between Autonomy and Support

Participants believed there was a need to strike a balance between preserving privacy, keeping control and enabling the allies in their supporting role:

should they give you more? I don't know. (...) you're not going to let me know what [P7] is spending his money on. That's somebody's own business and it's their privacy. So it is getting that balance between expecting someone's privacy but also giving me enough information to think, wait a minute now, this is ringing alarm bells. (AP7:sister_closing)

When making suggestions as to how that balance could be achieved, Toucan users listed information they would be willing to disclose, while allies preferred indicators of severity. Regarding information disclosure, P7 suggested showing allies the type of alert, and therefore the kind of event that had triggered the message. P8 proposed using thresholds, rather than exact amounts. She would also be willing to provide transaction breakdowns in order to encourage more detailed conversations:

if you spent over £60 in one day, they'd get a kind of break down. There were 5 transactions resulting in this and it would be like... (...) What was on there that you thought you needed? Why did you feel the need? I think it would be more about the conversation and helping them to speak more. (P8_closing)

P13 considered the type of expense and merchant a particularly meaningful piece of information for allies:

I think I would have been happy for [my ally] to know how much I had spent, what the actual sum was and possibly whereabouts (...) what kind of shop or organisation it has been with (...) she would know that I was spending (...) on essential items and that I hadn't, you know, I wasn't wasting £50 in some shop on rubbish. (P13_closing)

Regarding the indicators of severity preferred by the allies, AP3:husband suggested wording the messages differently for routine transactions and for events that could signify trouble. AP7:sister proposed classifying the alerts based on severity:

maybe like a green, amber and red warning system. Like this is just a bit of expenditure, we're just letting you know. Or there has been quite a lot of expenditure. Or this is quite serious because it is actually a huge amount. That might be quite useful actually so that you get an indication of the severity or the seriousness of the expenditure. (AP7:sister_closing).

Finally, P7 and P8 proposed solutions based on expanding the remit of the relationship to include the app configuration process. At a minimum, Toucan users may agree to seek consent from their allies in order to make changes to their alerts:

if you could lock them in. If you could unlock them maybe with the approval of your ally, (...) if it was an ally that knew the situation, they knew how your illness affects you, like my sister does me, you know it might be beneficial in certain circumstances. (P7_closing)

P8 went further and suggested that the app configuration should be a collaborative process. Allies and their counterparts would discuss and agree on which alerts to activate and the rules that would trigger them. The app configuration would then be locked for a certain period of time, and changes could only be made if authorised by both parties. Authorisation could be ratified by requiring both user and ally to enter a password:

I think it would be a bit better if the ally had the thing where they had to sit down, make a plan and then it is passworded by both. From the start you're told that it can't be changed until both are in agreement. (...) I think it should be a two-people process setting up the limits, etc. (P8_closing)

P8 made a point of clarifying that the app should not affect the ability to transact, but would simply disclose information as per the agreement reached between the parties during the configuration process:

You could have it that they can set it up for 2 weeks. Until you get kind of a flavour of what is going on. Then at that point you decide what is reasonable and what is not. You are not saying that no, they can't spend the money. You are just saying that if they are having, I don't know, 6 alerts within 2 hours on a Friday evening that's not a good thing. (P8_closing)

For P7 and P8, the key to strike the right balance between privacy and support was further empowering the parties to collaborate on their own terms.

7.7 Conclusion

In this chapter, I have examined the collaborative labour demanded by the light oversight approach to financial third party access offered by Toucan. The study participants' experiences demonstrate the careful deliberations that took place when selecting a financial "ally"; the importance of responding appropriately to the third parties' questions and concerns, particularly in relation to security and privacy; the considerations that went into choosing which information should be shared with allies and which should be kept private; the situated nature of the interactions

triggered by alerts, with Toucan users and allies adjusting their own behaviours to the actions and reactions of their counterparts; and the tradeoffs between autonomy and support derived from issues of information disclosure and control.

The richness and nuance of financial third party access interactions can be fully appreciated in the participants' moneywork. When looking at this labour in detail, it becomes clear that the rigid and binary structures deployed by formal third party access mechanisms such as lasting power of attorney are unsuitable for the dynamics of day-to-day financial collaboration. Careful consideration of these daily practices should be the starting point for the design of any technologies intending to support financial collaboration, and of any new mechanisms for financial third party access.

The collaborative moneywork involved in the light oversight enabled by Toucan also demonstrates the potential of forms of financial third party access that rely exclusively on information disclosure, without delegating power to transact. Financial information disclosure to trusted others is technically possible today through open banking APIs. The true challenge resides instead in striking the right balance between privacy, control and enabling support, as the findings in this chapter demonstrate.

In Chapter 4, I discussed how financial services and technologies built under the assumption that money is a purely individual affair erect barriers to financial collaboration, and make financial third party access hard to operationalise for banks. Constraints to financial collaboration and third party access affect disproportionately those in financial difficulty, who often require or could benefit from support with money management. Toucan represents an attempt to correct this imbalance. This was a financial technology designed under a different premise: one that understands money as a social relation, and considered financial collaboration a core use case. Since financial collaboration can be particularly beneficial for those in financial difficulty, this approach to design can help us create fairer financial technologies. Designing for financial collaboration, however, demands rich understanding and close attention to the moneywork that makes financial collaboration possible.

In the next chapter, I further discuss how the design of financial services in general, and of formal third party access mechanisms in particular, must change in order to accommodate the fundamentally social and collaborative nature of money; and the opportunities that digital technologies offer to support designers in this endeavour.

Chapter 8

Discussion

8.1 Introduction

In this thesis, I set out to explore the question of *how we can design financial technologies that promote access and fairness in financial service provision, particularly for those who are experiencing some form of financial difficulty.*

I started by discussing the nature of money, and the centuries-old controversy about it that pitches economists against sociologists. The former view money mostly as an asocial, apolitical medium of exchange that is the unintended, spontaneous outcome of free cooperation between rational, utility-maximising individuals. The latter understand money as a social relation: an abstract, universally accepted measure of value, legitimised by hegemonic power and maintained through social struggle. I described how core aspects of the economic theory of money, such as money's historical origins and evolution, or explanations of how capitalist credit-money is produced and maintained, are by now debunked. In spite of its flaws, the economic theory still constitutes the foundation of mainstream ideas about money. It exercises a powerful influence on laypeople's understanding of what money is and how it works, on the teaching of Economics, and on monetary policy.

According to Ingham, the resilience of the economic theory of money in spite of its shortcomings can be explained, at least partially, by its performativity (Ingham, 2004). The theory plays an active role in bringing about and preserving the same socio-technical reality it purports to explain. It is an "ideological (...) attempt to produce the working fiction of stable money" (Ingham, 2004, p. 84) by portraying it as a natural phenomenon: universal, immutable, incontestable. The economic

theory conceals the fact that money is a precarious and unstable social relation (Ingham, 1996), constructed and constantly negotiated by economic actors and malleable institutions. In doing so, the economic theory of money contributes to maintaining our unequal monetary status quo.

In this chapter I return to the subject of the nature of money, and in particular to the following research question: *How do ideas and theories about the nature of money feed into the financial industry, their services and attendant technologies, and what impact does this have on people experiencing financial difficulty?*

In order to explore this question, I engaged with employees of a UK bank, in order to better understand *how the financial industry constructs and operationalises vulnerability, and how that impacts financial third party access arrangements and processes for people experiencing financial difficulty* (Chapter 5). I then collaborated with a group of people deemed at risk of vulnerability to assess *how we can design financial technologies that recognise the importance of social relations in money management for those in financial difficulty, and that are better tied to the socio-cultural meanings of money and their related practices* (Chapters 6 and 7).

In this chapter, I will argue that the experiences of vulnerability experts working inside commercial banks, and the perspectives of those facing the “double trouble” (Topor et al., 2016) of mental illness and financial difficulty, reveal the unintended consequences of introducing technology into our interactions with money. Those consequences, in turn, demonstrate the strong influence that economic ideas exercise over the design of our digital money tools, and the active role that design plays in preserving our existing monetary system. Like the economic theory of money, the design of existing financial technologies is performative in Ingham’s sense. Ingham’s notion of performativity (2004) draws attention to the importance of uncovering the hidden influences that inform design work, and the urgency of exposing designers to alternative ideas about money.

To close the discussion, I propose a set of design directions grounded in notions of money as a social relation. These address my main research question, which asked how we can design financial technologies that promote access and fairness in financial service provision, particularly for those experiencing financial difficulty.

8.2 The Consequences of Digitasing Finance

In order to understand how the economic theory of money influences financial technology, we must first pay attention to the effects of digitasing finance. Evidence on the subject can be found in existing HCI and CSCW literature on financial technologies. The studies conducted as part of this thesis expand on this body of work. In this section, I contribute a list of the unintended consequences of introducing digital technologies into our interactions with money. I do so by drawing on work focused on both the Global South and the Global North, as well as findings from my own fieldwork.

First, there are no doubt benefits to the introduction of digital technologies into the domain of money. It is argued that, as money transforms from physical currency into information (Woldmaria et al., 2016), transactions become more efficient. Digital financial transactions are supposedly faster, cheaper to execute (e.g. O'Neill et al., 2017), and can be done at any time and from anywhere (Woldmaria et al., 2016). We saw in Chapter 5 how the ability to transact at any time from digital devices was valued by the Toucan participants, and how it facilitated new earmarking practices through bank accounts.

Financial technologies also increase the visibility of cashflows and of individual financial behaviour (Woldmaria et al., 2016). For the general public, they provide immediate and convenient access to personal financial information (Woldmaria et al., 2016), something that the Toucan study participants highlighted as an important advantage and a powerful incentive for adoption and use. For the financial industry, transactions leave trails that enable automated and more precise credit rating calculations, i.e. the estimation of someone's likelihood to pay back their debt and therefore the level of risk attached to lending activity (O'Neill et al., 2017; Hulikal

Muralidhar et al., 2019). In addition, and as described by bank employees in Chapter 4, transaction trails may assist banks in detecting unusual, fraudulent or abusive financial behaviour; and they enable a form of compassionate surveillance directed to assess situations of financial difficulty. For public institutions, digital transactions increase transparency and help fight corruption (Woldmariam et al., 2016; Musaraj and Small, 2019; Scott, 2018).

The digitisation of finance is also credited with contributing to financial inclusion in two ways. First, by lowering the cost of service provision, financial technologies expand the reach of formal financial services to new areas and populations that had been previously excluded from them. Second, the electronic trails left by digital transactions help low income groups build a financial history, join the credit rating infrastructure and thus become eligible for formal lines of credit (Hulikal Muralidhar et al., 2019).

However, and in a telling reflection of the dual nature of money (Hart, 1986), every single one of these benefits also has unintended consequences. For instance, the automation of credit rating calculations feeds financial exclusion and penalises the most financially vulnerable (Ingham, 1999; O'Neill et al., 2017), as it enables the redirection of bank lending towards higher income and therefore safer groups (Leyshon and Thrift, 1995). Musaraj and Small capture the deeply ambivalent nature of financial technologies by posing the question of whether the accumulation of transaction records constitutes a path to financial inclusion or an alarming threat to privacy (2019).


In what follows, I focus on the unintended consequences of the digitisation of money, and how they relate to economic theory ideas about its nature. These consequences are: i) dematerialisation; ii) engineered inefficiencies; iii) the removal of friction; iv) reduced flexibility; v) increased visibility of financial behaviour; vi) additional moneywork; vii) shifts in control and agency; and viii) the individualisation of finance.

8.2.1 Dematerialisation

Perhaps the most obvious consequence of the digitisation of finance is its dematerialisation. Cash and other physical financial artifacts such as paper receipts and passbooks become data points, and lose their material instantiations. Physical artifacts, however, possess unique properties and advantages to which people remain deeply attached. Coins and notes are countable, hideable, portable and transferable (Vines et al., 2011). They provide immediate, multi-sensory feedback (Vines et al., 2011), and people of all ages appreciate them for their “restrictive qualities” (Vines et al., 2014, p. 506). Physical artifacts enable an “intimate visual and tactile connection” (Vines et al., 2011, p. 66) with finances, and enhance feelings of control (Dunphy et al., 2014b).

In addition, paper artifacts complement and help overcome the shortcomings of digital financial infrastructure (Hulikal Muralidhar et al., 2018, Panjawi et al., 2013). For instance, Panjawi et al. (2013) demonstrate how branchless banking local agents in India have developed a parallel paper system that reassures their customers when SMS receipts are delayed; enables them to more efficiently process transactions in batches; and helps them service customers even if the digital banking platform is inoperative.

Physical financial artifacts are also central to financial collaboration. Paper items such as forms and receipts have been found to enable collaborative workflows in multiple contexts, from banking (Panjawi et al., 2013), to railway bookings, fast-food restaurants (Kumar et al., 2011) and residential care settings (Dunphy et al., 2014a). In the context of microfinance, paper passbooks not only record and convey transaction information: they also reinforce trust on the microfinance agents, and allow third parties to arrange deposits on someone else’s behalf (Ghosh et al., 2015). If these passbooks were to be digitised through, for instance, a mobile application, this type of delegation would become much harder, since one is likely to need the phone and therefore unlikely to hand it over to a trusted collaborator (Ghosh et al., 2015). In a radically different context, the physicality of cheques has been found to be essential in financial collaboration practices between older adults

and their helpers (Vines et al., 2012b; Tilse et al., 2005b; Dunphy et al., 2014a). Cheques provide a safe way to delegate certain financial tasks to others by  constraining access to financial assets. In doing so, they support the progressive emergence of trust between the collaborating parties (Vines et al., 2012b).

The experiences of the Toucan study participants corroborated all the above findings in relation to physical financial artefacts. Participants told us that “having the money in your hand” felt “a little bit more real than bits of plastic” (P3_opening). They used paper receipts as a way to compensate for delays in the processing and reporting of card payments (P5_closing); and kept paper trays as an insurance policy against technology glitches and annoyances (P9_closing). They also described how paper statements supported collaboration in the management of household finances (P9_opening).

By removing physical artefacts without delivering suitable alternatives, the digitisation of finance undermines existing financial collaborative processes and practices. This compounds with the “all or nothing” (Vines et al., 2011, p. 72) nature of financial third party access formal mechanisms. As a result, it becomes very difficult to facilitate financial engagement from others when needed or beneficial, for instance at times of mental health crisis.

8.2.2 Engineered Inefficiencies

The transactional approach to financial technologies that is characteristic of the Global North brings with it a focus on efficiency (O’Neill et al., 2017). In this context, the main driver of design becomes making transactions as fast and efficient as possible for all involved (O’Neill et al., 2017). The emphasis is on speed (O’Neill et al., 2017), seamlessness (Mainwaring et al., 2008), anytime anywhere access (Hulikal Muralidhar, 2019), and ease of use (Heyman and Artman, 2014). This drive for efficiency aims to demonstrate that financial technologies are more convenient than the alternatives. This convenience premium, however, remains questionable.

First, in the case of payments, it is not clear that digital forms of money are more convenient than cash. As Scott observes (2018), cash is familiar, accessible to all and extremely easy to use. Once in your hand, it requires no prior configuration or setup: no need to open a bank account, register for Internet banking, download mobile apps, wait for and activate a debit card, or configure a mobile wallet in advance. Cash does not impose upper or lower limits for transaction amounts, and it is accepted almost everywhere.

Second, convenience is not an intrinsic characteristic of any financial instrument, but a “contextual property” (Scott, 2018, p. 150) that emerges in combination with supporting infrastructures and people’s circumstances. Scott points out that “it is possible to engineer inconvenience and irritation by deliberately making cash harder to use” (2018, p. 150), for instance by withdrawing the branches and ATMs necessary to access it. For some of Vines et al. “eighty somethings”, “going to the bank in person” (2011, p. 69) was more effective than transacting remotely by phone or the Internet. Convenience, therefore, is at least partially subjective, co-constitutive, and relational.

Third, the convenience narrative raises the question of convenience for whom. People seem to believe that financial companies deploy technologies mainly for their own benefit, and not necessarily for their customers’ convenience (e.g. Hulikal Muralidhar, 2019; Vines et al., 2012a). Corroborating this perception, Blumenstock et al. found that digitising salary payments through a mobile money service delivered “immediate and significant cost savings” (2015) and was clearly beneficial for the employer and the mobile operator, while having “only muted effects” (2015) on employees’ wealth and well-being.

Finally, convenience is not always the main concern when dealing with financial matters. For instance, setting barriers to money access can encourage people to save. Rickshaw drivers being paid with mobile money explained how the delay in payments arriving into their bank accounts, and the inconvenience of having to visit an ATM in order to withdraw funds, helped them save money (Hulikal Muralidhar, 2019). Setting barriers to access in order to support saving is the rationale behind

the lockable “pots” now offered by many neobanks (Welch, 2018). Toucan participants provided additional examples of how barriers to money access have a role to play in financial management. For instance, P7 handed money over to a trusted third party for safeguarding, and was enthusiastic about how locked saving pots (Welch, 2018) could support him during “manic” (P7_opening) episodes.

The notion of financial technologies as an efficiency mechanism that can deliver faster, cheaper transactions is, according to Ferrerira and Perry, “a very partial perspective” (2019, p. 122). It neglects important aspects of financial behaviours and interactions, such as “the extra-economic functions of money and the meanings and values” (Hulikal Muralidhar, 2019) that people attach to it. Designing for efficiency also has unintended consequences, one of the most damaging being the removal of friction (Hulikal Muralidhar, 2019), a subject to which I turn next.

8.2.3 The Removal of Friction

The focus on efficiency in the design of financial technologies results in one-click purchases and just-wave-something payments, removing all friction from our financial interactions. Ferreira and Perry go as far as to consider “frictionless” one of the core affordances of digital money (2019). Lack of friction is present in both obtaining credit and spending (Harper et al., 2018). The consequences of easy and instant availability of credit include, for instance, the “credit card premium” (Prelec and Simester, 2000, p. 5), an increase in the willingness to pay when customers are instructed to do so by credit card rather than cash. Mobile credit services in the Global South such as M-Shwari in Kenya have also been associated with increasing levels of indebtedness (Kusimba et al., 2017). Meanwhile, frictionless payment systems result in “invisible spending” (Mainwaring et al., 2008, p. 24), which can erode awareness of our own consuming habits (Mainwaring et al., 2008; Lewis and Perry, 2019), and undermine control over our personal finances (Hulikal Muralidhar, 2019).

The disappearance of friction brought about by the digitisation of finance affects us all, but it is particularly onerous for those living with mental illness (Harper et al., 2018). This is due to the fact that impulsive and compulsive behaviours, as well as comfort spending, are common symptoms in mental health conditions (Harper et al., 2018; Richardson et al., 2018; Richardson et al., 2017). As a result, the negative effects of the absence of friction can be better appreciated through the experiences of people living with poor mental health. For the Toucan study participants, certain financial technologies became “dangerous”, and lack of friction prompted the development of personal strategies to add resistance in both borrowing and spending. Handing over money to others for safekeeping, seeking bank accounts without overdraft services, using prepaid debit cards, and letting online shopping carts “rest” overnight are all workarounds to increase friction deployed by the Toucan participants. These friction workarounds have also been uncovered by other HCI studies. For instance, Snow et al. describe a money tin devised by one of their participants that could only be accessed with a can opener, and where the difficulty of getting to the money inside helped spending control (2016).

As observed by Hulikal Muralidhar, friction “is crucial to users’ negotiation of the trade-off between consumption and saving” (2019). Through the lens of those trapped in the cycle of mental illness and financial difficulty, lack of friction morphs from a symbol of convenience and choice into a deeply problematic feature, one that requires urgent attention from designers.

8.2.4 Reduced Flexibility

An additional unintended consequence of digitising financial service provision is the removal of flexibility. As observed by O’Neill et al. (2017), the digitisation of financial workflows requires their formalisation, turning them into rigid step-by-step processes. The humans in non-digital financial workflows are capable of introducing a degree of flexibility that “is notoriously hard for digital systems to do” (O’Neill et al., 2017, p. 764). In the Global North, these “human elements” (O’Neill et al., 2017, p. 765) that make flexibility possible “have been designed-out” (O’Neill et al., 2017, p. 765) through the widespread introduction of financial technologies. Woldmarian

et al. (2016) also remark on the homogenising effects of financial technologies in general, and of mobile payments in particular. Financial technologies tend to consider money as a “*homogeneous* item and tend to disregard its context of use” (Woldmaria et al., 2016, p. 478).

This is what the UK Financial Conduct Authority has described as the streamlining of consumers in product design, financial processes and systems (Coppack et al., 2015). As outlined in Chapter 4, the standardisation of customers in this manner results in the inability to accommodate the non-standard needs of people in financial difficulty (Coppack et al., 2015). The vulnerability experts in Chapter 4 also explained that the formalisation of systems and processes brings with it a general reluctance from the remaining “human elements” (O’Neill et al., 2017, p. 765) to exercise discretion and make decisions outside of the ordinary.

The importance of flexibility in financial service provision has been highlighted by both researchers and policymakers. Flexibility matters independently of the degree of economic development and the reach of formal financial services. In the Global South, the most financially vulnerable need flexibility (O’Neill et al., 2017; Collins et al., 2009) in order to manage irregular, unstable incomes (Collins et al., 2009), and to cope “in times of trouble” (O’Neill et al., 2017, p. 764). In our Global North, the UK Financial Conduct Authority has identified the chronic lack of flexibility of financial firms as one of the fundamental barriers to providing appropriate service to customers in difficulty (Coppack et al., 2015).

Given how intractable flexibility has proven to be for digital technologies, designing digital financial services and tools that mimic and deliver human-like flexibility becomes one of the biggest design challenges in this domain.

8.2.5 Increased Visibility, Traceability and Transparency

Ferreira and Perry list being dataful and transparent as two of the affordances of digital money (2019). Financial technologies transform money into information, and digital financial transactions leave electronic trails (Hulikal Muralidhar et al., 2019) that generate vast amounts of data. This data becomes available to those who own

or manage the financial technologies we use, for instance banks, payment companies, and “fintech” enterprises; as well as to government institutions and tax authorities (Ferreira and Perry, 2019). Some of that data is also accessible to financial technology users (Ferreira and Perry, 2019).

It is argued that this wealth of financial data creates transparency (Ferreira and Perry, 2019; Musaraj and Small, 2019; Hulikal Muralidhar et al., 2018), both at individual and institutional levels. Users can access information about their finances at any time and from anywhere, seeing when and where their money goes and how it is spent (Woldmaria et al., 2016). Accumulated over time, transaction data builds up individual financial histories. These histories make people visible to financial service providers, who use them to assess creditworthiness. Having a financial data history is now a necessary condition for accessing formal lending (Hulikal Muralidhar et al., 2019; Hulikal Muralidhar et al., 2018). Financial transaction data also increases the traceability of cash flows, reducing opportunities for corruption, financial crime and tax evasion (Woldmaria et al., 2016; Musaraj and Small, 2019; Hulikal Muralidhar et al., 2018; Ferreira and Perry, 2019).

However, and at least for financial technology users, the promises of data-enabled visibility, traceability and transparency have not yet come to pass. As observed by Lewis and Perry, accessing our own financial data “is not always simple” (Lewis and Perry, 2019, p. 11), and the ways in which such data is presented to us are not always suitable for our needs (Lewis and Perry, 2019). Compared to the companies and institutions that hoard our financial data, our own ability to scrape, combine, interrogate and interact with that data is still rather limited (Lewis and Perry, 2019). Overall, the introduction of financial technology demands from us “additional effort in mapping information within and across digital, physical and social resources” (Lewis and Perry, 2019, p. 13).

Additionally, automated credit rating calculations based upon personal and financial data feed financial exclusion. They enable the redirection of formal lending towards higher income and therefore safer groups (Leyshon and Thrift, 1995), and penalise the most financially vulnerable (Ingham, 1999; O’Neill et al., 2017).

Finally, financial data is of an extremely sensitive nature (Ferreira and Perry, 2019). Much can be gleaned from it about our “whereabouts, associations and lifestyle” (Chaum, 1983, p. 199). Together with health information, money is considered one “of the most private areas in personal communications” (Singh and Cassar Bartolo, 2004), and we exhibit strong non-disclosure preferences when it comes to finance. While we often share health information with qualified professionals to enable better care, we tend to “assert control” over our money affairs “by giving as little information as possible” to financial institutions (Singh and Cassar Bartolo, 2004). Indiscriminate financial data collection by third parties clashes against entrenched social norms regarding the appropriate flow of financial information (Nissenbaum, 2011). It also brings the threat of financial surveillance, “financial censorship” (Scott, 2018, p. 154), data theft and misuse.

Once again, the testimonies of the Toucan participants corroborated existing findings. They described their struggles with accessing and interpreting their personal financial data. Delays on transaction recording hindered awareness of their own financial status, and introduced doubt and uncertainty to the information reported by digital tools. As a result of these shortcomings, some participants, like P5 and P11, felt the need to develop their own personalised ways of tracking money. In addition, always-on availability of financial information had unintended consequences, with positive balances and remaining credit becoming a temptation to spend. The sensitive nature of financial information, and participants’ guarded attitude towards it, was reflected in the numerous questions about security raised by Toucan users and their allies.

As in the case of friction, the transparency affordance (Ferreira and Perry, 2019) of financial technologies delivers “unwanted effects” (Morozov, 2013, p. 68), and should be carefully managed (Ferreira and Perry, 2019). Transparency in financial technologies must be treated not as an end in itself, but as an “instrumental value” (Morozov, 2013, p. 80), i.e. a means to enable the more important goal of financial well-being (Hulikal Muralidhar, 2019).

8.2.6 Additional Moneywork

Perhaps enticed by the promise of reduced marginal costs per customer (Joyce, 2019a), the financial industry seems to take for granted that introducing technology delivers convenience and makes it easier for people to manage their money. This promise of convenience clashes against the additional moneywork financial technologies demand. While digitising financial services can streamline certain aspects of the work required for adoption and use, it also generates new forms of labour. Studies across varied locations and contexts, for instance mobile money use in Japan (Mainwaring et al., 2008), cashless payments in London's bus network (Pritchard et al., 2015), and loan collections through mobile software in India (Hulikal Muralidhar et al., 2018), have revealed the "hidden labour" (Pritchard et al., 2015, p. 914) required by financial technologies.

In the case of the Toucan study participants, some of the additional tasks they had to undertake in order to engage with financial technologies included updating payment details in a myriad of ecommerce services whenever bank cards expire, cancelling or changing direct debits when moving bank accounts, trawling through dozens of options in price comparison websites to find a suitable deal, negotiating the quirks and glitches of cashback sites, and experimenting with an endless stream of new financial tools and services.

The Toucan app was no exception, and it also demanded additional moneywork. Some of that labour was undertaken mostly individually by the application users, such as installation and alert configuration (see Chapter 6). However, Toucan also required collaborative forms of moneywork (see Chapter 7). This collaborative work is perhaps less obvious than installing and configuring mobile applications, but must be uncovered and investigated in order to design practice-sensitive mechanisms for financial third party access.

From the above evidence, it seems clear that "Cashless brings work" (Pritchard et al., 2015, p. 914). Although we no longer need to visit our local bank branch to pay our bills or transfer money, financial technologies place new demands on us that cancel out some of their purported efficiencies.

In addition, some studies suggest that financial technologies shift responsibility and work from the institutions that deploy them towards those who use them. For instance, in the case of London buses, the withdrawal of cash payments meant that passengers “had to place considerably more effort into the production” (Pritchard et al., 2015, p. 914) of the new payment system. O’Neill et al. concluded that digitising loan repayments “puts the majority of the work of paying on the payee” (2017, p. 764). In their study of the digitisation of salary payments through mobile money, Blumenstock et al. found that the employer’s significant savings “stemmed from a shift in responsibility for cash transport costs from the employer to the employee” (2015). These findings bring up once again the question of for whom are these financial technologies delivering convenience.

8.2.7 Changes in Control and Agency

The previous section observed how financial technologies shift responsibility and labour from those who deploy them to those who use them. An additional displacement occurs when digitising finance: one of control and agency. Financial technologies can shift control of processes, workflows and interactions towards the technical systems, undermining the agency of human actors (Hulikal Muralidhar et al., 2018). This can be appreciated in the experiences of those who live precariously. Studying the financial practices of people living on a low income, Vines et al. show how digital banking implements payments as instant and irrevocable, seeking to influence people to pay bills quickly and regularly (2014). This design disrupted their participants’ prioritisation practices, removing their ability to delay certain payments when necessary. Instant and irrevocable digital payments interfered with these participants’ “fine-grained control of irregular, unpredictable incomes” (Vines et al., 2014, p. 508). It is no wonder that, for Vines et al.’s “eighty somethings”, “the desire to keep tight control of their finances meant resisting digital technology” (2011, p. 68).

The anxieties caused by irrevocable, automated payments could also be appreciated in the practices of the Toucan participants. In an effort to retain control, they constantly checked for payment due dates, changed them to suit their personal flows of cash, and kept separate bank accounts to avoid these payments taking funds earmarked for other purposes.

The shifting of control from the human actors to the financial technologies is, according to Ferreira and Perry, one of the “effects of intermediation” (2019, p. 126). As private financial institutions and their infrastructures step between transacting parties, those parties lose autonomy in terms of “setting the rules of the value transfer” (Ferreira and Perry, 2019, p.127). Those rules are determined instead by the technologies that intermediate the transaction, the institutions who own and deploy them, and the regulatory framework under which they operate. Through intermediation, financial technologies, and by implication their designers (Ferreira and Perry, 2019), contribute to the financial disempowering of human agents.

8.3 The Individualisation of Finance

Many of the consequences of the digitisation of finance I have described above can be appreciated in the experiences and practices of those living with poor mental health. As illustrated by my fieldwork, the dematerialisation of money and the removal of friction made it harder to manage spending; the lack of flexibility inside financial institutions erected barriers to third party support; the additional moneywork weighted on already limited personal energy and motivation; increased visibility of financial data became a temptation to spend; and changes in the locus of control required participants to develop workarounds to retain financial agency. However, what my fieldwork brings into sharp relief is the individualising effects of financial technologies. Prior HCI work has briefly remarked on this matter. For instance, Pritchard et al. observe that digital banking and payments “operate on the basis of a single authenticated account holder” (2015, p. 915), which puts them at odds with money sharing practices. Vyas et al. mention how technology design has treated finance “as a personal and individual phenomenon” (2016, p. 1787), with

most mobile apps assuming “that only one person is responsible for managing money” (2016, p. 1787). My research contributes by highlighting that these individualising tendencies in financial technologies connect to a broader trend towards the responsabilisation of citizens for their own well-being.

While my participants perceived themselves as “bad with money”, their financial coping strategies and the way they integrated technology into them demonstrate self-awareness, knowledge about their health conditions, financial capacity, as well as motivation and willingness to improve their economic situation. This resonates with prior research, which found those living under the “double trouble” (Topor et al., 2016) of financial hardship and mental illness resourceful (Caplan, 2014), hard working (Harper et al., 2015), and “essentially able to manage living under strained financial circumstances” (Topor et al., 2016, p. 207). Financial capacity is, for the most part, not the problem.

In spite of this evidence, initiatives connected to money and mental health continue to focus on individual capacity, for instance by providing financial literacy training (Harper et al., 2018), as well as coaching and other therapeutic activities intent on convincing recipients they can free themselves from “the traps of debt, poverty, unemployment and disability” (Davies et al., 2015, p. 8). This emphasis on capacity reflects a broader trend to individuate financial hardship, which is “assumed to stem from individual deficits” (Harper, 2018, p. 68). This individuation can be observed in both health provision and public policy. Topor et al. comment on the “tendency to medicalise and pathologise the habits of people living in poverty” (2016, p. 202). Davies et al. criticise policy narratives based on the concept of vulnerability that “seek to individualise debt as a personal problem” (2015, p. 5). According to this “vulnerability framework” (Davies et al., 2015, p. 23), we are solely responsible for finding ourselves in financial difficulties, which are the result of our very own failures (Davies et al., 2015).

My fieldwork suggests that financial technologies are exacerbating this tendency to individuate our finances in general, and financial hardship in particular, by placing responsibility on individuals. They do so in three ways. First, by individuating the

medium of exchange; second, through their relentless focus on optimisation; and third, by disregarding and preventing financial collaborative practices.

8.3.1 The Individuation of the Medium of Exchange

Already in 1986, Keith Hart remarked on how developments in telecommunications and computing were making money “less anonymous, more personalised” (Hart, 1986, p. 641). This phenomenon was typified by the spread of plastic bank cards, which effectively bound money up “with tokens of personal identity” (Hart, 1986, p. 642). As Pahl has observed, “financial services and products have always been based on the idea of the individual consumer” (2008, p. 579). New forms of money, such as debit and credit cards, transfer these individualising ideas into the domain of payments. Compared to cash and cheques, they are “an essentially individualised medium of managing and spending money” (Pahl, 2008, p. 582).

This individuation can be observed in digital banking as well. Like most online services, digital banking assumes that each digital account “will only be accessed by one person, ever” (Adams and Williams, 2013, p. 15), enforcing “a strict one-to-one relationship” (Adams and Williams, 2013, p. 15) to access control even for joint bank accounts. These can be accessed by all account holders, but only through their individual digital banking identities, as one of the Toucan participants shrewdly observed. Digital banking even enshrines this strict individualisation through its terms and conditions (Adams and Williams, 2013). Sharing digital banking credentials with someone else constitutes a breach of the bank’s terms of service, and cancels all fraud protections (Edgar et al., 2017). Logging into someone else’s digital banking, even if just to provide help with minding money, is considered a “fraudulent behaviour” (Edgar et al., 2017, p. 13). Digital banking effectively enforces individuation, penalising any attempt to bypass it.

8.3.2 The Focus on Optimisation

The second way financial technology contributes towards the individuation of finance is through its relentless focus on optimisation. This was the driver behind most of the financial tools discussed by the Toucan study participants, such as

cashback and price comparison websites, voucher schemes, credit rating services, financial assistants and micro-savings applications. The responsibility to optimise one's income was also very much ingrained in these participants' practices, as could be appreciated in their regular use of such tools, as well as the time and effort invested in order to save meagre to modest amounts.

The vast majority of "fintech" tools targeting consumers seem intent on helping us make the most of our money. This includes comparing products and services "to ensure you find the best deal for your needs" (Sewraz, 2019); strengthening "your credit history (...) by reporting on-time rent payments" (CreditLadder, n.d.); assisting with budgeting by showing us where we spend our money and identifying "areas for improvement" (Emma, n.d.); getting us to save "no matter your paycheck's size" (Money Box, n.d.); or helping us understand our financial circumstances and giving us debt advice if needed (Tully, n.d.). As useful and convenient as they may be, these digital services never question whether the resources being optimised are actually sufficient to cover someone's needs, whether accrued debts are fair or should be contested, or whether the transaction data they are collecting indicates financial hardship and, if so, how to address it. In their drive for optimisation, these fintech tools effectively transfer all responsibility for financial well-being to the individuals who use them.

Some HCI research on money has also fallen prey to these individualising tendencies. For instance, Woldmariam et al. believe that the challenge for HCI is how to design "technical solutions" capable of influencing individual spending behaviour, and that encourage us to "save more and get out of poverty" (2016, p. 482). According to these authors, saving and self control "will bring poor individuals out of poverty" (Woldmariam et al., 2016, p. 483). In another example, Heyman and Artman make an impassioned call for designers of financial technologies to heed the learnings from "behavioural finance", which provides "knowledge of how people make their financial decisions" (2014). According to the authors, the ultimate goal of these technologies should be helping their users make better financial decisions, so that they can save more, avoid debt and achieve financial security and stability; as if financial security and stability depended exclusively on users themselves, with

institutions and policies playing no part in the matter. The authors also believe that it would be a good idea for financial technologies to “start monitoring their users’ financial success” (2014).

When technology reinforces the individuation of finance, it draws attention away from the role that institutional factors play in our financial well-being, difficulty and exclusion. Hulikal Muralidhar alerts us to how the predominant narrative that portrays financial technologies as a solution to financial exclusion and poverty “misses important questions such as the business models and market forces driving digital money technologies” (2019). The focus on optimising income also ignores that the association between poverty and mental health is “a multidimensional systemic social issue” (Forchuk et al., 2017, p. 249). The progressive withdrawal of government support, benefits and subsidies; a financialised economy increasingly reliant on debt; precarious labour markets (Davies et al., 2015); lack of access to suitable and affordable financial tools and services; and the fundamental contradiction in banking between pursuing profit and the measures that would truly help those struggling to make ends meet (Harper et al., 2018) are some of those institutional and structural factors that contribute to financial difficulty. All of them take a back seat while designers of financial technologies concentrate on optimising scant and ever diminishing resources.

Prioritising optimisation also means we are paying less attention to the other design problems currently present in our financial technologies, such as the removal of friction, the lack of flexibility, the unintended effects of increased visibility, the shifts in the locus of control and agency, or the restrictions on financial collaboration, which is the subject of the next section.

8.3.3 Disregarding and Preventing Financial Collaborative Practices

The systematic individualisation of finance clashes against our communal and collaborative instincts in our interactions with and through money. Evidence of the tensions between the individualising tendencies of financial technologies and the

collaborative behaviours of human actors can be found scattered across the HCI, CSCW and anthropology literature on money. The informal mechanisms for financial third party access described in Chapter 2 (section 2.5.2) clearly exemplify this conflict. Sharing PINs and Internet banking credentials, handing over bank cards to others, giving signed blank cheques and withdrawal forms to trusted collaborators, and using joint accounts for support and oversight purposes fly in the face of the assumptions about money as strictly personal that underpin the design of formal financial services and technologies.

Numerous other examples exist across radically different contexts. For instance, Talhouk et al.'s research (2020) uncovered the tensions between electronic payment solutions for the delivery of food aid, and the cooperative practices of a community of Syrian refugees in Lebanon. Collective food purchasing enabled this refugee community to save money through bulk purchases, to access more competitive prices, to counter power asymmetries with local shop owners and, in general, to better cope with food insecurity. However, the food aid programme these refugees received, which was delivered to them through an electronic system similar to a prepaid debit card, effectively impeded these collective practices due to its strictly individualised nature. The use of the prepaid debit card was linked to a single person per household, and only this person was authorised to initiate payments with the prepaid card. Shop owners were instructed to carry out an identity verification check before taking a payment. This individualised approach effectively prevented any pooling of monetary resources for bulk buying, which in turn undermined these refugees' resilience to food insecurity.

In another case set in urban Chile, Ossandón explains that although credit cards are intended as "private property, owned and managed by the person whose name is on the card" (2014, p. 5), the practice of card lending, which is common in Chile, reveals a parallel and collective network of debt. Credit cards are not just used by their owners: people loan their cards to close others, creating "hidden networks" (Ossandón, 2014, p. 1) invisible to card issuers. What is being lent in this case is not money or the card itself, but one's credit limit: our individual entitlement to borrow and accrue debt. The assessment of individual behaviour that underpins

credit scoring and the calculation of credit limits is, therefore, misguided, since it disregards social lending practices.

An additional example brings us back to the UK, where sharing practices have been found to be important for public transport users: “couples would pay for each other’s travel, parents would pay for their children, friends would pay for travel as a group” (Pritchard et al., 2015, p. 915). The existing London travel card scheme, which enforces a strict policy of one travel card per person, effectively rules out all credit sharing, and prohibits communal practices in transport payment (Pritchard et al., 2015).

All across the globe, from food purchases, to credit cards, to financial third party access and public transport payments, we find that financial services, the technologies attached to them, and the policies that rule them are designed under the overarching assumption that your money is strictly and uniquely yours. In turning a blind eye to the collaborative reality of our day-to-day financial lives, financial services and technologies render themselves fundamentally unsuitable for our socio-cultural monetary practices (Singh et al., 2007a).

8.4 Financial Technologies and the Economic Theory of Money

In this section, I address the question of *how ideas and theories about the nature of money feed into the financial industry, their services and attendant technologies, and what impact does this have on people experiencing financial difficulty*. I contribute to knowledge by demonstrating the influence that economic ideas about money exercise over the design of financial technologies.

The previous sections outlined the consequences of the digitisation of finance. Financial technologies, in their current form, remove the materiality of money, engineer inefficiencies, do away with all friction, reduce flexibility, boost designless visibility, create new forms of moneywork, shift the locus of control from users to institutions, and exacerbate the individualisation of finance. These technologies

also increase the exposure of the financial system to cyberattack, and create new forms of financial exclusion (Scott, 2018). The vulnerability experts in Chapter 4 gave us a poignant illustration of the latter, describing how the move to digitally-mediated banking service provision affects those at the brink of vulnerability.

In addition, existing financial technologies are privatising the medium of exchange. Bank accounts and digital payments are private infrastructure. State-issued cash, by contrast, is “a kind of public good” (Maurer, 2015, p. 132). The difference between a private and a public medium of exchange is not simply political or ideological, i.e. the need to preserve citizen’s oversight of a critically important social technology. The privatisation of the medium of exchange has more prosaic and direct consequences over people’s financial lives. The owners of the payment infrastructure “charge tolls on the passage of money” (Maurer, 2015, p. 132), which means that when you get paid £1, you will receive only 99.8 pence (Maurer, 2015). Cash, on the other hand, “settles at par” (Maurer, 2015, p. 22), and so when you are paid £1, you get the full 100 pence. These tolls on payments, like all fees and charges, impact disproportionately those who struggle to make ends meet.

The downsides of financial technologies are many, but they are nowhere to be seen in the marketing messages that promote the adoption of digital financial services to citizens. Those focus instead on the disadvantages of cash, which is presented as inconvenient, dangerous and dirty. The purported dirtiness of cash was deployed by UK retailers as an excuse to ban cash payments during the Covid-19 pandemic, claiming that coins and notes may spread the disease even though the World Health Organization never recommended such a measure (Kale, 2020). Cash is also dirty in a less literal sense, portrayed as the realm of criminals, money launderers and tax evaders (Scott, 2018). In this narrative, financial technologies are understood in absolute terms: as a complete replacement for traditional monetary artifacts. Advocates of the digitisation of money envision a world with no notes, no cash, no cheques, and no paper receipts, passbooks, invoices or statements. Everything money-related shall become digital, without any thought given to the advantages of providing choice or having alternatives. This is what Brett Scott has called “the war on cash” (2016).

There are powerful commercial and political incentives for the complete disappearance of physical money-things and the advent of a “cashless society” (Scott, 2018, p. 148). In Chapter 4, we saw how, inside commercial banks, financial technologies are understood as an operational efficiency: a path away from costly forms of service provision such as branches and ATM networks, and therefore a means to save money. This view of technology as an operational efficiency seems a long standing one in banking. Bátiz-Lazo et al. (2009) trace it back to the changes in Swedish savings banks after World War II. Banks would also draw additional benefits from a “cashless society” (Scott, 2018, p. 148), since in such a society all monetary transactions would take place through their bank account infrastructure. According to Scott (2018), payment companies (e.g. Visa, Mastercard), the fintech industry, governments and central banks are also interested in the demise of cash and actively campaign for a “cashless society” (Scott, 2018, p. 148). Payment and fintech companies have commercial reasons to do so, since their profits would soar as payments and money management migrated to their products and infrastructure. For governments, a “cashless society” (Scott, 2018, p. 148) would bring the ability to monitor all transactions, which would aid their battle against financial crime and tax evasion, as well as enable widespread citizen surveillance. For central banks, a world without cash would open up new strategies in monetary policy (Scott, 2018).

The “war on cash” (Scott, 2016) frames the discussion of physical vs. digital money as a binary matter, “a dualistic either-or choice” (Scott, 2018, p. 151) where the absolute domination of digital money is presented as the natural and inevitable end-point of the evolution of money (Scott, 2018). This narrative of naturalness and inevitability reveals the influence of economic ideas about money on the discourse surrounding financial technologies. In Chapter 2 I outlined how, according to Ingham (2004), the economic theory of money explains money’s existence by presenting it as a natural phenomenon. Money arises spontaneously from myriad acts of individual exchange driven by the intrinsically human pursuit of rational utility maximisation. From this perspective, money in its digital form simply becomes the next chapter in the logical and inexorable progression that already brought us from barter to securitised derivatives (Graeber, 2014). This economic view of financial technology opens the gates to “technological solutionism” (Morozov, 2013) and

“technological utopianism” (Toyama, 2015), whereby complex social situations are turned into neatly defined problems amenable to algorithmic optimisation (Morozov, 2013). This results in oversimplified problem statements that are often expressed in binary terms, something that can be clearly appreciated in the case of financial third party access, where nuanced and rich financial collaborative practices have been reduced to a dichotomy of care vs. control, and independence vs. protection (Wilson and Tilse, 2015).

The influence of the economic theory of money can also be clearly appreciated in the individualising tendencies of financial technologies. The economic theory of money relies on the understanding of humans as rational utility-maximising individuals; and turns money into an asocial, apolitical, and neutral entity (Ingham, 2004). Since being a medium of exchange constitutes the very nature of money, any collaborative financial practices are reduced to exchange. When money is conceived as a lubricant to enable exchange at scale, producing efficient, frictionless payments becomes the logical and fundamental pursuit of financial technologies. If that involves tight control of financial infrastructures by private organisations, the removal of all flexibility, the possibility of surveillance and censorship (Scott, 2018), and the withdrawal of financial agency from human actors, let it be so.

Economic ideas on the nature of money bring with them the neglect of its social and political dimensions, and that is exactly what we find when we dissect the design and effects of financial technologies. Their links to personal identity, their enforcement of strictly individual access, their focus on optimising income, their indifference towards collaborative practices, and their inattention to systemic issues and their implications for citizens, amount to a complete disregard for money as a social relation (Ingham, 1996). Through its firm grip on the mainstream, and unbeknownst to their designers, the economic theory of money has surreptitiously introduced itself into, and taken hold of, the ways we produce financial technologies.

The influence of economic ideas on the design of financial technologies raises the question of design's performativity, i.e. the role that design plays in preserving the existing monetary system.

8.4.1 The Performativity of Design in Financial Technologies

In the previous section, I attempted to demonstrate that the design of financial technologies is heavily inspired and influenced by mainstream, economic ideas about the nature of money. This influence brings up the issue of the performativity of design.

In Chapter 2, I outlined Ingham's hypothesis about the performativity of money theories. In an attempt to explain the persistence of the economic theory of money in spite of its flaws, Ingham volunteers the notion that the theory plays a performative role. By this, Ingham means that the economic theory of money contributes to bringing about and maintaining the socio-technical system of money production that it claims to explain. In presenting money as a natural, universal phenomenon, the economic theory cements "the working fiction" (Ingham, 2004, p. 84) of a stable, immutable money; a type of money that cannot be contested, because it transcends social and political conflict and the inevitable change they bring. The economic theory helps conceal the fundamentally social origins of money, and the "malleability" (Ingham, 2000, p. 31) of the institutions that produce it. In doing so, it works towards preserving our monetary status quo, with its unequal and exclusionary tendencies, and its lack of democratic oversight (Ingham, 1999).

I argue the design of financial technologies is performative in very much the same manner. In reflecting and enacting the ideas about money put forth by the economic theory, design becomes complicit in the reproduction, reinforcement and preservation of our unfair, undemocratic, and exclusionary monetary system (Ingham, 1999; Graeber, 2014). Design also contributes to conceal the true nature of money: its social condition, its intrinsic plasticity, and the fact that unequal socio-

technical systems of money production are neither natural nor unavoidable. If design is indeed performative in this fashion, the introduction of alternative ideas about money in the design of our financial technologies becomes both important and urgent.

In this thesis, I set out to explore how we can design financial technologies that promote access and fairness. Once the influence of economic ideas about money is uncovered, the answer to that question seems clear. Money has two sides (Hart, 1986), but only one of them is currently being taken into account in the design of financial technologies. Designers must correct this one-sidedness by reintroducing the social and political aspects of money. They must project the dialectical nature of money into financial technologies by embracing the social side of the coin. In the next section, I discuss how the concept of financial citizenship can support a more sociological orientation in the design of financial technologies.

8.4.2 Towards Technologies for Financial Citizenship

In terms of ways forward for design that speak to the nature of money as a social relation, useful insight could be gained by drawing on the concept of financial citizenship. The term was proposed by Leyshon and Thrift as a form of resistance against the exclusionary practices of the UK banking industry, which during the 1990s started to redirect credit towards wealthier social groups in order to avoid risk, and concentrated branch closures in lower-income areas (Leyshon and Thrift, 1995). The authors compared these exclusionary practices to state borders, since they resulted in a financial system that, like states, creates a distinction between those on the inside (citizens) and those on the outside (non-citizens). The concept of “financial citizenship” was thus coined as a way of “putting pressure on states to reform their financial systems so that they include rather than exclude” (Leyshon and Thrift, 1995, p. 336).

In 2009, Leyshon defined financial citizenship as a “concept that recognizes the significance of the financial system to everyday life and confers a right and ability on individuals and households to participate fully in the economy and to accumulate wealth” (Leyshon, 2009, p. 153). As such, financial citizenship intends to contribute

to a “critical reevaluation of the concept of financial inclusion” (Leyshon, 2009, p. 157), which has been questioned because it leads to superficial engagement with financial services, and does not help individuals exercise power within the financial system (Berry and Serra, 2012). The financial inclusion agenda has yielded mostly market-based interventions that engage individuals purely as consumers rather than citizens (Leyshon, 2009; Medhat, 2020); has prioritised access over usage (Hulikal Muralidhar et al., 2019); and has introduced new problems, such as indebtedness (Berry and Serra, 2012). In addition, the financial inclusion agenda carries with it an “implicit value judgement” (Scott, 2018, p. 153) about financial formality. It unquestioningly assumes that being dragged into the existing financial system is appropriate and advantageous for all, and that those outside of it “should not rightfully exist at all” (Scott, 2018, p. 153).

Although criticised for not challenging the ongoing process of financialisation in economic and social life (Kear, 2013; Berry, 2015), financial citizenship does seek to move beyond discourses of inclusion to propose ideas of participation and influence. Financial citizenship calls for the introduction of democratic oversight of financial processes (Berry, 2015). According to Ingham, the power to create money is exercised jointly by the state and a banking system over which there is no democratic control (1999). Financial citizenship would entail the recognition that individuals also possess certain rights with regard to the socio-technical system that produces money and maintains its value (Ingham, 1999). Riles (2018) builds upon this idea and suggests that citizens must have a role in the stewardship of the economy. They should participate in the choices and decisions involved in financial governance so as to strengthen our collective - and not just our individual - economic well-being. Like financial inclusion, financial citizenship requires that people have access to the products, services and resources they need for financially responsible behaviour. However financial citizenship also requires participation, i.e. that people are given “the opportunity and capacity to shape the way the financial system functions” (Berry and Serra, 2012, p. 25). As Berry and Serra succinctly state: “Inclusion alone does not guarantee citizenship” (Berry and Serra, 2012, p. 20).

Proponents of financial citizenship also share an opposition to the financialisation of the state, which involves the dismantling of public welfare mechanisms and the responsabilisation of citizens (Berry, 2015). The “responsibilised citizen” (Berry, 2015, p. 520) is required to forgo the public resources they are ultimately entitled to, and become instead individually accountable for their own financial security and well-being (Berry, 2015).

Through its emphasis on rights, collective well-being, and democratic oversight, financial citizenship foregrounds the role that institutions, socio-technical structures, and close others play in our personal financial lives. In doing so, it can help us move away from individualised narratives of finance.

Albeit in a tentative and cautious way, the Toucan app does constitute an exploration of some of these ideas. The design of the app started from the recognition that financial technologies should work towards the well-being of those who use them, rather than the optimisation of their assets. It also acknowledged the communal essence of our money lives, and the fact that many of us give and receive support from trusted others in financial matters. The app, however, still focused on personal circumstances, and did not address citizens’ power in relation to the financial system, or the structural factors contributing to financial difficulty and exclusion.

The technologies that increasingly mediate financial service provision should aspire to tackle such matters, and to assume an active role in the pursuit of financial citizenship. To do so, financial technology design must shift away from financialised market agendas oriented towards short-term profit (Berry, 2015), and introduce principles of i) opposition against exclusion and the systematic responsabilisation of individuals, ii) democratic oversight of financial processes, iii) citizens’ stewardship of the economy and iv) collective well-being. Financial technologies should strive to become a vehicle through which citizens can exercise influence over how financial

institutions operate. They must also work towards systems that legitimise and enable the capabilities, skills and practices that citizens have developed to manage their financial lives, rather than medicalising, stigmatising and penalising their behaviour.

In doing so, technology may become not only an institution of resistance to the process of “financial infrastructure withdrawal” (Leyshon and Thrift, 1995, p. 321) that drives financial exclusion, but also a tool for democratic oversight of the socio-technical system that produces and maintains money (Ingham, 1999). In what follows, I propose a set of design directions that can help financial technologies make a contribution to financial citizenship, and embrace the nature of money as a social relation.

8.5 New Design Directions for Financial Technologies

To close my discussion, I contribute a set of design principles for financial technologies that can help designers foreground ideas of money as a social relation. These design principles address my main research question: *How can we design financial technologies that promote access and fairness in financial service provision, particularly for those who are experiencing some form of financial difficulty?*

Some recommendations and challenges for the design of financial technologies can be found across the HCI and CSCW literature on money, as well as other disciplines and policy-oriented research. For instance, in their seminal study about the financial practices of people living on \$2 a day, Collins et al. propose four “key principles” (2009, p. 180) for the design of financial services: reliability, convenience, flexibility and structure. Ferreira and Perry identify a set of opportunities for designing money use as “social *interactions*, rather than just *transactions*” (2019, p. 126). These include negotiating payment, collaborative value creation and addressing the effects of intermediation. Most design recommendations call upon designers of financial technologies “to take seriously the social value of money” (Pritchard et al., 2015, p. 915). For example, Snow et al.

highlight the need to transcend personal budgeting in order to “leverage the social connections between people” (2017, p. 355). Vyas et al. observe that designs “must be sensitive” to existing collaborative practices (2016, p. 1787). Vines et al. would like digital systems to harness the power of the material and social qualities of financial transactions; and to incorporate “temporary transferability of financial responsibility” (2011, p. 72) into services.

In the context of money and mental health, specific functionality has also been proposed. For instance, customisable mobile banking notifications, self-imposed spending limits, read-only access to bank accounts, cooling off periods, blocking of payments to certain merchants, and double confirmation of transactions (Farr et al., 2019; Murray, 2016; Money and Mental Health Policy Institute, 2018; Bond et al., 2019). However, no set of design principles exist to help assess whether these and other technical features contribute to the high-level recommendation of taking seriously the social dimensions of money (Pritchard et al., 2015). In what follows, I attempt to provide such a set of design principles that can act both as inspiration for design, and as a set of heuristics to help evaluate new financial features and services.

8.5.1 Flexibility

Collins et al. include flexibility as one of their 3 key principles for the design of financial services (2009). They define it as “the ease with which transactions can be reconciled with cash flows” (Collins et al, 2009, p. 181). Their call for flexibility was issued in the context of designing services for those who live on less than 2 dollars a day, whose income is not only small, but also irregular and unreliable (Collins et al., 2009). However, many in the Global North also get by on incomes that are irregular, below average, and like the Toucan participants on benefits, subject to the politics of institutions. Flexibility in financial services is important independently of geography and economic development. To demonstrate the point, also in the UK the Financial Conduct Authority has highlighted the importance of flexibility in financial service provision (Coppack et al., 2015).

Flexibility in financial services and their technologies can take many forms. For payments, it means “being able to transact in any sum, no matter how small, at any time” (Collins et al, 2009, p. 181-182). For savings and loans, it involves adaptable payment terms and schedules, with short-term money shortages not precluding long-term benefits or carrying grueling penalties (Collins et al., 2009). For insurance, general purpose policies that pay out “for a wide range of events” (Collins et al., 2009, p. 180). For bank accounts, it means no minimum balance requirements (Hulikal Muralidhar, 2019). For automated direct debit payments, “the possibility to delay them” (Vines et al., 2014, p. 508) if needed. For salaries, the option to withdraw them when required and as you earn them, rather than relying on employers’ payroll schedules (Lilly, 2021). For transport card users, the ability to share the credit they purchase (Pritchard et al., 2015).

Flexibility can also take the form of configurability. Configurability would provide a layer of options on top of standard financial services, so that people can customise those services to their personal financial practices. Many of the features that have been recommended to the financial industry in the context of mental health fall within this configurability concept. For instance, the ability to create alerts based on transaction amount, time of day and merchant (Farr et al., 2019); the ability to share such alerts with a trusted third party, a feature that was implemented by the Toucan app (Money and Mental Health Policy Institute, 2018); read-only access to online banking (Farr et al., 2019; Money and Mental Health Policy Institute, 2018); or “self-imposed” spending limits on debit cards and ATM withdrawals (Farr et al., 2019).

Financial technologies, as currently designed and deployed, de-personalise and standardise service provision to save costs. This reinforces existing processes of customer commodification (Leyshon and Thrift, 1995). As described in section 8.2.7 above, financial technologies also contribute to withdrawing control from human actors, redirecting it towards technologies and those who own them. Designing flexibility into financial technologies can help us counterbalance both effects, enabling technologies and services to meet “the dynamism of ‘real life’” (Rowe et al., 2014, p. 26), and restoring agency to human actors.

8.5.2 Complementarity

As described in Chapter 4, the financial industry views technology mostly as a gateway to operational efficiencies, i.e. a means to save money by replacing more expensive channels for service provision such as bank branches and telephone contact centres. Understandings of technology as an operational efficiency contribute to the binary narratives of a “cashless society” (Scott, 2018, p. 148) that pitch financial technologies and digital money against physicality and cash. In reality, however, the best option would be a hybrid system where both are available (Scott, 2018) and complement each other.

Plenty of evidence exists on the complementarity between digital and physical financial artifacts. In their study of branchless banking in India, Panjawi et al. (2013) concluded that a combination of SMS and paper receipts was likely the best solution. Paper receipts compensated for the unreliable delivery of SMS messages, while providing accessibility, tangibility and storability advantages for some users. In the context of loan repayments, O’Neill et al. observed that collections relied upon an “ecosystem of trust” (2017, p. 736) built through different instruments, including SMS and paper receipts, as well as payment logbook entries.

Kameswaran and Hulikal Muralidhar describe how digital payments in India “have taken the role of augmenting cash practices, rather than replacing cash” (2019), with the majority of debit card transactions being ATM withdrawals. It may be argued that all these examples come from the Global South. However, no country in the Global North has become completely cashless (Hulikal Muralidhar, 2019), between other things because most people “want the choice” (Access to Cash Review, 2019, p. 19). Despite the raising importance of electronic banking, and “the often-proposed decline of the brick-and-mortar channel” (Sachse et al., 2012, p. 344), the branch remains “relevant for advisory processes”, and “customers demand a variety of channels to choose from” (Sachse et al., 2012, p. 347).

The financial industry should heed citizens’ call for choice. Financial technologies should aim not to replace other service channels and artefacts, but to complement them. They should be understood as one more option within a set of financial interaction possibilities that may include face-to-face service provision, telephone

and digital technologies, as well as physical financial artifacts such as cash, paper application forms or paper receipts. Designers should pay attention to cross-channel and multi-artefact approaches and strategies when developing new financial technologies, products and services.

A varied set of interaction channels and artefacts will allow citizens to choose the most appropriate ones, taking into account their specific circumstances; their knowledge, comfort and experience; as well as the nature of the product or service. Monzo's design concept for allowing customers "to choose their preferred form of communication" (Brade, 2017) is within this spirit of complementarity. Sadly, at the time of writing, Monzo has yet to implement this proposal (Barros Pena, 2020).

8.5.3 Reflection

This direction requires designers to tackle the problems caused by the absence of friction. It demands that we create space for reflection in our interactions with financial technologies. The compelling effects of introducing friction in financial technologies are illustrated by Ferreira et al.'s account of SMS payments with the Bristol Pound (2015). The authors describe how a somehow slow and cumbersome payment system generated opportunities for playful and pleasurable interactions, social and community contact, engagement with local places and reflection about consumption and means of payment. Several design traditions can contribute to the pursuit of reflection, such as slow technology (Hallnäs and Redström, 2001), reflective design (Sengers et al., 2005), and the concept of "microboundaries" (Cox et al., 2016).

Current examples of adding friction to financial technologies mostly involve introducing delays. For instance, by asking to confirm a transaction after 12 or 24 hours (Farr et al., 2019); or by establishing "cooling off periods" (Farr et al., 2019, p. 21) to deactivate gambling blocks (Ledward, 2018). However, the reflection design agenda should aim beyond the supply of time. Its ultimate goal is supporting "valued behaviour" (Cox et al., 2016), assisting people in interacting with technology in ways that align with their values and preferences (Cox et al., 2016). This includes encouraging reflection about the consequences of our financial transactions, both

for us and our “circle of care” (Singh and Cassar Bartolo, 2004); our consumption habits; and the impact of our chosen means of payment (Ferreira et al., 2015). Understood in this manner, the reflection principle can help address the “effects of intermediation” (Ferreira and Perry, 2019, p. 126), which restrict the agency of transacting parties regarding the “rules of the value transfer” (Ferreira and Perry, 2019, p. 127).

Introducing reflection actually aligns with the core strategy behind several of the friction workarounds developed by the Toucan participants, such as the use of top up debit cards that invited thought about spending through the act of transferring funds onto the card; or letting online shopping baskets rest overnight.

8.5.4 Appropriation

Financial practices are situated: they depend in essential ways upon the specific circumstances in which they take place (Suchman, 2007). This can be clearly appreciated in the collaborative moneywork involved in using the Toucan app. I presented that moneywork in Chapter 7 as a sequence of activities but, in practice, interaction outcomes and application use built upon each other and continuously adapted based on the context, behaviours and responses of the participants. Allies switched between communication channels depending on their circumstances when an alert arrived; Toucan users changed the alerts they shared as their confidence in their allies grew; they modified alert thresholds to achieve what they perceived as the right volume of messages based on their allies’ reactions; and started notifying allies in advance that an alert would be coming to save them unnecessary worry and anxiety. Participants’ moneywork was shaped by the technology, but participants also shaped the technology through use by configuring it for their specific needs and developing workarounds to overcome its limitations (Carroll, 2004). For example, participants started to warn their allies in advance of expected alerts in order to overcome the inability to stop routine payments from triggering messages.

This reshaping of technology through use has been referred to as “appropriation” (Carroll, 2004). In order to fully enact the “situatedness” (Dix, 2007) of their financial collaboration practices, participants had to “appropriate” the Toucan app. As the Toucan example demonstrates, financial technologies must lend themselves to be appropriated if they are to accommodate the situated nature of our money practices. However, it has been noted that key financial technologies such as digital banking “do not allow any type of appropriation” (Vyas et al., 2016, p. 1786).

Much has been written in CSCW and HCI on how to design for appropriation (e.g. Dix, 2007; Dourish, 2003; Höök, 2006; Vyas et al., 2016; Mainwaring et al., 2008). In the context of financial technologies, Mainwaring et al. highlight the need for “open-ended platforms that can serve as the vehicle for multiple meanings and experiences” (2008, p. 24). Vyas et al. recommend “designing adaptable artefacts”, rather than “completely finished products” (2016, p. 1786). In Chapter 6 (section 6.8.2), I described some of the positive effects of Toucan’s “unfinishedness”. The lack of detail about the transactions that triggered the alerts, and the delays between transactions and those alerts, required participants to make sense of the situation themselves. In doing so, they had to engage in what they considered positive behaviours, such as checking their bank statements and transactions, which in turn developed financial awareness. It seems clear there is potential in imperfect technologies that engage human agents in the sense-making process.

Other qualities of “appropriable systems” (Dourish, 2003) can also be observed in the Toucan app. For example, alerts acquired different meanings depending on each users’ own financial behaviours, so the system allowed interpretation (Dix, 2007). Toucan also provided infrastructure for sharing financial information with a third party without imposing a specific workflow, supporting rather than controlling users (Dix, 2007). The choice of SMS for alert delivery may have contributed to Toucan’s appropriability as well. According to Höök, potentiality for appropriation resides in the technologies available to us (2006), and SMS has been noted

elsewhere as an example of a technology that is highly appropriable (Salovaara et al., 2011). Although scarcely used for financial service delivery in the Global North, SMS is an almost pervasive, and cost effective, technology, which made it a good medium for the delivery of Toucan alerts.

When compared to Toucan, existing formal financial third party access mechanisms leave little room for appropriation. For example, the access permissions in third-party mandates are tightly defined by the banks: they are non-negotiable, and users have no choice but to accept them as they come.

Financial technologies should embrace the principle of user appropriation. They should acknowledge the situated nature of our money practices, and create systems that leave space for interpretation, support users rather than enforcing specific workflows, and deploy appropriable technologies. At the same time, designers must remain aware of the potential for introducing risk. For instance, informal third party access practices demonstrate how PINs and Internet banking credentials can be highly appropriable, albeit in a way that can lead to great financial harm. Possibilities for appropriation must establish certain boundaries in order to strike a balance between security and flexibility. This balance demands a broader interpretation of security that takes into account its positive and social dimensions (Coles-Kemp et al., 2018).

8.5.5 Positive Security

Coles-Kemp et al. have observed that the mainstream focus on assets and data protection in digital security falls short when confronted with everyday activities, “where the distinction between authorised and unauthorised” (Coles-Kemp et al., 2018, p. 9) access may not be clear-cut. In such contexts, “traditional approaches to digital security” are too inflexible and too narrow, and as a result they “become difficult to operationalise” (Coles-Kemp et al., 2018, p. 9). This can be clearly appreciated in the case of financial third party access. The testimonies of the vulnerability experts in Chapter 4 illustrate the difficulties of facilitating third party access inside financial service providers, to the point that the very definition of vulnerability became tied to third party access needs. In their work on finance with

older adults, Vines et al. uncovered the shortcomings of this “traditional” (Coles-Kemp et al., 2018) approach to security. The collaborative practices of “eighty somethings” (Vines et al., 2011), grounded on life experiences of communal sharing of financial resources and forms of social lending, clashed against the “all or nothing” (Vines et al., 2012b) access control processes based on PINs and passwords. All the informal mechanisms for financial third party access described in Chapter 2, such as sharing banking credentials and cards, defy the security approaches deployed in financial services. There is clearly a gap between the individual access model (Coles-Kemp and Bjerg Jensen, 2019) characteristic of “theoretical banking procedures” (Vines et al., 2011, p. 70), and people’s financial security practices.

In order to close this gap, a broader conceptualisation of security is required (Coles-Kemp et al., 2018). Several alternative interpretations of security exist that can support this aim. One of them is the notion of “positive security” (Roe, 2008). The field of International Relations distinguishes between security defined as “absence of” or “freedom from” threat, which is linked to security as a noun, and is a negative concept (Roe, 2008); and positive security defined as “freedom to”, which is linked to the adjective ‘secure’, in the sense of “enabling” or “making something possible” (Roe, 2008). The notion of positive security emphasises the relational aspects of security, i.e. the fact that securities and insecurities are created within the communities individuals live in (Roe, 2008). This relational aspect of security is particularly relevant to collaborative financial practices, such as financial third party access.

Positive security is also connected to the concept of ontological security. Originally developed within psychiatry, ontological security refers to individuals’ ability to maintain a sense of self (Croft, 2012). Ontological security relies on “biographical continuity”, “a web of trust relations” and the ability “to act in accordance with self-integrity” (Croft, 2012, p. 219). Ontological security also establishes the person as

the main referent of security, rather than assets or infrastructures. In highlighting the role that relationships play in our feeling secure, and shifting the locus of security to people rather than assets, the concept of ontological security appears more suitable to address the matter of securing financial collaborative practices.

Finally, Coles-Kemp and Bjerg Jensen discuss the applicability of a socio-technical model of access to interactions with technologies (2019). They build upon Ribot and Peluso's theory of access, which emphasises not the right to access, but the ability to benefit from access. This socio-technical model of access also considers "the networks that support an individual's access and that enable an individual to leverage access powers" (Coles-Kemp and Bjerg Jensen, 2019, p. 9). By emphasising the role that community and relationships play in fully realising the benefits of access, this socio-technical model is more appropriate for tackling access control in the context of financial collaboration.

The designers of financial technologies should question the traditional approach to digital security. With its focus on asset protection and access rights, this negative understanding of security has resulted in a "lack of fit" (Singh et al., 2007a, p. 476) between the security mechanisms deployed by financial technologies and the collaborative practices of those who use them. Concepts like positive security, ontological security and socio-technical models of access can provide alternative frameworks for a rethinking of what it means to be safe when managing ours and someone else's money.

8.5.6 Collaboration

As demonstrated by the case of financial third party access, and the individualising tendencies of financial technologies, financial collaboration needs urgent attention from designers. This thesis has advocated the importance of collaborative practices in day-to-day money management, which has been demonstrated by many studies. Research about managing on a low income, as well as on money and mental health, has repeatedly shown the significance of social networks of support as a financial coping strategy. Vyas and Dillahunty described in depth how community networks and sharing practices contribute to resilience in times of financial crisis

(2017). Davies et al. observed how successful ways of dealing with personal debt “involve seeking help and sympathy from others” (2015, p. 5). Topor et al. identified having a social network “willing and able to provide help” (2016, p. 204) as a key condition to manage in relative poverty, and list nominating a legal guardian during periods of crisis as one of the coping strategies of those living with mental illness. Ware and Goldfinger (1997) found that pooling resources and house “loan funds” helped alleviate poverty between people with mental illness living in shared accommodation. Forchuk et al.’s participants identified “having supportive relationships” as one of the factors that helped them financially (2017). Enabling assistance with minding money and third party financial oversight has become an ever-present policy recommendation in the UK (Murray, 2016; Money and Mental Health Policy Institute, 2018; Bond et al., 2019).

Meanwhile, collaborative features in financial technologies have been mostly limited to bill splitting (e.g. Braileanu, 2017; Bilgil, 2018) and peer to peer mobile payments (e.g. Swish, n.d.; blik, n.d.; bizum, n.d.; vipps, n.d.). Albeit useful and convenient, these apps and features demonstrate a somehow superficial understanding of the meaning and impact of financial collaboration. As shown in Chapter 4, banks continue to find the need for financial collaboration problematic and troublesome. The highly individualised nature of their products, services and technologies erects barriers to third party involvement, making it difficult to operationalise. With no provision for collaborative financial practices by design, banks must resort to time consuming and costly assessments on a case by case basis, and carefully managed exceptions.

Designers working in financial services should recognise the importance of communal money practices for financial well-being (Vyas and Dillahunt, 2017; Davies et al., 2015; Topor et al., 2016; Ware and Goldfinger, 1997; Forchuk et al., 2017), and develop technologies that encourage and amplify collaborative financial practices, rather than obstructing them. Collaboration should become a core use

case in financial technology design. From pooling resources (Ware and Goldfinger, 1997) to group savings (Mehmood et al., 2019) or giving help with minding money (Barros Pena et al., 2021b), designers should engage with the numerous and mundane ways in which collaboration around money takes place on a daily basis.

There are several directions through which financial technologies could introduce opportunities for collaboration. I will illustrate two of them: intermediation and information sharing. In addition, I will describe how designing for collaboration can help us move away from the dichotomy of protection vs. control (Wilson and Tilse, 2015) that currently dominates the discourse of financial third party access.

8.5.6.1 Enabling Intermediated Tasks

A concrete step towards more collaborative financial technologies would be enabling what Parikh and Ghosh have called “intermediated tasks” (2006), which are carried out by a user on behalf of another. The authors call attention to the existence of “secondary” users of technology, who do not directly interact with it but do so via a “*proxy primary user*” (Parikh and Ghosh, 2006).

Although the concept of intermediated use was mostly developed through studies and initiatives in the Global South, it has obvious applicability to financial collaboration everywhere. Parikh and Ghosh (2006) identified four levels of intermediation, 2 of which are particularly relevant to financial collaboration: 1) cooperative and 2) intermediated. In cooperative interactions, two or more users gather around a single device with more or less equal access to the interface. Chapter 5 provided an example of cooperative use: P9 and her husband gathered around her smartphone and used a mobile banking app to check their joint account together.

In intermediated interactions, the secondary user does not have direct access to the device, which is manipulated only by the proxy user. However, the secondary user can observe the interaction. The informal third party access practice of sharing

Internet banking credentials enables a primary user to engage in this kind of intermediated interaction with the credentials' owner, who becomes the secondary user.

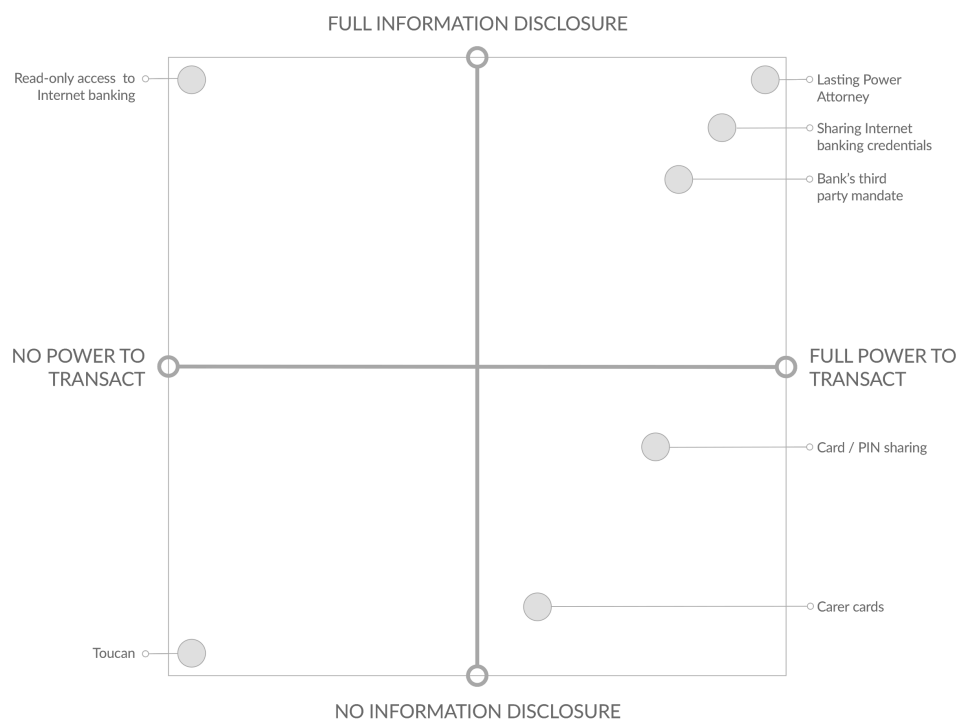
As these examples illustrate, intermediated use of financial technology is already happening. This behaviour, however, is considered fraudulent and punished by service providers (Edgar et al., 2017). Rather than penalising it, financial technologies should embrace the intermediated use case, and provide secure ways for secondary users and their proxies to engage in intermediated tasks.

Intermediation “enables persons for whom technology is inaccessible due to non-literacy, lack of skills, or financial constraints, to benefit through digitally skilled users, thus expanding the reach of technologies” (Kumar et al., 2011, p. 1414). Designing for intermediation therefore provides a possible answer to the recalcitrant issue of digital exclusion in finance.

8.5.6.2 Exploring the Possibilities of Information Disclosure

The Toucan app took a different approach to financial third party access from the one deployed by the formal and informal mechanisms described in Chapter 2. In a report published in 2019, the Money and Mental Health Policy Institute represented financial third party access options as a spectrum that went from delegating total control to providing visibility of information (Bond et al., 2019). That single spectrum aggregates two different factors that come into play in financial third party access, and in many other forms of financial collaboration: the delegation of power to transact, and the disclosure of financial information. A representation of these 2 factors as a set of perpendicular axes, as in figure 5 below, creates 4 quadrants that can be used to map both formal and informal, hypothetical and existing, mechanisms for financial third party access.

Figure 5. Formal and informal financial third party access mechanisms represented by the axes of information disclosure and delegation of power to transact.



The top right quadrant in figure 5 contains the most invasive options that delegate ample powers to transact and disclose most or all financial details to the third party. These include lasting power of attorney and banks' third party mandates between the formal mechanisms, and the sharing of Internet banking credentials between the informal ones. The bottom right quadrant contains options that delegate limited power to transact and disclose some to little financial information, such as the sharing of bank cards and PINs, and carer cards, i.e. additional cards in the name of a third party attached to personal current accounts but with separate PINs and withdrawal limits (AgeUK, 2011). The top left quadrant contains mechanisms with a high degree of information disclosure, but that do not delegate any power to transact. For instance, read-only access to someone else's Internet banking. Finally, the bottom left quadrant includes mechanisms like the Toucan app, which disclose little or no financial information, and do not delegate any power to transact.

As the figure shows, existing formal and informal instruments for financial third party access operate across both axes: they disclose most or all financial information to third parties and grant them ample powers to transact. Toucan, however, does not delegate any power to transact, and discloses almost no financial information, enabling in practice a lightweight form of financial oversight.

Disaggregating these two factors of financial collaboration in this manner may contribute to a more exhaustive examination of the domain, helping us identify new design opportunities. For instance, the diagram in figure 5 reveals that little attention has so far been paid to information disclosure only options, i.e. mechanisms that do not delegate any power to transact but support asset owners by enabling oversight and advice through information sharing. Research by the Money and Mental Health Policy Institute reported many participants being “enthusiastic” about this approach, which would allow someone “to watch over their account, without decision-making power” (Bond et al., 2019, p. 30). In spite of this evidence, there has been little experimentation with information disclosure-only strategies beyond the Toucan app.

Advocacy organisations in the US and the UK have recommended banks should offer read-only access to Internet banking for a third party (Harper et al., 2018; Money and Mental Health Policy Institute, 2018). Work on accommodating shared identities in digital accounts suggests some of the ways such read-only access could be provided. Online services today assume each account will only be used by one person. This creates barriers for information sharing. To move beyond this paradigm and overcome its limitations, Adams and Williams (2013) proposed 4 new types of digital accounts: several, shared, subordinate and nominees. In shared accounts all members have access to information, but other actions require permission from, or are only available to, certain members. Such a digital account would accommodate read-only access for designated third parties, while restricting power to transact to the account owner.

Control over which information can be seen by read-only members would also be desirable (Singh et al., 2007b; Bond et al., 2019), and Toucan users made suggestions as to what they would like to share. For example, amount spent over a certain period of time such as a day or a week, transaction lists, and merchants or merchant categories where expenses took place. Access to more abstracted information, as proposed by the Toucan allies, could also be considered. For instance, by setting thresholds for high, medium or low spending; or by providing spending trends over time without displaying any amounts or transaction details.

Until recently, the only organisations in a position to put into practice these recommendations were banks. The arrival of open banking initiatives, first in Europe through the Payment Services Directive 2 (PSD2), then across the world (ndgit, 2019), has substantially transformed this landscape. People's financial data is becoming accessible to authorised services through application programming interfaces (APIs), creating new possibilities for third party access as demonstrated by Toucan's features.

In the UK, financial technology startups using open banking capabilities have mostly perpetuated the mainstream focus on the "individual level" (Snow et al., 2017), providing functionality for data aggregation, personal budgeting, financial planning, savings and automated investment advice. All these applications put emphasis not just on the individual, but also on sharing our financial data exclusively with service providers. This individualistic and entrepreneurial perspective misses the fact that open banking also introduces the possibility of sharing our financial data with each other, and with those in our "circle of care" (Singh and Cassar Bartolo, 2004). In doing so, open banking may create new opportunities for secure, flexible, proportionate and practice-sensitive forms of financial collaboration.

8.5.6.3 From Designing for Protection to Designing for Collaboration

In spite of the importance of collaboration in day to day money management, and the opening up of banking data to third parties, very few financial services today incorporate collaborative features. In addition to the Toucan app in the UK, Harper

et al. (2018) mention two more examples available in the USA. The first is Eversafe (<https://www.eversafe.com/>), a service “designed with seniors in mind” (<https://www.eversafe.com/>) that monitors bank account activity and sends notifications about suspicious transactions to a designated third party. The second is the Truelink customisable prepaid card (<https://www.truelinkfinancial.com/card/>), which provides third parties with the ability to configure and limit card spending both by amount and merchant, as well as receiving alerts. Both services are positioned as enabling assistance, supervision and protection. This emphasis on protection is characteristic of formal financial third party access. When discussing assistance in the management of older adults’ financial assets, Tilse et al. observed that third party access policies have so far focused on protecting asset owners from financial abuse (2007). The focus on protection precludes consideration of how to preserve the autonomy of asset owners, and encourage their participation in financial decision-making (Tilse et al., 2007).

In response to this challenge, HCI literature has proposed designing for control. Singh et al. suggested users of financial services should be given ample control over their personal information (2006), including the ability to share it with others (Singh and Cassar Bartolo, 2004). Dunphy et al. conceived their Helper Card to ensure that asset owners “are empowered to be in control of their resources” (2014a, p. 421). Toucan was, in many ways, guided by the same idea of designing for control. Although it established strict constraints in terms of what information could be shared with allies, it handed ample powers to users in other areas. Toucan users could decide which alerts to share with their allies, and modify those at any time and with little effort. They could also choose not to share any alerts at all, and were free to pick a different ally at any point. This flexibility gave Toucan users a high degree of autonomy, and offered a stark contrast to the rigidity of formal third party access mechanisms.

However, during the Toucan study we observed how concentrating control on the Toucan user generated power imbalances between the two parties to the relationship, leaving allies vulnerable to manipulation, lies and anxiety. The experiences of the Toucan allies foregrounded the importance of designing for financial collaboration instead.

Designing for protection and designing for control establish an unequal relationship between the parties involved in financial third party access. The former tends to prioritise substitute decision making and therefore empowers the third party; while the latter tends to prioritise autonomy and therefore empowers the asset owner. Designing for collaboration aims to establish an equal relationship between the parties, one where control is shared and negotiated. Flexibility and control of personal information should be accompanied by mechanisms that encourage the negotiation and formalisation of collaboration protocols that have been agreed by all parties to an egalitarian relationship.

Financial services in general, and new forms of financial third party access in particular, should move beyond designing for protection and designing for control, and prioritise instead designing for meaningful financial collaboration.

8.5.7 Participation

Beyond the inclusion agenda, financial technologies should demonstrate a commitment to amplify the voices of those who use them. They should support them in their attempts to exercise influence over the financial system, in contesting institutional policies and practices, and in combating the endemic inequality embedded in the production and circulation of credit money (Ingham, 1999). In short: financial technologies should support financial citizenship. This requires moving away from the drive to optimise resources, and turning attention instead to the structural and institutional factors that contribute to financial difficulty.

This design direction recalls the politically-committed nature of the Scandinavian tradition of participatory design (Vines et al., 2012a), and maps to its third arena of participation, where “the general legal and political framework is negotiated”

(Kensing and Blomberg, 1998, p. 169). While participatory design interests have expanded in recent years from workplace relations to other areas (Halskov and Brodersen Hansen, 2015), there has been little engagement with mainstream financial services. The lack of participatory design research in this domain is all the more striking when we consider the omnipresence and importance of such services in an increasingly financialised society, where a bank account and access to credit have become “a social necessity” (Leyson and Thrift, 1995, p. 313). There is much to gain through the introduction of participatory design processes and politics inside financial service providers.

Enacting participation will require designers to confront the political aspects of financial service provision. For instance, we may need to acknowledge that financial services are by now fundamental utilities, and access to them a basic right, since it is no longer possible to fully engage in society without availing oneself of such services. For instance, one must have a bank account in order to be employed, and for most of us owning a home necessitates access to credit. Utilities are essential functions for “maintaining an inclusive society” (Access to Cash Review, 2019, p. 88), independently of their commercial profitability. It has already been suggested that cash infrastructure and access should be understood in this manner (Access to Cash Review, 2019), but the proposal could be expanded to most financial services.

Financial services and infrastructures as utilities would mean the end of banks as profit-oriented businesses with a duty to please their shareholders (Leyshon and Thrift, 1995). Banks as non-for-profits may sound ludicrous, but it is not without precedent. That was the nature of many of the early savings banks in Scotland and Sweden (Bátiz-Lazo et al., 2009). These banks fully reinvested their proceeds “as working capital”, and were managed by “voluntary managers or trustees” (Bátiz-Lazo et al., 2009, p. 3) who derived no benefit from the position.

In addition, banks are clearly “not like other businesses”, since they are considered by governments “too big and too important to fail” (Leyshon and Thrift, 1995, p. 330) and will not be allowed to collapse. Social responsibilities and a “concern for

community development” should be demanded in return for “the special immunity from failure” banks currently enjoy (Leyshon and Thrift, 1995, p. 330). Banks should have a duty of care towards citizens, should be subject to universal access obligations, and to minimum standards of service. There is an intrinsic tension between a relentless prioritisation of quarterly profits and the enactment of such fiduciary responsibilities, and the financial industry cannot be expected to self-regulate to overcome that tension.

Advocating a “utility approach” (Access to Cash Review, 2019, p. 65) for financial services should not be construed as an attack on the financial industry, but as a recognition of its success in turning the services and infrastructures they provide into something that is absolutely essential to the functioning of our societies. Financial service providers should be relieved from the obligation of delivering profit at all costs so that they can focus on helping society prosper. The primary goal of financial service provision should be to enable our communities’ economic well-being.

8.6 Conclusion

This chapter has attempted to address my main research question: *How can we design financial technologies that promote access and fairness in financial service provision, particularly for those who are experiencing some form of financial difficulty?*

The chapter started by listing the unintended consequences of introducing technologies to money management. Financial technologies, in their current form, dematerialise our money; bring with them a narrow focus on efficiency; attempt to remove all friction; reduce the flexibility of financial services and practices; indiscriminately increase the visibility of transactions and financial behaviours; create new forms of moneywork; shift the locus of control from human agents to technical infrastructures and the organisations that deploy them; and most importantly for this research, exacerbate the individualisation of our financial lives, creating tensions with our collaborative money practices. In these unintended

consequences, we can clearly appreciate the influence of economic ideas about the nature of money, which is conceived as a natural, universal, and uncontested phenomenon derived from the pursuit of exchange by rational, utility-maximising individuals.

Once the influence of the economic theory of money has been uncovered, a possible answer to my research question presents itself. In order to design financial technologies that promote access and fairness in financial service provision, designers should introduce sociological ideas about money in the production of financial technologies. They should design for money not as an immutable and individualised phenomenon, but as a system of social relations of power between economic agents and monetary authorities that is “socially and politically constructed” (Ingham, 2004, p. 123). As such, money is precarious, unstable, malleable and contestable; built upon “a less substantial foundation than most of us seem willing to live with” (Hart, 1986, p. 651).

In section 8.5, I proposed a set of design principles, grounded in the concept of financial citizenship, which can help designers embed ideas of money as a social relation into financial technologies. Designers should introduce flexibility and complementarity; encourage reflection; invite appropriation; embrace positive forms of security; foster and nurture collaboration; and enable participation in, and democratic oversight of, the socio-technical monetary system.

As Keith Hart observes (1986), money, like coins, has two sides: it is a medium of exchange and a universal measure of value; it is individual and social, “the relationship between persons and things in a social world dominated by both states and markets” (Hart, 1986, p. 650). Our financial technologies, however, are designed as if money were a one-sided thing. Designers must restore the dialectical nature of money within our financial technologies: they must embrace the social side of the coin. The design principles I have proposed in this chapter aim to inspire and assist this endeavour. However, the task will ultimately require designers to knock down “the wall (...) of our collective imagination” (Graeber, 2014, p. 382), so as to conceive other ways our money, and by extension our society, could be.

Chapter 9

Conclusion

9.1 Introduction

In this thesis, I have investigated the question of how we can design financial technologies that promote access and fairness in financial service provision, particularly for those who find themselves in financial difficulty. I have explored this by examining theoretical paradigms about the nature of money, and through qualitative accounts of people dealing with and experiencing financial difficulty. Lived experiences came from the two sides of financial service provision: banks and their customers. On one hand, I engaged with a team of specialists inside a UK commercial bank, who were tasked with providing service to customers deemed “vulnerable”. On the other hand, I collaborated with a group of people typically considered at risk of financial vulnerability, because they lived with mental health problems and had experienced financial difficulty. Both theory and experience combined to supply a critical lens for examining the design of existing financial technologies.

My exploration concluded that financial technologies, as currently designed, reflect and reproduce economic perspectives about the nature of money. These view money as a purely utilitarian “lubricant” (Ingham, 2006, p. 17) of exchange, and as a strictly individual matter. Financial services and their attendant technologies are designed accordingly, and clash against the communal and collaborative nature of our financial practices and behaviours. These tensions can be clearly appreciated in the experiences of those who face the “double trouble” (Topor et al., 2016) of mental illness and financial difficulty. For this group, collaborative money management practices are particularly important because they can contribute towards their financial security and well-being. This group is also disproportionately affected by the unintended consequences of digitising financial service provision. To explore alternative paradigms for the design of financial technologies, I

partnered with a financial technology startup to trial Toucan, a mobile application created to support and encourage financial collaboration between those living with mental illness and trusted others. Rather than considering money an exclusively personal matter, and financial management a fundamentally solitary undertaking, Toucan was designed from the assumption that money and the practices that surround it are essentially collaborative. Rather than emphasising asset optimisation, the app focused instead on its users' financial well-being. Toucan is, therefore, fundamentally different to mainstream financial technologies with regards to the assumptions that underpin its design.

The experience of developing and trialling Toucan suggests ways to resolve the conflict between the individualising tendencies of financial technologies and our collaborative money practices. The design of financial technologies should be grounded on sociological, rather than economic, perspectives on money. The sociological school of thought understands money as a social relation (Ingham, 1996), and emphasises its political nature. Rather than designing for efficiency and the optimisation of financial assets, I propose that financial technologies should instead promote flexibility, complementarity, reflection, appropriation, positive security, collaboration and participation.

In this concluding chapter, I will articulate my contributions to knowledge, and where in the thesis they have been elaborated. I will then outline the limitations of my research, as well as possible directions for future work.

9.2 Contribution to Knowledge

This research makes the following contributions to knowledge:

1. It expands HCI and CSCW literature on money, in particular about the implications of deploying existing financial technologies, and their impact on groups constructed as “vulnerable”. It coheres existing work, establishing connections between research carried out in the Global North and the Global South (Chapter 8, section 8.2).

2. It contributes new knowledge on the individualising effects of financial technologies, and the tensions this generates with the communal and collaborative nature of our interactions with and through money (Chapter 8, section 8.3).
3. It demonstrates the influence that economic ideas about money exercise over the way financial technologies are designed, and uncovers the resulting performativity of design (Chapter 8, section 8.4).
4. It proposes a set of design directions for financial technologies grounded on alternative, sociological ideas about the nature of money (Chapter 8, section 8.5).

I will explain each of these contributions in the next sections.

9.2.1 The Implications of Existing Financial Technologies

In Chapter 8, section 8.2, I brought together existing literature and findings from my own fieldwork in order to compile a list of the unintended consequences of introducing digital technologies into our interactions with money. Financial technologies, in their current form, dematerialise money; bring with them a narrow focus on efficiency; attempt to remove all friction; reduce the flexibility of financial products, services and processes; indiscriminately increase the visibility of transactions and financial behaviours; create new forms of moneywork; and shift the locus of control from human agents to technical infrastructures and the organisations that deploy them. Many of these consequences disproportionately impact those who live with mental health problems and or find themselves in financial difficulty. For instance, the removal of friction exacerbates issues related to spending control (Richardson et al., 2018); and the lack of flexibility in financial service provision is particularly damaging for people living on a low income (Collins et al., 2009), and for groups socially constructed as “vulnerable” (Coppack et al., 2015).

In addition, this list of unintended consequences brings into question many of the claims made by the overwhelmingly positive narrative that surrounds the

introduction of financial technologies. As such, these unintended consequences constitute a call to attention for designers, industry and regulators about the nuanced implications of introducing technology into money matters.

9.2.2 The Individualising Effects of Financial Technologies

Chapter 8, section 8.3 discusses an additional unintended consequence of introducing technology into the domain of money: the individualising effects of existing financial technologies. Findings from my fieldwork suggest that financial technologies today are designed under the assumption that money is a strictly personal affair, and money management a fundamentally solitary pursuit. This assumption manifests through highly individualised means of payment, like debit and credit cards; highly individualised forms of service provision via digital and telephone banking; a relentless focus on asset optimisation; and through penalising financial collaborative practices, as with the withdrawal of fraud protections from those who share their banking security credentials with trusted others.

These individualising aspects of financial technologies not only clash against the collaborative nature of our practices with and around money: they also reinforce and contribute to structural processes of financialisation and citizen responsabilisation. Through these processes, citizens are required to take responsibility for their own financial stability and security, and to renounce the state support they have contributed towards and are ultimately entitled to (Berry, 2015). These processes also construe financial difficulty as the result of personal shortcomings and failures, disregarding the role of systemic factors.

9.2.3 The Influence of Economic Ideas

In section 8.4 of Chapter 8, I argued that the unintended consequences of financial technologies demonstrate the strong influence that economic ideas about money exercise on their design. The economic school of thought understands money as an asocial, apolitical medium of exchange that is the spontaneous outcome of free cooperation between rational, utility-maximising individuals. It also portrays money as a natural phenomenon: universal, immutable, incontestable, and beyond the

reach of social and political conflict. From this perspective, financial technologies simply become the next chapter in the logical and inexorable progression that already brought us from barter to securitised derivatives (Graeber, 2014).

The influence of the economic theory of money manifests most clearly in the individualising assumptions and tendencies of financial technologies. When money is conceived as a lubricant to enable exchange at scale, producing efficient, frictionless payments becomes the ultimate goal, and all financial collaborative practices are reduced to exchange transactions.

The influence of economic perspectives on the design of financial technologies raises the issue of the performativity of design. In reflecting and enacting the ideas about money put forth by the economic paradigm, design becomes complicit in the reproduction, reinforcement and preservation of our unfair, undemocratic, and exclusionary monetary system (Ingham, 1999; Graeber, 2014).

9.2.4 Alternative Design Directions for Financial Technologies

Once the influence of economic perspectives on the design of financial technologies is uncovered, it becomes possible to identify alternative ideas to ground design work. In parallel and often in opposition to the economic paradigm, there is a sociological school of thought that understands money as a social relation (Ingham, 1996). This sociological tradition postulates that money is an abstract, universally accepted unit of account, legitimised by hegemonic power and maintained through social struggle. Therefore, in this sociological view, money is fundamentally social and political.

In sections 8.4.1 and 8.4.2 of Chapter 8, I suggested we should introduce this sociological conception of money into the design of financial technologies, and outlined how the notion of “financial citizenship” (Leyshon and Thrift, 1995) may support that effort. Finally, in section 8.5, I proposed 7 design principles to help designers embed sociological perspectives on money into financial technologies. According to these principles, we should design these technologies to enable flexibility, complementarity, reflection, appropriation, positive security, collaboration and participation.

Keith Hart posited that money is a dialectical entity. Like coins, it has two sides: it is a medium of exchange and a universal measure of value; it is individual and social; it represents people and things, states and markets (1986). Our existing technologies, however, disregard this dual character, and are designed as if money had a single side: only a medium of exchange, just a personal property, merely an object of the market. If we are to create financial technologies that promote access and fairness in financial service provision, we must restore the dialectical nature of money, and embrace the social side of the coin.

9.3 Limitations of the Research

As a qualitative inquiry, it is not possible to easily draw generalisations from this research. First, all fieldwork was done in the UK, where specific regulations define the concept of “vulnerable customers” in the context of financial services; and where distinct technical configurations and infrastructures condition which financial technologies are available and how they are used. In addition, I engaged with only one bank in the UK. However, most UK banks currently have dedicated teams to service “vulnerable customers” (Kaveh, 2020). Understandings, policies and approaches to vulnerability, third party access and digital technologies may vary between them, and it is not possible to determine to which extent my findings apply within other commercial banks.

This observation extends to the fieldwork done in collaboration with people with experience of mental illness and financial difficulty. The small number of participants (14), and their recruitment through a single charity partner (the Money and Mental Health Policy Institute), mean that the sample cannot be deemed representative. I must also remark on the lack of clinical data to verify our participants’ self-reported diagnoses. Consequently, care should be taken with any generalisations concerning mental health drawn from this research. The behaviours and practices described by the participants in this research should not be construed as representative of all people experiencing mental health difficulties, or as characteristic of certain mental health conditions.

However, being phenomenologically grounded and reliant on qualitative methods, my research was not concerned with generalisability. I did not set out to identify financial behaviours associated with certain mental health conditions, or to draw comparisons with the financial practices of neurotypical users. The value of this qualitative inquiry resides instead in demonstrating how lived experiences of financial difficulty, third party access and poor mental health can contribute to the critical examination of financial technologies. My participants' experiences helped uncover the shortcomings of these technologies, and inspired new design sensitivities to address them.

9.4 Future Work

Little HCI research exists in collaboration with commercial banks. These institutions, however, are absolutely essential to our financial lives. They intermediate access to many of the payment mechanisms and to much of the credit available to us, effectively acting as our money suppliers and gatekeepers. In addition, they are responsible for the design, deployment and management of many of the financial technologies we use today. My fieldwork inside the bank revealed the contradictions, conflicts and struggles that surround the technology-making process inside these organisations, and shed light into some of the reasons why those technologies come to be the way they are. HCI research collaborations with banks and credit unions may focus, for instance, on examining their internal design practices; on introducing participatory approaches to the design of financial services and technologies; and on exploring how technology may enable alternative, non-for-profit forms of financial service provision.

In Europe, consumer banking is also in the midst of a significant transformation connected to the Payment Services Directive (PSD2) and related open banking initiatives, through which banks allow third parties permissioned access to their customers' data via application programming interfaces (APIs). A search for "open banking" and "HCI" in the ACM Digital Library (<https://dl.acm.org/action/doSearch?AllField=%22open+banking%22+AND+%22HCI%22>) returns only 5 results at the time of writing. There is therefore scope for HCI researchers to investigate the implications and potential of open banking APIs in collaboration with banks and financial technology companies. Future investigations may include how open

banking APIs could contribute to more collaborative financial technologies. In the discussion chapter (section 8.5.6), I brought up the untapped possibilities of information disclosure and of designing for intermediated technology use. The open banking APIs could provide the technical scaffolding required for design explorations in these areas.

As in many other domains, the Covid-19 health emergency has significantly impacted banking policies and services related to “vulnerable” customers. After years of little progress, several new initiatives such as dedicated telephone helplines, cash delivery services and “carer cards” (Santander UK, n.d.; Royal Bank of Scotland, 2020; Team Starling, 2020) have been launched by many UK banks in the past few months (Kaveh, 2020). This is a welcome development, and provides an opportunity for HCI researchers to collaborate with banks in assessing the impact of these initiatives and their attendant technologies, and to design improved iterations of these services.

Finally, there is much need for further inquiry into financial third party access and its mechanisms. In spite of repeated calls for additional research and policy over the past decade, financial third party access remains today essentially as it was 10 years ago. HCI researchers can contribute to bringing change in this area by delving into the experiences of those with formal and informal attorney responsibilities, and into how they use technology to support their obligations towards donors. HCI researchers are also well positioned to explore how digital tools may enable new mechanisms for financial third party access and enhance existing ones. Through better understanding of the situated practices that constitute financial third party access, we can shift emphasis from placing responsibility on donors and attorneys, to the inadequacies and limitations of the instruments at their disposal.

APPENDICES

APPENDIX A:

Vulnerable Customers Team Fieldwork Materials

Amendments

Create New Amendment Refresh

SUBMISSION ID	CREATED DATE TIME	CREATED BY	STATUS	DESCRIPTION	UPDATED DATE TIME	COORDIN...
No items to display.						

Submission

Submission Ref: 9237
 Status: Approved
 Submission Coordinator: Sheng-feng Qin sheng-feng.qin@northumbria.ac.uk

Name: belen.barros.pena

Email: belen.pena@northumbria.ac.uk

Faculty:

Department:

Submitting As:

Externally Approved: **Note: ONLY tick this box if your project has already received full ethical approval from an external organisation**

Module Level Approval: *Tick this box if staff and this submission refers to an entire module.*
**** Only to be used for low or medium risk projects as categorised by the diagnostic risk question set ****

Module Code:

Module Tutor:

Titl...
 De...
 Em...

Research Supervisor:

Titl...

De...

Em...

Ethical Risk Level

Medium

[Click here to answer the ethical risk questions](#)


Risk Level Conditions:

Your ethical risk is **medium**. Your research should only consist of one or more of the following:

- Non-vulnerable adults
- Non-sensitive personal data referring to a living individual
- Secondary data not in the public domain
- Environmental issues
- Commercially sensitive information

Your project proposal has some ethical implications and will be reviewed by one independent reviewer appointed by your Faculty Research Ethics Committee. Some factors to be considered include considering obtaining informed consent forms from organisations or people involved, permission to use data from the Data Controller, as well as confidentiality/anonymity issues.

Ethical Risk Diagnostic Questions and Responses

 Refresh

ID QUESTION

ANSWER

No items to display.

Co-investigators

 Add  Edit  Delete  Save  Refresh

NAME OF CO-INVESTIGATORS

No items to display.

G1: General Aims and Research Design (Mandatory)

Title

Title of your research project

Financial Vulnerability: Banking Perspectives, Experiences and Responses

Outline General Aims and Research Objectives

State your research aims/questions (maximum 500 words). This should provide the theoretical context within which the work is placed, and

Many older adults delegate financial transactions to friends, family and carers, who shop, pay bills and withdraw cash from ATMs on their behalf. Research has highlighted how the ongoing digitisation of payment systems can reduce the ability of older adults to mitigate the risks they take when entrusting others with financial matters [1].

Formal instruments of delegation in banking (e.g. power of attorney and third-party mandates) are binary: they provide all or nothing access to someone's accounts. This binary arrangement does not reflect real scenarios of financial task delegation [1, 2], which are fluid in terms of donor capacity, type of relationship between donor and third party, scope, quantity and duration. By removing all flexibility, formal delegation mechanisms also create stigma, with donors unwilling to hand over full control over their finances, and attorneys wary of taking it away [2, 3].

The lack of flexible formal delegation instruments has fed the adoption of informal workarounds. These include handing out cards and PINs, setting up online banking to transact on someone's behalf, and even impersonating others when banking over the phone. These workarounds help older adults maintain independence, but they also increase their vulnerability and exposure to financial abuse, because they give unfettered access to funds, violate banking terms of service and void fraud protections [2, 3].

In February 2015 the Financial Conduct Authority (FCA) published a paper on Customer Vulnerability [4]. In it, the FCA defines a vulnerable customer as "someone who, due to their personal circumstances, is especially susceptible to detriment, particularly when a firm is not acting with appropriate levels of care." (p. 20).

This FCA paper introduced the issue of financial vulnerability to the agenda of UK banks. [REDACTED] started several initiatives to better address situations of financial vulnerability experienced by their customers. These included the creation of a Specialist Support Team to assist branch personnel by providing advice on how to handle vulnerability cases.

[REDACTED] records and classifies the cases handled by the Specialist Support Team, applying criteria such as personal circumstances (e.g. a customer's health condition) and the detriment they experience (e.g. financial abuse). Other than the application of this classification scheme, no further attempt to analyse vulnerability based on cases handled has been made by the bank.

This study will run semi-structured interviews with members of the [REDACTED] Specialist Support Team in order to answer the following questions:

- * How financial vulnerability manifests itself to the bank in their daily dealings with customers, how it is being handled, and the types of assistance and solutions the bank is currently providing. □
- * Which situations of financial vulnerability particularly affect older adults. □
- * Which situations of financial vulnerability involve delegation of financial tasks to third parties (e.g. Power of Attorney). □

References

1. Dunphy, P., Monk, A., Vines, J., Blythe, M., Olivier, P., 2013. Designing for Spontaneous and Secure Delegation in Digital Payments. *Interacting with Computers* 26, 417-432. <https://doi.org/10.1093/iwc/iwt038>
2. AgeUK, 2011. *The Way We Pay: Payment Systems and Financial Inclusion*.
3. Edgar, L., Green, F., Ward, V., Gumbley, M., 2017a. *The Ageing Population: Coping Mechanisms and Third Party Access*. the Big Window Consulting Ltd.
4. Coppack, M., Raza, Y., Sarkar, S., Scribbins, K., 2015. *Consumer Vulnerability*, Occasional Paper No. 8. Financial Conduct Authority, London, England.

G2: Research Activities (Mandatory)



Please give a detailed description of your research activities

Please provide a description of the study design, methodology (e.g. quantitative, qualitative, practice based), the sampling strategy, methods of data collection (e.g. survey, interview, experiment, observation, participatory), and analysis. Do sensitive topics such as trauma, bereavement, drug use, child abuse, pornography, extremism or radicalisation inform the research? If so have these been fully addressed?

Study design and methodology

The research activity will be qualitative in nature. It will consist on one-to-one semi-structured interviews that will take place in [REDACTED] offices in [REDACTED] where the Specialist Support Team is based. Each interview will last between 60 and 90 minutes.

Data collection and analysis

Interviews will be audio recorded and transcribed for analysis. The data will be anonymised upon transcription, and these will be shared with [REDACTED] Vulnerable Customers team, the research partner, upon request.

M1: People and/or Personal Data



Tick if your work involves people and/or personal data?

Sample Groups

Provide details of the sample groups that will be involved in the study and include details of their location (whether recruited in the UK or from abroad) and any organisational affiliation. For most research studies, this will cover: the number of sample groups; the size of each sample group; the criteria that will be used to select the sample group(s) (e.g. gender, age, sexuality, health conditions). If the sample will include NHS staff or patients please state this clearly. If this is a pilot study and the composition of the sample has not yet been confirmed, please provide as many details as possible.

The Specialist Support Team is currently made of six people. The study will aim to interview all six members of the team.

Nature of data pertaining to Living Individuals

If you will be including personal data of living individuals, including still or moving images, please specify the nature of this data, and (if appropriate) include details of the relevant individuals who have provided permission to utilise this data, upload evidence of these permissions in the supporting documentation section.

Details of any Special Category Data - If you will be collecting data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, trade union membership, data concerning health or data concerning a natural person's sex life or sexual orientation, please specify which categories you will be using.

No personal data will be gathered from interviewees other than their name and job description. The interview content is likely to reference individuals in vulnerable situations observed and described by the participants - however we will ensure that no identifiable information about the individuals involved in any examples are shared.

All collected data will be stored in a password protected database on an encrypted hard disk accessible only to the lead researcher. All research data will be anonymised upon transcription. Anonymous participant codes (e.g., P1) and pseudonyms will be used in order to anonymise all data. Only anonymised transcriptions may be shared with [REDACTED] Vulnerable Customers team, the research partner.

Legal Basis for Processing: [Further guidance can be found here](#)

If you require further information, please contact the Data Protection Officer by emailing dp.officer@northumbria.ac.uk

Type a value

Recruitment

Describe the step by step process of how you will contact and recruit your research sample and name any organisations or groups that will be approached. Your recruitment strategy must be appropriate to the research study and the sensitivity of the subject area. You must have received written permission from any organisations or groups before you begin recruiting participants. Copies of draft requests for organisational consent must be included in the 'Supporting Documentary Evidence'. You must also provide copies of any recruitment emails/posters that will be used in your study.

Recruitment will take place via the research partner, the [REDACTED] Vulnerable Customers team, who will provide participants' names, contact details, and assist with interview scheduling.

Remuneration

Details of remuneration

Will you make any payment or remuneration to participants or their carers/consultees? If yes: Please provide details/justifications. Note that your Faculty may have specific guidelines on participant payments/payment rates etc and you should consult these where appropriate.

Type a value

Type of Consent

Informed Consent

Type of Consent Details

Please include copies of information sheets and consent forms in the 'G6: File Attachments' section. If the study involves participants who lack capacity to consent, procedures in line with sections 30-33 of the Mental Capacity Act will need to be put in place. If you are using alternative formats to provide information and / or record consent (e.g. images, video or audio recording), provide brief details and outline the justification for this approach and the uses to which it will be put:

Initial agreement to carry out the study has been obtained from the Vulnerable Customers and Specialist Support Teams' management. This agreement has been arranged by the Vulnerable Customers team, and communicated to the researcher via email.

In addition, the study will gather informed consent from participants through the following steps:

* The researcher will send the information sheet and consent form to participants at least 48 hours before the interview takes place, to ensure they have time to read and consider the information provided. □

* The researcher will make herself available to participants to answer any queries about the study, and to arrange the interview date and time. □

* On the interview day, and before it starts, participants will be asked to complete the consent form. Consent will be obtained for the interview itself, and for audio recording. A copy of the information sheet will be available for participants' reference. □

* At the end of the study, the researcher will debrief participants to explain the next steps in the research process. The researcher will also remind participants they can remove themselves from the study by providing notice up to 15 days after the interview date. After that period of time, the research data will be anonymised and it will be no longer possible to identify individual participants. □

See "G6: File Attachments" section for the information sheet and the consent form to be used.

Researcher and Participant Safety Issues

If there are any risks the research could cause any discomfort or distress to participants (physical, psychological or emotional) describe the measures that will be put in place to alleviate or minimise them. Please give details of the support that will be available for any participants who become distressed during their involvement with the research.

Researcher safety issues

The study should raise no safety issues for the researcher, other than the need to travel to the interview site in [REDACTED]. The researcher will travel by train.

Participant safety issues

The study should raise no safety issues for the participants.

Data Gathering Materials Used

Provide a detailed description of what the participants will be asked to do for the research study, including details about the process of data collection (e.g. completing how many interviews / assessments, when, for how long, with whom). Add any relevant documentation to the 'Supporting Documentary Evidence' section of this form.

Data gathering will be done via audio recordings.

Potential Ethical Issues






Please describe any potential ethical issues the project may have which are not covered above, and how you have sought to minimise these.

Participants may feel pressured to participate in the study, since it is likely they will be first notified of it by their line manager. The researcher will communicate to the Specialist Support Team members that participation is voluntary, that there will be no negative consequences from refusing to participate, and that they can withdraw at any time, and up to 15 days after the interview date.

Participants may be concerned about disclosing customer private information, or commercially sensitive information during the interview. The researcher will communicate to participants that interview transcriptions will be anonymised, so no customers can be identified from their content. The researcher will also inform participants she is under a Non-Disclosure Agreement with [REDACTED] that prevents her from sharing commercially sensitive information with any third parties.

Participants may be concerned about expressing views that are critical of existing bank policies and procedures, colleagues or company management. The researcher will communicate to participants that pseudonyms will be used, so that no interview transcription can be traced to the interviewee's identity. Participants will be informed that only anonymised interview transcriptions may be shared with the Vulnerable Customers team.

M2: DBS Clearances Required

 Add  Edit  Delete  Save  Refresh

Do not upload your DBS certificate to this system as this would be contravening General Data Protection Regulations.

Further information relating to DBS Clearance can be found in the Ethics and Governance Handbook using the link below

[Ethics and Governance Handbook](#)

NAME OF PERSON ON CERTIFICATE	TYPE OF DBS CLEARANCE	CERTIFICATE REFERENCE	ADULTS/CHILDREN	DATE OF DBS CERTIFICATE
-------------------------------	-----------------------	-----------------------	-----------------	-------------------------

(Add new row)

M3: Secondary Data

Tick if you will be using secondary data NOT in the public domain?

M4: Commercial Data

Tick if your work involves commercially sensitive data?

M5: Environmental Data

Tick if your work involves the collection of environmental data?

G3: Research Data Management Plan (Mandatory)

Anonymising Data (mandatory)

Describe the arrangements for anonymising data and if not appropriate explain why this is and how it is covered in the informed consent obtained.

Participants will be given a pseudonym which does not contain their first name, second names, or initials. Mapping of pseudonyms to real participants' names will be done via an "index list". Once the data is anonymised, the corresponding entry will be removed from the index list. Once all data is anonymised, the index list will be deleted.

Only pseudonyms will be used when reporting on the project via presentations or papers.

Any information that could identify [REDACTED] customers will be removed from the interview transcriptions.

Storage Details (mandatory)

Describe the arrangements for the secure transport and storage of data collected and used during the study. You should explain what kind of storage you intend to use, e.g. cloud-based, portable hard drive, USB stick, and the protocols in place to keep the data secure.

If you have identified the requirement to collect 'Special category data', please specify any additional security arrangements you will use to keep this data secure.

All personal and research data will be stored in electronic format. Consent forms will be scanned and paper originals will be shredded. Interview recordings will be transferred from the audio recorder device into storage and encrypted immediately after the completion of each interview.

Electronic files will be stored in the lead researcher's portable computer. Files will be encrypted using the built-in tools in Mac OSX 10.13.X (FireVault or Disk Utility). The lead researcher will be the only person with access to the encryption passwords. Encrypted files will be backed up to a removable storage device that will be kept locked in university premises while not in use. The lead researcher will be the only person with access to the removable storage device.

Following the university's Research Records Retention Schedule (<https://www.northumbria.ac.uk/-/media/corporate-website/documents/pdfs/about-us-corporate/legal-services-team/3,-d,-research.pdf>) for projects funded by the Arts and Humanities Research Council (AHRC), research data will be transferred to the university for archiving and kept for 3 years after completion of the project. After that period a review to assess archive value should take place.

Retention and Disposal (mandatory)

I confirm that I will comply with the University's data retention schedule and guidance.

[Research Data Management link](#)

[General Data Protection Regulations including Data Protection link](#)

[Records Retention Schedule link](#)

G4: Research Project Timescale (Mandatory)

Proposed Start Date

01/06/2018



Proposed End Date

31/10/2018



G5: Additional Information



Externally Funded

External Funder

Please give details of your 'other' funder

Agresso Reference

Franchise Programme Organisation

Please give details of your franchise organisation

NHS Involvement

Please give details of any NHS involvement

Clinical Trial(s)

Please give details of any Clinical Trial(s)

Medicinal Products

Please give details of any Medicinal Product(s)

G6: File Attachments



Additional files can be uploaded e.g. consent documentation, participant information sheet, etc.

Please note: It is best practice to combine all documents into one PDF (This avoids the reviewer having to op...

[Go To Attachments](#)

G7: Health and Safety (Mandatory) ∨

I confirm that I have read and understood the University's Health and Safety Policy.

I confirm that I have read and understood the University's requirements for the mandatory completion of risk assessments in advance of any activity involving potential physical risk.

The University Health and Safety Policy can be accessed [here](#)

The University Risk Assessment Code of Practice can be accessed [here](#)

Please confirm either:

There are PHYSICAL risks associated with the research project work and I confirm that a risk assessment has been approved and attached to this ethics submission.

OR

I can confirm that there are no physical risks associated with this project and so no risk assessments are required.

Students requiring assistance with completing their risk assessment should get in touch with their supervisor or module tutor as the first point of contact. If further assistance is needed, the Faculty Technician can provide further guidance.

For more specific risk assessments (e.g. lab work), especially where the project is Medium or High risk, you are required to consult the Faculty Technical Manager; your Supervisor/Module Tutor will be able to put you in touch.

If you have any questions or concerns, please contact the University Health and Safety Team by emailing CRHealthandSafety@northumbria.ac.uk

G8: Insurance (Mandatory) ∨

I have read and understood the University Insurance guidance document (link below):

[Insurance Guidance link](#)

If you think your activity may involve a High Risk rating or are unsure how to answer the statements - contact fi.insurance@northumbria.ac.uk with a copy of your research proposal for advice.

I confirm my work is covered by University Insurance. I confirm an insurance risk level of:

Low ∨

If your insurance risk level is HIGH please attach details of exceptional insurance coverage:

Click here to attach a file

G9: Electronic Signature (Mandatory) ▼

- I confirm my supervisor has reviewed the contents of this document
- I confirm I have assessed the ethical risk level of my work correctly and answered the above sections as fully and accurately as possible.

Full Name

belen.barros.pena

Date

19 April 2018 15:53:58



PDF Version ▼

Create PDF

No items to display.

Review Comments, Conditions and Outcomes

Log of any Ethical Incidents ▼

Log New Incident

INCIDENT...	CREATED DATE TIME	CREATOR NAME	COMPLAINANT DETAILS
-------------	-------------------	--------------	---------------------

No items to display.

Title and Objectives (see G1) ▼

Add Save

Reviewer A:


Approve ▼

Reviewer B:

e.g. Are the research question and/or study aims clear?

DATE	ROLE	COMMENT
18/05/2018	Reviewer A	It would be good to reflect upon and try to articulate what [REDACTED] currently refer to as 'vulnerability cases' and to add a concise definition from the FCA of 'Customer Vulnerability'.

Proposed Methodology and Analysis (see G2)

+ Add  Save


Reviewer A:

Reviewer B:

*e.g. Is the design appropriate to the research question?
Are the methods of data analysis appropriate to the research question?*

DATE	ROLE	COMMENT
No items to display.		

Sample and Recruitment (see M1)

+ Add  Save

Reviewer A:

Reviewer B:

*e.g. Is the sampling approach appropriate to the design?
Is the sample sufficient and achievable?
Is the process of recruitment clearly explained?
Are participants receiving payments for taking part, and if so is the payment appropriate?
If the DBS is ticked, has the appropriate information been included?*

DATE	ROLE	COMMENT
21/05/2018	Reviewer A	I guess there are some questions as to whether employees can opt out of interviews; and/or how to elicit insights that go beyond the bank's 'party line'.
21/05/2018	Reviewer A	Ok -covered in next section!

Consent (see M1)

+ Add  Save

Reviewer A:

Reviewer B:

*e.g. Is the approach to consent seeking clear?
Is consent from parents/ carers/ guardians required?
Are all necessary recruitment and informed consent documentation included (e.g. letters of permission, letters of invitation)
Is the information sheet adequate to ensure informed consent?
Are the consent form(s) appropriate?*

DATE	ROLE	COMMENT
No items to display.		

Researcher and Participant Safety (see M1)

+ Add  Save

Reviewer A:

Reviewer B:

e.g. Is there any risk of physical harm for the researcher(s) or the participants and if so what attempts have been made to alleviate or minimise them?

Have Risk Assessments been referred to where appropriate?

DATE	ROLE	COMMENT
------	------	---------

No items to display.

Research Activities (see G2-G8, M1-M5, H1-H5) ∨

 Add  Save

Reviewer A:

Reviewer B:

e.g. Are the research tasks described clearly?

Do sensitive topics such as trauma, bereavement, drug use, child abuse, pornography or extremism/ radicalism inform the research? If so have these been fully addressed? (and we can use this to amend the information on risk levels on the form)Is there any risk that the tasks may cause psychological harm and if so what attempts have been made to alleviate or minimise them?

DATE	ROLE	COMMENT
------	------	---------

No items to display.

Data Management Plan (see G3) ∨

 Add  Save

Reviewer A:

Reviewer B:

e.g. Have sufficient steps been taken to ensure participant anonymity/confidentiality of data?


Are the arrangements for data storage and disposal clearly outlined?

Are these arrangements in line with University and/or the funding body requirements?

DATE	ROLE	COMMENT
------	------	---------

No items to display.

File Attachments (see G6) ∨

 Add  Save

Reviewer A:

Reviewer B:

Please note: where file attachments have not been added because they are not required, please select Approve.

COMMENT BY	DATE	ROLE	COMMENT
------------	------	------	---------

No items to display.

General Comments (see Help) ∨

 Add  Save

[Help](#)

DATE	ROLE	COMMENT
------	------	---------

No items to display.

Financial Vulnerability - Banking Perspectives, Experiences and Responses

We would very much like you to help us with our research for a project based at Northumbria University. This will involve talking about your experiences as a member of the Specialist Support Team at [anonymised]. We will ask you questions about what cases have been escalated to you and how you have handled them.

Why do we want to talk to you?

We believe your experience can help us better understand financial vulnerability as experienced by older adults, and help us design better technologies to assist older adults with the management of their finances.

What will you be asked to do?

The researcher would like to interview you in your workplace. The interview will last between 60 and 90 minutes.

If during our conversation we touch on something you don't want to talk about, please say so and we will respect your wish.

Do I have to participate?

No. Participation is **voluntary**. You may refuse to be interviewed without providing any explanation. That will have no impact on your relationship to the researcher or your employer.

Will the information you give be confidential?

Yes, everything discussed will be confidential.

We would like to record audio of the interview to make sure that we remember everything that you say. We will also type up (transcribe) the interview audio recording. Any details that might identify you or your customers will be removed from the interview transcriptions. We will never use your name: we will use a different name instead (a pseudonym). This is to protect your privacy and the privacy of [anonymised]'s customers.

All interview transcriptions will be stored anonymously and securely at Northumbria University. We may share them with the Vulnerable Customers team, but only after your name has been removed. No one apart from the researcher will know what you said.

The researcher has also signed a Non-Disclosure Agreement with [anonymised]. That prevents her from sharing any commercially sensitive information about [anonymised] with anybody outside the bank.

Will you be able to change your mind about taking part?

Yes, you can withdraw at any point. If you feel that you no longer wish to take part at anytime just say so and we will stop and destroy all records of what you have said.

If after the interview has taken place you change your mind and would like to withdraw, you can do so within 15 days of the interview. Simply contact the researcher using the information provided at the end of this document, and we will destroy all records of what you have said.

What happens next?

If you are still happy to take part, we will agree on a suitable date and time for the interview.

On the interview day, you will be asked to sign a consent form before the start of the interview.

Thank you for reading this information.

If you have any questions about the interview or the research project please contact Belén.

Belén Barros Pena

Northumbria School of Design
Room 120, Squires Building, 2 Sandyford Rd
Newcastle upon Tyne, NE1 8SB
Email: belen.pena@northumbria.ac.uk
Telephone: [anonymised]

Consent Form: Financial Vulnerability - Banking Perspectives, Experiences and Responses

Lead researcher: Belén Barros Pena

Supervised by: Prof. John Vines

I agree to take part in this research and confirm:	Initials
1. I have read and understood the information sheet about taking part in this interview.	
2. I agree to take part in this interview.	
3. I understand this interview will be audio recorded and transcribed (typed up) with any identifying information removed to protect my privacy and the privacy of [anonymised]'s customers.	
4. I understand that the transcription of this interview may be shared with the Vulnerable Customers team in [anonymised] after all identifying information has been removed from it.	
5. I understand that electronic and paper research data will be stored securely (password protected for electronic data; in locked storage for paper data) at Northumbria University.	
6. I agree that the anonymised data that I contribute will be archived at Northumbria University and may be reused by other researchers in the future.	
7. I understand that the information collected for this study will only be used for research purposes, and my consent is conditional upon Northumbria University complying with its duties and obligations under the Data Protection Act 1998 [General Data Protection Regulation 2018 after 24th May].	
8. I understand that my name, or personally identifiable information, will not be used on any documents about the research.	
9. I understand that I may request my data to be withdrawn after the interview is complete and up to [DATE 15 DAYS AFTER INTERVIEW DATE].	
10. I understand that I can ask questions at any point during any of the activities and about any aspect of the research.	
11. I understand that I can leave the study at any time without explanation.	



**Northumbria
University**
NEWCASTLE

Participant's name:

Participant's signature:

Researcher's name:

Researcher's signature:

Date:

If you have any questions, please contact the researchers:

Belén Barros Pena

Northumbria School of Design
Room 120, Squires Building, 2 Sandyford Rd
Newcastle upon Tyne, NE1 8SB
belen.pena@northumbria.ac.uk

Prof. John Vines

Northumbria School of Design
Room 120, Squires Building, 2 Sandyford Rd
Newcastle upon Tyne, NE1 8SB
john.vines@northumbria.ac.uk

[anonymised] Specialist Support Team - Interview guide

Interview ID:

Required documents and materials

Document	Copies	Printed
Information sheet	1	
Consent form	2	

Preparation

- **Explain the activity:** over the next hour we will talk about your work with the Specialist Support Team. We will mostly discuss the types of cases you deal with, and the advice you provide to branch colleagues. I am not a [anonymised] employee: I am a trainee researcher at Northumbria University. I study digital financial services for order adults, and I am here to better understand what financial vulnerability means. Nothing you tell me will have any impact on your work relationship with [anonymised], your line manager or your colleagues.
- **Information sheet and consent form:** these are the information sheet and the consent form. Take as much time as you need to review them, and feel free to ask any questions you may have. If you agree with all the points in the consent form, please add your initials to each box on the right hand side and sign the other side of the page. You just need to do this once: the stapled form is for you to keep.
- **Turn on recording:** We are now ready to start, so I will turn on the recording device. The red light tells you when the device is recording.

Interview (max. 90 minutes)

- How did you come to join the Specialist Support Team.
- Tell me about your typical working day.
- Tell me about the “life” of a case. What are the stages it goes through, from opening to closing?

- Can you give me an example to illustrate the above? Maybe the last case you handled?
- How would you classify the cases you handle? Does that match the existing classification?
- Have case types changed over time?
- What types of cases are the most common?
- What types of cases are the most difficult?
- How many and what types of cases involve older adults? What other people are involved in the cases you handle?
- In your view, what constitutes a good outcome for a case?
- What is a bad outcome for a case?
- Are you satisfied with the rate of good to bad outcomes?
- How could that rate be improved?
- What would you change in the way cases are handled?
- If you had to prioritise those changes, what would you do first?
- What's the hardest part of your job?
- And the most satisfying part of your job?
- Is there anything you'd like to add?

What happens next

I will transcribe all interviews and analyse their content. I will then report my findings to the Vulnerable Customers team and your team.

The report will simply reflect my interpretation of the conversations I've had with you and your colleagues, and will be of course open to discussion. Your feedback and input on the contents of the report will be very welcome.

APPENDIX B:

Customer Experience Team Fieldwork Materials

Amendments

Create New Amendment Refresh

SUBMISSION ID	CREATED DATE TIME	CREATED BY	STATUS	DESCRIPTION	UPDATED DATE TIME	COORDIN...
No items to display.						

Submission

Submission Ref: 15510
 Status: Approved
 Submission Coordinator: Sheng-feng Qin sheng-feng.qin@northumbria.ac.uk

Name: belen.barros.pena

Email: belen.pena@northumbria.ac.uk

Faculty:

Department:

Submitting As:

Externally Approved: **Note: ONLY tick this box if your project has already received full ethical approval from an external organisation**

Module Level Approval: *Tick this box if staff and this submission refers to an entire module.*
**** Only to be used for low or medium risk projects as categorised by the diagnostic risk question set ****

Module Code:

Module Tutor:

Titl...
 De...
 Em...

Research Supervisor:

Titl...

De...

Em...

Ethical Risk Level

Medium

[Click here to answer the ethical risk questions](#)


Risk Level Conditions:

Your ethical risk is **medium**. Your research should only consist of one or more of the following:

- Non-vulnerable adults
- Non-sensitive personal data referring to a living individual
- Secondary data not in the public domain
- Environmental issues
- Commercially sensitive information

Your project proposal has some ethical implications and will be reviewed by one independent reviewer appointed by your Faculty Research Ethics Committee. Some factors to be considered include considering obtaining informed consent forms from organisations or people involved, permission to use data from the Data Controller, as well as confidentiality/anonymity issues.

Ethical Risk Diagnostic Questions and Responses

 Refresh

ID QUESTION

ANSWER

No items to display.

Co-investigators

 Add  Edit  Delete  Save  Refresh

NAME OF CO-INVESTIGATORS

No items to display.

G1: General Aims and Research Design (Mandatory)

Title

Title of your research project

 in financial services: an industry case study

Outline General Aims and Research Objectives

State your research aims/questions (maximum 500 words). This should provide the theoretical context within which the work is placed, and

There is growing awareness that banking services are poorly designed for older people. Research has highlighted how payment methods mediated by information and communication technologies (ICTs) alienate older adults through a combination of accessibility barriers [1, 2, 3, 4, 5], problematic design affordances [6, 7] and perceptions based on personal values [8]. The dematerialisation and ongoing digitisation of payment systems can often undermine the practices by which older adults keep control over their finances [6, 7]. It can also reduce the ability of older adults to mitigate the risks they take when entrusting others with financial matters [9].

Although the form and state of existing financial services is the result of many factors, one of them is that banks, like many large corporations, face substantial challenges in their attempt to integrate human-centred principles and practices into their product and service development processes.

As part of my PhD, I will be doing ethnographic research within the [REDACTED] team of a large UK bank that sets out to study (i) how human-centred design occurs in the development of new banking services and (ii) specifically the ways in which new services are designed with older customers in mind.

References

1. AgeUK, 2011. The Way We Pay: Payment Systems and Financial Inclusion. □
2. AgeUK, AARP, 2016. Age-friendly banking: What it is and how you do it. □
3. Bew, V., Cautela, W., Man, V., Raza, Y., Seligman, A., Stewart, A., Yiannopoulos, I., 2017. Ageing Population and Financial Services - Occasional Paper 31. FCA. □
4. Edgar, L., Green, F., Ward, V., Gumbley, M., 2017a. The Ageing Population: Coping Mechanisms and Third Party Access. the Big Window Consulting Ltd. □
5. Edgar, L., Stenberg, N., Green, F., Kirkby-Geddes, E., 2017b. The Ageing Population: Ageing Mind Literature Review Report. the Big Window Consulting Ltd. □
6. Vines, J., Blythe, M., Dunphy, P., Monk, A., 2011. Eighty Something: Banking for the older old, in: Proceedings of the 25th BCS Conference on Human-Computer Interaction. BCS-HCI 2011, 4-8 July 2011, Newcastle-upon-Tyne, UK. BCS Learning & Development Ltd. Swindon, UK. pp. 64-73. □
7. Vines, J., Dunphy, P., Blythe, M., Lindsay, S., Monk, A., Olivier, P., 2012b. The Joy of Cheques: Trust, Paper and Eighty Somethings, in: Proceedings of the ACM 2012 Conference on Computer Supported Cooperative Work, 11-15 February 2012, Seattle, Washington, USA. <https://doi.org/10.1145/2145204.2145229> □
8. Vines, J., Blythe, M., Lindsay, S., Dunphy, P., Monk, A., Olivier, P., 2012a. Questionable Concepts: Critique as a Resource for Designing with Eighty Somethings, in: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, 5-10 May 2012, Austin, Texas, USA. <https://doi.org/10.1145/2207676.2208567> □
9. Dunphy, P., Monk, A., Vines, J., Blythe, M., Olivier, P., 2013. Designing for Spontaneous and Secure Delegation in Digital Payments. *Interacting with Computers* 26, 417-432. <https://doi.org/10.1093/iwc/iwt038>

Please give a detailed description of your research activities

Please provide a description of the study design, methodology (e.g. quantitative, qualitative, practice based), the sampling strategy, methods of data collection (e.g. survey, interview, experiment, observation, participatory), and analysis. Do sensitive topics such as trauma, bereavement, drug use, child abuse, pornography, extremism or radicalisation inform the research? If so have these been fully addressed?

Study design and methodology

The research activity will be ethnographic in nature, relying mostly on participant observation, possibly complemented by interviews with informants. It will take place over 24 weeks (January to July 2019) at the [REDACTED] offices in [REDACTED], where the [REDACTED] team is based. During that time, the researcher will be assisting the [REDACTED] team with their qualitative user research efforts and concept validation activities.

Data collection and analysis

Participant observation activities will be documented through field notes, photographs, and reflective journals.

Any interviews carried out will be audio recorded, transcribed and anonymised for analysis.

M1: People and/or Personal Data

Tick if your work involves people and/or personal data?

Sample Groups

Provide details of the sample groups that will be involved in the study and include details of their location (whether recruited in the UK or from abroad) and any organisational affiliation. For most research studies, this will cover: the number of sample groups; the size of each sample group; the criteria that will be used to select the sample group(s) (e.g. gender, age, sexuality, health conditions). If the sample will include NHS staff or patients please state this clearly. If this is a pilot study and the composition of the sample has not yet been confirmed, please provide as many details as possible.

The nature of the study determines that all research will be carried out with and amongst the [REDACTED] team at [REDACTED]

Nature of data pertaining to Living Individuals

If you will be including personal data of living individuals, including still or moving images, please specify the nature of this data, and (if appropriate) include details of the relevant individuals who have provided permission to utilise this data, upload evidence of these permissions in the supporting documentation section.

Details of any Special Category Data - If you will be collecting data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, trade union membership, data concerning health or data concerning a natural person's sex life or sexual orientation, please specify which categories you will be using.

No personal data will be gathered during this research.

Legal Basis for Processing: [Further guidance can be found here](#)

If you require further information, please contact the Data Protection Officer by emailing

No personal data will be gathered during this research.

Recruitment

Describe the step by step process of how you will contact and recruit your research sample and name any organisations or groups that will be approached. Your recruitment strategy must be appropriate to the research study and the sensitivity of the subject area. You must have received written permission from any organisations or groups before you begin recruiting participants. Copies of draft requests for organisational consent must be included in the 'Supporting Documentary Evidence'. You must also provide copies of any recruitment emails/posters that will be used in your study.

The nature of the study determines that all research will be carried out with and amongst the [REDACTED] team at [REDACTED]

Remuneration

Details of remuneration

Will you make any payment or remuneration to participants or their carers/consultees? If yes: Please provide details/justifications. Note that your Faculty may have specific guidelines on participant payments/payment rates etc and you should consult these where appropriate.

Type a value

Type of Consent

Informed Consent

Type of Consent Details

Please include copies of information sheets and consent forms in the 'G6: File Attachments' section. If the study involves participants who lack capacity to consent, procedures in line with sections 30-33 of the Mental Capacity Act will need to be put in place. If you are using alternative formats to provide information and /or record consent (e.g. images, video or audio recording), provide brief details and outline the justification for this approach and the uses to which it will be put:

Initial agreement to carry out the study will be obtained from [REDACTED] who represents [REDACTED] in the [REDACTED]. Consent will then be sought from the management of the [REDACTED] team. Once that has been obtained, the researcher will inform the [REDACTED] team members of the nature and objectives of her research through a presentation in a team session. She will also distribute an explanatory information sheet to all team members, and will make herself available to answer any questions or concerns raised by the study.

The researcher will put in place additional consent arrangements for interviews. The process will be as follows:

1. The researcher will send information sheet and consent form to participants at least 48 hours before the interview takes place, to ensure they have time to read and consider the information provided. □
2. The researcher will make herself available to participants to answer any queries about the study, and to arrange the interview date and time. □
3. On the interview day, and before it starts, participants will be asked to complete the consent form. Consent will be obtained for the interview itself, and for audio recording. A copy of the information sheet will be available for participants' reference. □
4. At the end of the interview, the researcher will debrief participants to explain the next steps in the research process. The researcher will also remind participants they can remove themselves from the study by providing notice up to 15 days after the interview date. After that period of time, the research data will be anonymised and it will be no longer possible to identify individual participants. □

See "G6: File Attachments" section for the information sheets and the consent form to be used.

Researcher and Participant Safety Issues

If there are any risks the research could cause any discomfort or distress to participants (physical, psychological or emotional) describe the measures that will be put in place to alleviate or minimise them. Please give details of the support that will be available for any participants who become distressed during their involvement with the research.

The study should raise no safety issues for the participants or the researcher.

Data Gathering Materials Used

Provide a detailed description of what the participants will be asked to do for the research study, including details about the process of data collection (e.g. completing how many interviews / assessments, when, for how long, with whom). Add any relevant documentation to the 'Supporting Documentary Evidence' section of this form.

Data gathering will be done via field notes, photographs, reflective journals and, in the case of interviews, with audio recordings.

Potential Ethical Issues

Please describe any potential ethical issues the project may have which are not covered above, and how you have sought to minimise these.

██████████ team members may find the idea of being the subject of an ethnographic study somehow odd or uncomfortable. The researcher hopes to minimise such feelings through clear communication of research objectives, being available at all times to address concerns and answer questions, and through the long-term nature of the engagement.

██████████ team members may be concerned about disclosing commercially sensitive information. The researcher will inform them that she is under a Non-Disclosure Agreement with ██████████ that prevents her from sharing commercially sensitive information with any third parties.

██████████ team members may be concerned about expressing views that are critical of existing bank policies and procedures, colleagues or company management. The researcher will explain that no reported observations or findings will refer directly to individuals within the team or the bank, and that pseudonyms will be used at all times.

M2: DBS Clearances Required

 Add  Edit  Delete  Save  Refresh

Do not upload your DBS certificate to this system as this would be contravening General Data Protection Regulations.

Further information relating to DBS Clearance can be found in the Ethics and Governance Handbook using the link below

[Ethics and Governance Handbook](#)

NAME OF PERSON ON CERTIFICATE	TYPE OF DBS CLEARANCE	CERTIFICATE REFERENCE	ADULTS/CHILDREN	DATE OF DBS CERTIFICATE
-------------------------------	-----------------------	-----------------------	-----------------	-------------------------

(Add new row)

M3: Secondary Data

Tick if you will be using secondary data NOT in the public domain?

M4: Commercial Data

Tick if your work involves commercially sensitive data?

M5: Environmental Data

Tick if your work involves the collection of environmental data?

G3: Research Data Management Plan (Mandatory)

Anonymising Data (mandatory)

Describe the arrangements for anonymising data and if not appropriate explain why this is and how it is covered in the informed consent obtained.

Participants will be given a pseudonym which does not contain their first name, second names, or initials.

For interviews, mapping of pseudonyms to real participants' names will be done via an "index list". Once the data is anonymised, the corresponding entry will be removed from the index list. Once all data is anonymised, the index list will be deleted.

Only pseudonyms will be used when reporting on the project via presentations or papers.

Storage Details (mandatory)

Describe the arrangements for the secure transport and storage of data collected and used during the study. You should explain what kind of storage you intend to use, e.g. cloud-based, portable hard drive, USB stick, and the protocols in place to keep the data secure.

If you have identified the requirement to collect 'Special category data', please specify any additional security arrangements you will use to

keep this data secure.

All personal and research data will be stored in electronic format. Consent forms will be scanned and paper originals will be shredded. Field notes, photographs, reflective diaries, and interview recordings will be stored in the researcher's portable computer, and encrypted with 256 AES encryption using the built-in tools in Mac OSX 10.13.X (Disk Utility).

The researcher will be the only person with access to the encryption passwords. Encrypted files will be backed up to a removable storage device that will be kept locked in university premises while not in use. The lead researcher will be the only person with access to the removable storage device.

Following the university's Research Records Retention Schedule (<https://www.northumbria.ac.uk/-/media/corporate-website/documents/pdfs/about-us-corporate/legal-services-team/3,-d,-,-research.pdf>) for projects funded by the Arts and Humanities Research Council (AHRC), research data will be transferred to the university for archiving and kept for 3 years after completion of the project. After that period a review to assess archive value should take place.

Retention and Disposal (mandatory)

I confirm that I will comply with the University's data retention schedule and guidance.

[Research Data Management link](#)

[General Data Protection Regulations including Data Protection link](#)

[Records Retention Schedule link](#)

G4: Research Project Timescale (Mandatory)

Proposed Start Date

01/04/2019



Proposed End Date

12/07/2019



G5: Additional Information

Externally Funded

External Funder

Please give details of your 'other' funder

Agresso Reference

Franchise Programme Organisation

Please give details of your franchise organisation

Type a value

NHS Involvement

Please give details of any NHS involvement

Type a value

Clinical Trial(s)

Please give details of any Clinical Trial(s)

Type a value

Medicinal Products

Please give details of any Medicinal Product(s)

G6: File Attachments

Additional files can be uploaded e.g. consent documentation, participant information sheet, etc.

Please note: It is best practice to combine all documents into one PDF (This avoids the reviewer having to op...

[Go To Attachments](#)

G7: Health and Safety (Mandatory)

I confirm that I have read and understood the University's Health and Safety Policy.

I confirm that I have read and understood the University's requirements for the mandatory completion of risk assessments in advance of any activity involving potential physical risk.

The University Health and Safety Policy can be accessed [here](#)

Please confirm either:

There are PHYSICAL risks associated with the research project work and I confirm that a risk assessment has been approved and attached to this ethics submission.

OR

I can confirm that there are no physical risks associated with this project and so no risk assessments are required.

Students requiring assistance with completing their risk assessment should get in touch with their supervisor or module tutor as the first point of contact. If further assistance is needed, the Faculty Technician can provide further guidance.

For more specific risk assessments (e.g. lab work), especially where the project is Medium or High risk, you are required to consult the Faculty Technical Manager; your Supervisor/Module Tutor will be able to put you in touch.

If you have any questions or concerns, please contact the University Health and Safety Team by emailing CRHealthandSafety@northumbria.ac.uk

G8: Insurance (Mandatory)

I have read and understood the University Insurance guidance document (link below):

[Insurance Guidance link](#)

If you think your activity may involve a High Risk rating or are unsure how to answer the statements - contact fi.insurance@northumbria.ac.uk with a copy of your research proposal for advice.

I confirm my work is covered by University Insurance. I confirm an insurance risk level of:

Low 

If your insurance risk level is HIGH please attach details of exceptional insurance coverage:

[Click here to attach a file](#)

G9: Electronic Signature (Mandatory)

I confirm my supervisor has reviewed the contents of this document

I confirm I have assessed the ethical risk level of my work correctly and answered the above sections as fully and accurately as possible.

Full Name

belen.barros.pena

Date

08 March 2019 09:07:14



PDF Version



Create PDF

No items to display.

Review Comments, Conditions and Outcomes

Log of any Ethical Incidents



Log New Incident

INCIDENT... CREATED DATE TIME CREATOR NAME COMPLAINANT DETAILS

No items to display.

Title and Objectives (see G1)



+ Add  Save

Reviewer A:

Reviewer B:

e.g. Are the research question and/or study aims clear?

DATE ROLE COMMENT

No items to display.

Proposed Methodology and Analysis (see G2)



+ Add  Save

Reviewer A:

Reviewer B:

e.g. Is the design appropriate to the research question?
Are the methods of data analysis appropriate to the research question?

DATE ROLE COMMENT

No items to display.

Sample and Recruitment (see M1)



+ Add  Save

Reviewer A:

Reviewer B:

e.g. Is the sampling approach appropriate to the design?
Is the sample sufficient and achievable?
Is the process of recruitment clearly explained?
Are participants receiving payments for taking part, and if so is the payment appropriate?
If the DBS is ticked, has the appropriate information been included?

DATE ROLE COMMENT

No items to display.

Consent (see M1)

+ Add Save

Reviewer A:

Approve

Reviewer B:

e.g. Is the approach to consent seeking clear?

Is consent from parents/ carers/ guardians required?

Are all necessary recruitment and informed consent documentation included (e.g. letters of permission, letters of invitation)

Is the information sheet adequate to ensure informed consent?

Are the consent form(s) appropriate?

DATE

ROLE

COMMENT

No items to display.

Researcher and Participant Safety (see M1)

+ Add Save

Reviewer A:

Approve

Reviewer B:

e.g. Is there any risk of physical harm for the researcher(s) or the participants and if so what attempts have been made to alleviate or minimise them?

Have Risk Assessments been referred to where appropriate?

DATE

ROLE

COMMENT

No items to display.

Research Activities (see G2-G8, M1-M5, H1-H5)

+ Add Save

Reviewer A:

Approve

Reviewer B:

e.g. Are the research tasks described clearly?

Do sensitive topics such as trauma, bereavement, drug use, child abuse, pornography or extremism/ radicalism inform the research? If so have these been fully addressed? (and we can use this to amend the information on risk levels on the form)

Is there any risk that the tasks may cause psychological harm and if so what attempts have been made to alleviate or minimise them?

DATE

ROLE

COMMENT

No items to display.

Data Management Plan (see G3)

+ Add Save

Reviewer A:

Approve

Reviewer B:

e.g. Have sufficient steps been taken to ensure participant anonymity/confidentiality of data?

Are the arrangements for data storage and disposal clearly outlined?

Are these arrangements in line with University and/or the funding body requirements?

DATE



ROLE

COMMENT

No items to display.

File Attachments (see G6)



 Add  Save

Reviewer A:

Reviewer B:


Please note: where file attachments have not been added because they are not required, please select Approve.

COMMENT BY	DATE	ROLE	COMMENT
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No items to display.

General Comments (see Help)



 Add  Save

[Help](#)

DATE	ROLE	COMMENT
------	------	---------

No items to display.

[anonymised] in financial services: an industry case study

In order to make the most of my 24-week placement with the [anonymised] team at [anonymised], me and my supervisory team would like to take this opportunity to carry out an ethnographic study.

Ethnography is a field-based research method that employs observation and interviewing to investigate social practices, and that requires the researcher to embed herself in the environment she wishes to study.

Why do we want to do this ethnographic study?

We believe this study can help us better understand how financial products and services are conceived, designed and developed, and what challenges you face when trying to apply human-centred principles and practices.

What will you be asked to do?

Nothing. Your relationship with Belén will not change. Her tasks and her work within the [anonymised] team will remain as planned.

Do I have to participate?

No. You may request that your interactions with Belén are excluded from the ethnographic study by telling her so, either in person or by email. You might also choose not to collaborate with her in any projects during her placement. This will have no impact on your relationship with Belén, your colleagues or your employer.

Will the information gathered be confidential?

Yes, all data collected through this study will be confidential and will be kept anonymous. We will use pseudonyms when reporting on specific experiences to ensure the individuals involved cannot be identified. All data gathered through the study will be encrypted and securely stored.

Belén has also signed a Non-Disclosure Agreement with [anonymised]. That prevents her from sharing any commercially sensitive information about [anonymised] with anybody outside the bank.

Will you be able to change your mind about taking part?

Yes, you can withdraw at any point. Simply communicate your decision to Belén in person or by email, and she will destroy research records as necessary.

If after the placement has finished you change your mind and would like to withdraw, you can do so up to July 27th 2019. To do so, contact Belén using the information provided at the end of this document, and she will destroy all records related to your interactions with her.

If you have any questions about the study, or would like to discuss the terms of your participation, please contact Belén.

Belén Barros Pena

Northumbria School of Design
Room 120, Squires Building, 2 Sandyford Rd
Newcastle upon Tyne, NE1 8SB
Email: belen.pena@northumbria.ac.uk
Telephone: [anonymised]

[anonymised] in financial services: an industry case study

We would very much like you to help us with our research for a project based at Northumbria University. This will involve talking about your experiences as a member of the [anonymised] team at [anonymised]. We will ask you questions about your work as part of the team, and about your projects.

Why do we want to talk to you?

We believe your experience can help us better understand how financial products and services are conceived, designed and developed, and what challenges you face when trying to apply human-centred principles and practices.

What will you be asked to do?

The researcher would like to interview you in your workplace. The interview will last between 60 and 90 minutes.

If during our conversation we touch on something you don't want to talk about, please say so and we will respect your wish.

Do I have to participate?

No. Participation is **voluntary**. You may refuse to be interviewed without providing any explanation. That will have no impact on your relationship to the researcher or your employer.

Will the information you give be confidential?

Yes, everything discussed will be confidential.

We would like to record audio of the interview to make sure that we remember everything that you say. We will also type up (transcribe) the interview audio recording. Any details that might identify you, your colleagues, business partners or customers will be removed from the interview transcriptions. We will never use your name: we will use a different name instead (a pseudonym). This is to protect your privacy and the privacy of those with whom you work.

All interview transcriptions will be stored anonymously and securely at Northumbria University. No one apart from the researcher will know what you said.

The researcher has also signed a Non-Disclosure Agreement with [anonymised] that prevents her from sharing any commercially sensitive information about [anonymised] with anybody outside the bank.

Will you be able to change your mind about taking part?

Yes, you can withdraw at any point. If you feel that you no longer wish to take part at anytime just say so and we will stop and destroy all records of what you have said.

If after the interview has taken place you change your mind and would like to withdraw, you can do so within 15 days of the interview. Simply contact the researcher using the information provided at the end of this document, and we will destroy all records of what you have said.

What happens next?

If you are still happy to take part, we will agree on a suitable date and time for the interview.

On the interview day, you will be asked to sign a consent form before the start of the interview.

Thank you for reading this information.

If you have any questions about the interview or the research project please contact Belén.

Belén Barros Pena

Northumbria School of Design
Room 120, Squires Building, 2 Sandyford Rd
Newcastle upon Tyne, NE1 8SB
Email: belen.pena@northumbria.ac.uk
Telephone: [anonymised]

Consent Form - [anonymised] in financial services: an industry case study

Lead researcher: Belén Barros Pena

Supervised by: Prof. John Vines

I agree to take part in this research and confirm:	Initials
1. I have read and understood the information sheet about taking part in this interview.	
2. I agree to take part in this interview.	
3. I understand this interview will be audio recorded and transcribed (typed up) with any identifying information removed to protect my privacy, the privacy of other [anonymised] employees and customers.	
4. I understand that the transcription of this interview will not be shared with anybody outside the research team.	
5. I understand that electronic and paper research data will be stored securely (password protected for electronic data; in locked storage for paper data) at Northumbria University.	
6. I agree that the anonymised data that I contribute will be archived at Northumbria University and may be reused by other researchers in the future.	
7. I understand that the information collected for this study will only be used for research purposes, and my consent is conditional upon Northumbria University complying with its duties and obligations under the General Data Protection Regulation / Data Protection Act 2018.	
8. I understand that my name, or personally identifiable information, will not be used on any documents about the research.	
9. I understand that I may request my data to be withdrawn after the interview is complete and up to [DATE 15 DAYS AFTER INTERVIEW DATE].	
10. I understand that I can ask questions at any point during any of the activities and about any aspect of the research.	
11. I understand that I can leave the study at any time without explanation.	

Participant's name:

Participant's signature:

Researcher's name:

Researcher's signature:

Date:

If you have any questions, please contact the researchers:

Belén Barros Pena

Northumbria School of Design
Room 120, Squires Building, 2 Sandyford Rd
Newcastle upon Tyne, NE1 8SB
belen.pena@northumbria.ac.uk

Prof. John Vines

Northumbria School of Design
Room 120, Squires Building, 2 Sandyford Rd
Newcastle upon Tyne, NE1 8SB
john.vines@northumbria.ac.uk

[anonymised] team - Interview guide

Interview ID: 4

Required documents and materials

Document	Copies	Printed
Information sheet	1	
Consent form	2	

Preparation

- **Explain the activity:** this interview has two parts. First, I will ask you to explain to me your design framework. After that we will discuss the adoption of agile inside the team. But before that, we need to go through the research formalities.
- **Information sheet and consent form:** these are the information sheet and the consent form I've already sent to you. Take as much time as you need to review them, and feel free to ask any questions you may have. If you agree with all the points in the consent form, please add your initials to each box on the right hand side and sign at the bottom. You just need to do this once. The second copy is for you to keep.
- **Turn on recording:** We are now ready to start, so I will turn on the recording device. You will know is recording because of the red light.

Interview (until time is up)

- Opening questions:
 - What's your role in the team and what do you do here?
 - How long have you been in this team?

- About the design framework:
 - How would you define innovation?
 - This is a diagram of your design framework. Could you explain the framework to me?
 - Where did the framework come from? How was it created?
 - Did you take part in the the framework development process?
 - How many of the phases have you gone through in the projects you've worked on so far?
 - How satisfied are you with the way the framework is currently applied?

- About introducing agile processes in the team:
 - The agile development methodology seems to have quite a lot influence in the way the team works. Why is that?
 - What's your experience with Agile methodologies? Where and how did you get exposed to them?
 - In your experience, what are the strengths and drawbacks of agile?
 - Can you tell me about the agile values (<https://agilemanifesto.org/>) and principles (<https://agilemanifesto.org/principles.html>) and how you apply them in the team?
 - Which agile tools have been adopted by the team? Why did you choose those tools?
 - What are you using them for?
 - How are they working for the team? What are the benefits and challenges?

- Which agile “ceremonies” have been adopted by the team? Why did you choose those ceremonies?
 - How are they working for the team? What are the benefits and challenges?
 - Have you changed the ceremonies format in any way? How?
 - Have you encountered any barriers or tensions within the bank when adopting agile ways of working? Tell me about them.
 - Have you encountered any conflicts or tensions between the agile ways of working and your design framework? Tell me about them.
 - What’s still to be done in order to fully adopt agile ways inside the team?
 - What’s still to be done in order to fully adopt agile ways inside the rest of the bank?
-
- Is there anything else you’d like to add?

What happens next

Remember that you can still withdraw from the study. You can do that for 15 days. You just need to contact me and let me know. No questions will be asked: you don’t need to explain your reasons to withdraw.

[anonymised] team - Interview guide

Interview ID: 5

Required documents and materials

Document	Copies	Printed
Information sheet	1	
Consent form	2	

Preparation

- **Explain the activity:** this interview has two parts. First, I will ask you to explain to me your design framework. After that we will discuss your experience doing research. But before that, we need to go through the research formalities.
- **Information sheet and consent form:** these are the information sheet and the consent form I've already sent to you. Take as much time as you need to review them, and feel free to ask any questions you may have. If you agree with all the points in the consent form, please add your initials to each box on the right hand side and sign at the bottom. You just need to do this once. The second copy is for you to keep.
- **Turn on recording:** We are now ready to start, so I will turn on the recording device. You will know is recording because of the red light.

Interview (until time is up)

- Opening questions:
 - What's your role in the team and what do you do here?
 - How long have you been in this team?

- About the design framework:
 - How would you define innovation?
 - This is a diagram of your design framework. Could you explain the framework to me?
 - Where did the framework come from? How was it created?
 - Did you take part in the framework development process?
 - How many of the phases have you gone through in the projects you've worked on so far?
 - How satisfied are you with the way the framework is currently applied?
- About doing research:
 - You've been quite open to organise and run research yourself. Had you done any similar things before?
 - Tell me about your experiences with the [anonymised] interviews and the card printing demo.
 - What were the main challenges you encountered during your research activities?
 - In your opinion, are there any benefits for the team in running their own research?
 - How do you envision research done by the team going forward? What needs to change or improve?
- Is there anything else you'd like to add?

What happens next

Remember that you can still withdraw from the study. You can do that for 15 days. You just need to contact me and let me know. No questions will be asked: you don't need to explain your reasons to withdraw.

Field notes - 13 May 2019

So Monday at the bank. This means it's standup day. Curiously enough they have finally given up on the standing up, because their meetings are an hour and a half, one hour and 15 minutes or so. So standing up is a bit of a pain in the ass for that long.

Nothing that interesting, I guess, in the standup meeting today. So some of the interesting things that happened. They have a project where they are working with a company that provides these kiosks that basically print ATM cards on demand. And they were considering using this as a solution for customers who go to the branch because they've lost a card or got it stolen, because right now posting a card can take up to 5 working days, so people have this issue of not being able to access money in the short term, so they might prefer going to branch and get it printed there and then. The problem is that running a pilot with one of these machines is phenomenally expensive, so they were discussing a few weeks ago how they could validate this idea, and I suggested to them experience prototyping. That they didn't have to have a real machine: they just had to pretend there was a machine there, and they could make a machine with cardboard or whatever, and have someone inside who pushes a fake card through it at the end of a process that could be mocked up with hand drawn sketches and then put into a tablet that would act as the interface of the machine. Something like that. And curiously enough, it turns out that the company has a fake machine that they use for demos on the road. So they are going to borrow this thing, which is ... I am not even sure what kind of thing it is, but basically a fake machine that people can go through the process of using the machine, and of course the card they get at the other end is not real. So they are now talking about borrowing this machine, which will probably I think happen in June, and they will put it in a branch and they will run this ... they will go to the branch and try to get people to try the machine and see what they think. And I think it's very interesting that they have decided to do this, because it sounds a lot of fun, and it also sounds like close enough to the real experience so that they can get some valid feedback on the service.

That's one thing that happened. The other thing that happened is that finally those interviews that were going to happen in February with small and medium enterprises that use co-working space happened in [anonymised] as I was at CHI. So last week, at the end of last week, [anonymised] and [anonymised] went up to [anonymised], and they ran I think 8 interviews, and they came back stoked. They loved it. I think they really enjoyed the process. And so next Monday they've asked me to repeat the interview skills session that I did for them right before they went to [anonymised] for everybody, and what I am going to suggest that we do is that we split the session in 2. The first half I just do with them the same things that I told them before, and then they can actually talk about their own experience and how they went through the process of organising the interviews and doing the sessions.

And then maybe ... oh yeah, they are following up on this company, [anonymised], that I mentioned on the previous recording that do ethnographic research and are experts apparently on building business cases on top of the output of this type of design ethnography approach to research. And they have a meeting with them next week, I think, to - according to [anonymised] - see some of their case studies and some of the tools they

use so to see if they can incorporate any of them to their own list of techniques that they can use for their projects.

And finally [anonymised] mentioned that someone had contacted them to create some content about [customer experience] inside the bank that could be fed to people in the branches. Apparently people in the branches are not seeing any kind of ... they don't think that [bank] is moving with the times, that they are not keeping up with the developments that are happening in the financial industry at the moment, and that they think that they are just doing the same old stuff. So they feel somehow disconnected from the kind of [customer experience] projects that are going on inside the bank. So this content will be a way of giving them a window into what was happening, and there was some discussion: they agreed that maybe they would connect it to work that the team have done in branch, so that they can somehow ... people in the branch are going to see a connection, can establish a connection with that; and to prove a little bit to them as well that all these [customer experience] projects that are happening are not in isolation from the branch network. But [anonymised] said something interesting. He said that also that content should contribute to break the connection between [customer experience] and technology solutions. I mentioned this before that there seems to be some kind of tacit agreement, or tacit kind of ... yeah, knowledge inside the bank or assumption inside the bank that every single [customer experience] piece needs to be connected to digital technology. And the [anonymised] team themselves seem to be keen on breaking that connection. And finally [anonymised] mentioned as well that this gives them a regular opportunity to communicate what they do to other areas, because she thinks that there are other teams appearing inside the bank that are using similar language to the one they are using, similar concepts and it is not clear, she thinks, for people inside the bank, how this [anonymised] team differs from all those others. And that maybe producing this content could help them distinguish themselves, or make ... communicate clearly how they are different from these other teams that are turning up.

That was the morning. And in the afternoon [anonymised] had this meeting with the universities team. This was both the British one and the Group one, because there were 2 people, at least one of them, who came from [anonymised], who came from [anonymised]. So they had this meeting about the research they've done, the 30 interviews they have done with university students and the third party design company came in to give a presentation, and they basically played quite a lot of audio, and also went through the customer journey map ... the columns of the customer journey map, so basically the steps that they have identified. There were lots of interesting things in that meeting. I have some notes that I wanted to type up, but one of the most interesting things were connected to any discoveries that seemed to put a ... were contrasting with the general idea of universities students, and young customers in general, as digital natives, and therefore that they don't go to the branch, and that they don't care about the branches: that they all want to bank on their mobile phones. Because there were several things coming up through those interviews that kind of deny, or are in contraposition to that view, or that image of these young people. So when it came to selecting a bank, when they came to open their student bank account to go to university one of the factors that had an influence was the presence of branches in the high street. That there was a branch that was easily accessible to people. And the lady from [anonymised], who works in the global team, in the Group team as they call it, said that this keeps on coming up in every single country they do

research in, and that basically, although young people tend not to use the branches at all, it's just ... they feel so insecure about banking in general that the existence of a branch, of a physical place where they can go if something goes wrong, is a huge reassurance. And it is that reassurance that drives this interest in branches.

Also the fact that there was at least a person, at least one participant in these interviews, that didn't use their mobile. And again this person from [anonymised] was explaining that this has come up in other ... in research they've done in other countries. She said they feel that if they lose their phone they lose all their money. So there is not ... essentially this idea that all young people just want to do banking in mobile apps is, well, is actually ... it doesn't seem to be true according to the research that the bank is doing in different countries where they are present. And, she said, that people wanted receipts as well, and that they may be already digital, she said about these people, but money is a different thing. So although people are heavily digitising other aspects of their lives they seem to be remarkably conservative when it comes to digitising money or digitising their financial activities. So it was interesting to listen to this woman. Obviously she's been involved in similar research that's been done in [anonymised], in [anonymised], in [anonymised], and she is seeing how ... was connecting the dots and she ... this is one of the things that she picked up strongly. The fact that these young customers are not necessarily ... these young people in their financial lives they are not as digital, it seems, as the banks would like them to be. Or they are not as "digital natives" or digitally driven as ... it's almost like that image of the extremely digitised young person is almost like an image the banks want to have, because obviously it maps to their own "operational efficiencies" strategy, as they call it.

Codebook - Bank fieldwork

Code	Theme	References	Files
participant background and bank career	-	19	10
bank relationship with digital technology	Bank relationship with digital technology	53	17
branch and other front line staff relationship with customers	Bank relationship with digital technology	21	4
budget constraints	Bank relationship with digital technology	10	4
digital technology as a barrier	Bank relationship with digital technology	30	11
history of agile in the team	Bank relationship with digital technology	1	1
CX project examples	Bank relationship with digital technology	19	9
reflections on agile	Bank relationship with digital technology	4	1
role of agile in the team	Bank relationship with digital technology	6	1
solutionism	Bank relationship with digital technology	1	1
about bank internal processes, policies & culture	Operationalising vulnerability	173	24
about financial support	Operationalising vulnerability	3	2
actions taken to address vulnerable cases	Operationalising vulnerability	11	4
bank referrals to police and social services	Operationalising vulnerability	38	5
banks are not social services	Operationalising vulnerability	17	3
branches are very busy	Operationalising vulnerability	2	1
connection financial support - vulnerability - scams	Operationalising vulnerability	29	5
connections between vulnerability and technology	Operationalising vulnerability	21	5
diversity as a strength in the vulnerable customers team	Operationalising vulnerability	5	4
impact of work on staff's mental health	Operationalising vulnerability	39	5
issues related to informal banking practices (credential sharing, etc)	Operationalising vulnerability	6	3
issues related to joint accounts	Operationalising vulnerability	9	3
issues related to power of attorney	Operationalising vulnerability	21	5

Codebook - Bank fieldwork

Code	Theme	References	Files
issues related to third party access	Operationalising vulnerability	23	4
PR pressures & public's opinions on banks	Operationalising vulnerability	2	1
reflections on & definitions of vulnerability	Operationalising vulnerability	16	7
vulnerability cases aspects considered	Operationalising vulnerability	2	1
vulnerability common cases & examples	Operationalising vulnerability	66	5
vulnerable cases are referrals	Operationalising vulnerability	15	5
vulnerable team does not speak to customers	Operationalising vulnerability	28	5
vulnerable team multitasks	Operationalising vulnerability	18	5
corporate attitudes towards customers & customer centricity	Understandings of design	28	11
difficulties turning experimentation into BAU	Understandings of design	21	4
employees' attitudes towards customers	Understandings of design	1	1
framework description - build - grow	Understandings of design	5	4
framework description - discover	Understandings of design	9	5
framework description - generate	Understandings of design	10	5
framework description - need states	Understandings of design	11	6
framework description - scale	Understandings of design	4	4
framework description - summary	Understandings of design	10	5
framework description - validate	Understandings of design	7	5
history of the design framework	Understandings of design	19	5
influence of external design & innovation agencies	Understandings of design	29	9
CX and design practices	Understandings of design	126	22
CX role description	Understandings of design	1	1
CX team history	Understandings of design	27	6

Codebook - Bank fieldwork

Code	Theme	References	Files
move away from project delivery	Understandings of design	37	5
other CX teams in the bank	Understandings of design	5	2
outside perceptions of the CX team	Understandings of design	15	5
quantitative bias inside the bank	Understandings of design	5	3
reflections on & definitions of CX	Understandings of design	60	11
reflections on customer centricity	Understandings of design	55	9
role of outside startups on internal innovation	Understandings of design	6	5
role of the design framework	Understandings of design	13	5
why was the CX team created	Understandings of design	1	1

APPENDIX C:
Toucan Fieldwork Materials



Amendments

+ Create New Amendment Refresh


SUBMISSION ID	CREATED DATE TIME	CREATED BY	STATUS	DESCRIPTION	UPDATED DATE TIME	COORDIN...
No items to display.						

Submission


Submission Ref: 16996
 Status: Approved
 Submission Coordinator: Sheng-feng Qin sheng-feng.qin@northumbria.ac.uk

Name:  

Email: belen.pena@northumbria.ac.uk

Faculty: 

Department: 

Submitting As: 

Externally Approved: **Note: ONLY tick this box if your project has already received full ethical approval from an external organisation**

Module Level Approval: *Tick this box if staff and this submission refers to an entire module.*

Module Code:

Module Tutor (or Submission Coordinator):

Titl...
 De...
 Em...

Research Supervisor:

Titl... Professor
 De... Arts Design and Social Sciences

Ethical Risk Level

Medium






Risk Level Conditions:

Your ethical risk is **medium**. Your research should only consist of one or more of the following:

- Non-vulnerable adults
- Non-sensitive personal data referring to a living individual
- Secondary data not in the public domain
- Environmental issues
- Commercially sensitive information

Your project proposal has some ethical implications and will be reviewed by one independent reviewer appointed by your Faculty Research Ethics Committee. Some factors to be considered include considering obtaining informed consent forms from organisations or people involved, permission to use data from the Data Controller, as well as confidentiality/anonymity issues.

Co-investigators

 Add  Edit  Delete  Save  Refresh

NAME OF CO-INVESTIGATORS

Bailey Kursar (Toucan)

G1: General Aims and Research Design (Mandatory)

Title

Title of your research project

Financial delegation and mental health: the role of trusted collaborators and light oversight in improving the financial wellbeing of people living with mental health conditions

Outline General Aims and Research Objectives

State your research aims/questions (maximum 500 words). This should provide the theoretical context within which the work is placed, and should include an evidence-based background, justification for the research, clearly stated hypotheses (if appropriate) and creative enquiry.

This project aims to explore how digital platforms could contribute to the provision of safe delegation mechanisms in financial services, in close collaboration with their beneficiaries.

Most financial services are designed for individual access and use, something that is at odds with real world practices. Human-computer interaction literature on consumer finance has highlighted the importance of communal aspects of money management [1, 2], and the prevalence of financial task delegation to trusted others is well documented, particularly between vulnerable populations and their carers [3, 4]. Research from the Money and Mental Health Policy Institute (MMHPI) has brought attention to the role delegation plays in the financial wellbeing of those living with a mental health condition [5].

In spite of the evidence, financial service providers lack appropriate delegation mechanisms. Although legal (power of attorney) and contractual (third-party mandate) instruments exist to grant others access and authority to transact on our behalf, such instruments are essentially binary, providing all or nothing access to our finances, and handing over complete control to the designated third-party. The inflexibility of these formal mechanisms pushes people into informal workarounds that violate banks' terms of service and void fraud protections, leaving customers who need assistance vulnerable to financial abuse. Those providing help may be exposed to accusations they cannot defend against due to lack of an audit trail, and in the case of joint accounts, they could be putting their own financial stability at risk. There is an urgent need to develop flexible and customisable mechanisms that recognise delegation of financial tasks as a legitimate behaviour and protect all parties involved.

Through a partnership with Toucan (<https://usetoucan.com>), a social enterprise encouraging collaboration in personal money management, and together with the Money and Mental Health Policy Institute (<https://www.moneyandmentalhealth.org/>), this study will explore the potential of financial task delegation and light oversight for improving the financial wellbeing of people who self-identify as living with a mental health condition.

This study aims to contribute to the development of concrete and actionable design guidance for safe delegation mechanisms in financial services.

References

1. Kaye, J., McCuiston, M., Gulotta, R., Shamma, D.A., 2014. Money Talks: Tracking Personal Finances, in: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, Toronto, Ontario, Canada, pp. 521-530. <https://doi.org/0.1145/2556288.2556975>
2. Vines, J., Dunphy, P., Blythe, M., Lindsay, S., Monk, A., Olivier, P., 2012. The Joy of Cheques: Trust, Paper and Eighty Somethings, in: Proceedings of the ACM 2012 Conference on Computer Supported Cooperative Work, Seattle, Washington, USA, pp. 147-156. <https://doi.org/10.1145/2145204.2145229>
3. Dunphy, P., Monk, A., Vines, J., Blythe, M., Olivier, P., 2013. Designing for Spontaneous and Secure Delegation in Digital Payments. *Interacting with Computers* 26, 417-432. <https://doi.org/10.1093/iwc/iwt038>
4. Edgar, L., Green, F., Ward, V., Gumbley, M., 2017. The Ageing Population: Coping Mechanisms and Third Party Access. the Big Window Consulting Ltd.
5. Murray, N., 2016. Strength in numbers: consumers, carers and financial services. Money and Mental Health Policy Institute.

G2: Research Activities (Mandatory)

Please give a detailed description of your research activities

Please provide a description of the study design, methodology (e.g. quantitative, qualitative, practice based), the sampling strategy, methods of data collection (e.g. survey, interview, experiment, observation, participatory), and analysis. Do sensitive topics such as trauma, bereavement, drug use, child abuse, pornography, extremism or radicalisation inform the research? If so have these been fully addressed?

Study design and methodology

The Toucan application will be used as a prompt to explore the role of delegation and light oversight in the financial lives of people who self-identify as living with a mental health condition. Toucan is a personal money management smartphone application that allows users to designate trusted financial allies, and share with them balance and transaction information through customisable notifications.

Between 20 and 30 people who self-identify as living with a mental health condition will be invited to set up and use Toucan for a period of 3 months. Participants will be recruited from a sample of UK research volunteers administered by the Money and Mental Health Policy Institute.

During the study, participants will be asked to regularly reflect on their interactions with Toucan and their impressions of it, and to capture such impressions in a personalised paper diary and through mobile messaging. The study will include an opening and a closing interview that will mark the commencement and conclusion of the study period. Interviews will take place face to face whenever possible, but we expect some of them to be done remotely via video calls due to budget and time constraints. Closing interviews will also be conducted with a sample of "allies" - the trusted others participants have chosen to share their transaction data with.

Data collection and analysis

The following data will be collected during the study:

- * Audio recordings of the opening and closing interviews.
- * Video recordings of the Toucan application setup process whenever possible. These recordings will capture participant's mobile screen and facial expressions.
- * Participant-generated materials (diaries and messages sent to the researcher related to experiences of the study).
- * Participants' enquiries and technical support requests submitted to the researchers during the study period.
- * Metadata for the triggered notifications on the smartphone application, which includes i) type of notification, ii) timestamp, and iii) who received the notification (Toucan user only or Toucan user and trusted ally).

The Toucan application provides three types of notifications:

- * Balance notification, which is triggered when current account balance goes below an amount set by the Toucan user.
- * Cash withdrawal notification, which is triggered when a cash withdrawal exceeds a certain amount set by the Toucan user.
- * Number of transactions notification, which is triggered when the number of transactions in 24 hours exceeds a certain number set by the Toucan user.

The Toucan application also stores users' banking data as the application is used as part of real transactions on individuals' accounts. However, that data will not be accessed or used as part of this study.

Research data will be analysed using thematic analysis, with descriptive statistics of the quantitative data related to application use.

M1: People and/or Personal Data

Tick if your work involves people and/or personal data?

Sample Groups

Provide details of the sample groups that will be involved in the study and include details of their location (whether recruited in the UK or from abroad) and any organisational affiliation. For most research studies, this will cover: the number of sample groups; the size of each sample group; the criteria that will be used to select the sample group(s) (e.g. gender, age, sexuality, health conditions). If the sample will include NHS staff or patients please state this clearly. If this is a pilot study and the composition of the sample has not yet been confirmed, please provide as many details as possible.

The study will aim to recruit between 20 and 30 participants from a population of 5000 UK research volunteers administered by the Money and Mental Health Policy Institute (MMHPI). Volunteers in this sample all self-identify as living with a mental health condition, have proactively applied to become part of MMHPI's research volunteer pool, and have undergone screening and safeguarding checks with MMHPI.

The selected participants will be smartphone users who have indicated their trusted financial ally is not their spouse or long term life-partner. Our prior research suggests that individuals living without a spouse or long term life-partner will encounter unique challenges when trying to identify a suitable financial ally and in their interactions with them. As such, we have decided to prioritise this group as a result.

Nature of data pertaining to Living Individuals

If you will be including personal data of living individuals, including still or moving images, please specify the nature of this data, and (if appropriate) include details of the relevant individuals who have provided permission to utilise this data, upload evidence of these permissions in the supporting documentation section.

Details of any Special Category Data - If you will be collecting data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, trade union membership, data concerning health or data concerning a natural person's sex life or sexual orientation, please specify which categories you will be using.

Personal data needed for recruitment purposes (i.e. full name and contact details) will be provided by the Money and Mental Health Policy Institute, who will obtain informed consent from volunteers before transferring their personal data to the research team.

The use of the Toucan application involves granting the application permission to access users' banking information through open banking APIs. The permission process in the Toucan application is implemented through the third-party provider Openwrks (<https://www.openwrks.com/>). The study will not access any of the personal financial information handled by the Toucan application. However, the study will have visibility of the financial notifications participants set up with the Toucan application, together with a list of notifications triggered during the study period, including their timestamp and to whom they were delivered.

Research activities are also likely to disclose information about personal relationships, particularly regarding the trusted financial allies chosen by participants as recipients of the Toucan notifications.

Legal Basis for Processing:

Please record the legal basis for processing personal data below. Under the General Data Protection Regulation and the UK Data Protection Act 2018 any organisation processing personal data of EU citizens for any purpose (including research) must have an appropriate legal basis for this and communicate it to all participants. For research, in most cases the appropriate legal basis will be “Article 6(1) e: processing is necessary for the performance of a task carried out in the public interest”. If you are collecting special categories of personal data (see above) then you will need an additional legal basis. For research, in most cases the appropriate additional legal basis will be “Article 9(2) j: processing is necessary for scientific and historical research purposes”. Further detailed guidance on this is available in the latest edition of the [Research Ethics and Governance Handbook](#)

The legal basis for processing personal data under GDPR is “Article 6(1) e: processing is necessary for the performance of a task carried out in the public interest”.

Recruitment

Describe the step by step process of how you will contact and recruit your research sample and name any organisations or groups that will be approached. Your recruitment strategy must be appropriate to the research study and the sensitivity of the subject area. You must have received written permission from any organisations or groups before you begin recruiting participants. Copies of draft requests for organisational consent must be included in the ‘Supporting Documentary Evidence’. You must also provide copies of any recruitment emails/posters that will be used in your study.

The study will aim to recruit between 20 and 30 participants from a sample of 5000 UK research volunteers administered by the Money and Mental Health Policy Institute. Volunteers in this sample self-identify as living with a mental health condition.

As part of a survey ran in 2018, the Money and Mental Health Policy Institute identified 200 volunteers from their research sample who expressed interest in testing the Toucan mobile application. These 200 volunteers were contacted in May 2019 to confirm their interest in trialling the application between June and September 2019. 38 people confirmed their interest, out of which between 20 and 30 will be recruited for the study.

Remuneration

Details of remuneration

Will you make any payment or remuneration to participants or their carers/consultees? If yes: Please provide details/justifications. Note that your Faculty may have specific guidelines on participant payments/payment rates etc and you should consult these where appropriate.

We will be compensating participants with a £50 Amazon voucher, paid at the end of the study. We will also provide an additional £50 Amazon voucher to those participants who are willing to take part in the closing interview. Trusted allies participating in the closing interview will also receive the same incentive (£50 Amazon voucher).

Type of Consent

Informed Consent

Type of Consent Details

Please include copies of information sheets and consent forms in the ‘G6: File Attachments’ section. If the study involves participants who lack capacity to consent, procedures in line with sections 30-33 of the Mental Capacity Act will need to be put in place. If you are using alternative

formats to provide information and / or record consent (e.g. images, video or audio recording), provide brief details and outline the justification for this approach and the uses to which it will be put:

The Money and Mental Health Policy Institute will obtain initial informed consent from the 20 to 30 selected volunteers to share their name and contact details with the research team in order to complete the study recruitment process. The research team will then obtain informed consent from the participants to take part in the study.

We will seek informed consent from participants through the following steps:

* Selected volunteers will be sent the participant information sheet and consent form (see “G6: File Attachments” section). Volunteers will be contacted by telephone after two days to answer any questions about the study, and to schedule the opening interview, which marks the beginning of the study period.

* The day before the opening interview participants will be sent a reminder by email, which will also include the consent form and information sheet. Participants will be encouraged to read the documents before the session takes place.

* Before the opening session starts, participants in face to face sessions will be asked to complete the consent form. Participants in remote sessions will be asked to provide verbal consent, which will be audio recorded. Consent will be obtained for:

** The overall study

** Receiving mobile messaging prompts during the study period

** The opening session itself

** Audio recording of the opening session

** For face to face sessions, video recording to capture the Toucan setup process

* At the end of the opening interview, the researcher will debrief participants to explain the next steps in the research process, including a reminder about the mobile messaging prompts, the end date of the 3-month study period, and the closing interview. The researcher will also remind participants they can remove themselves from the study at any time, and the process for doing so.

Consent for the closing interview will be handled separately:

* Participants will be contacted one week before the completion of the 3-month period to remind them that the study is coming to an end. They will be sent the remuneration voucher on the last day of the 3-month trial, and will be invited to take part in the closing interview. Participants will be asked whether they would like to undertake the interview alone, or accompanied by their trusted financial ally.

* Participants expressing an interest in taking part in the closing interview will be sent the corresponding consent form and information sheet (see “G6: File Attachments” section). Volunteers will be contacted by telephone two days later to answer any questions, and to schedule the interview. If the participant has chosen to involve the financial ally in the interview, the latter will be informed of the interview date and time, and will be sent the relevant consent form and information sheet.

* The day before the interview participants will be sent a reminder by email, which will also include the consent form and information sheet. Participants will be encouraged to read the documents before the session takes place.

* Before the interview starts, participants in face to face sessions will be asked to complete the consent form. Participants in remote sessions will be asked to provide verbal consent, which will be audio recorded. Consent will be obtained for the closing interview itself and for audio recording.

* At the end of the interview, the researcher will remind participants they can remove themselves from the study by notifying the research team within 15 days of the interview. After that period of time, the research data will be anonymised and it will be no longer possible to identify individual participants.

* After the end of the study period, participants will be advised to delete the Toucan application, since it is still in alpha state. This will also remove any personal data they had entered and stored into the application.

Researcher and Participant Safety Issues

If there are any risks the research could cause any discomfort or distress to participants (physical, psychological or emotional) describe the measures that will be put in place to alleviate or minimise them. Please give detail of the support that will be available for any participants who become distressed during their involvement with the research.

Researcher safety issues

The researchers may be doing fieldwork on their own and might be visiting participants' homes unaccompanied. Following the recommendations of the Social Research Association's Code of Practice for the Safety of Social Researchers [1], the following practices and protocols will be in place:

- * The researcher will carefully consider whether it is necessary to visit participants' homes, and will do so only when no suitable public space can be identified for the interview. Whenever possible, the researcher will visit participants' homes accompanied by the co-investigator.
- * The researcher will establish prior telephone contact with participants in order to assess their circumstances.
- * Whenever possible, the researcher will schedule interviews during the day, avoiding evening hours.
- * Once the interview site has been selected, the researcher will assess the area before fieldwork starts.
- * The following fieldwork contact system will be in place:
 - ** The researcher will share the interview schedule, location and expected finishing time with the research supervisor and a personal contact.
 - ** The researcher will carry a fully charged mobile phone that will be kept on at all times.
 - ** The researcher will notify the research supervisor and personal contact via SMS upon arrival to the interview.
 - ** The researcher will arrange a phone call by the personal contact close to the agreed finishing time.
 - ** The researcher will notify the research supervisor and personal contact via SMS upon completion of the interview.
 - ** The researcher will notify the research supervisor and personal contact via SMS upon returning from fieldwork.

References

1. The Social Research Association, A Code of Practice for the Safety of Social Researchers. Available at http://the-sra.org.uk/wp-content/uploads/safety_code_of_practice.pdf. Accessed on 04/06/2019

Participant safety issues

Participants in this study have self-identified as living with a mental health condition. According to the Money and Mental Health Policy Institute, the research panel members have experience of ill health but haven't been identified as having particularly traumatic or difficult experiences like hospitalisation, crisis or suicidality. The Money and Mental Health Policy Institute has identified this study as medium risk, and has advised the researchers should not need a DBS in order to carry out the study. The lead researcher does have a DBS in place, dated November 2017.

The topics for discussion during the opening and closing interviews are personal and sensitive in nature, and may provoke strong feelings in respondents. The researchers will make clear to participants that they are under no obligation to speak about subjects they find uncomfortable, that they can refuse to answer questions, and that they are free to end the interviews at any time. The researchers will watch closely for signs of distress or discomfort and act accordingly, making participants' wellbeing their first priority.

Following recommendations from the Money and Mental Health Policy Institute, Toucan has put in place processes in case the researchers suspect any of the participants might be at risk, including details of where to signpost them in various scenarios (e.g. apparent financial abuse, psychological distress, suicidality), together with a template to record safeguarding concerns and actions taken. Relevant documentation has been attached to section "G6: File Attachments".

Data Gathering Materials Used

Provide a detailed description of what the participants will be asked to do for the research study, including details about the process of data collection (e.g. completing how many interviews / assessments, when, for how long, with whom). Add any relevant documentation to the 'Supporting Documentary Evidence' section of this form.

During the study period, participants will be asked to regularly reflect on their interactions with Toucan and their impressions of it, and to capture such impressions through a paper diary or mobile messaging. Participants will be provided with a personalised paper diary, and will be offered to use the mobile messaging application of their choice, with WhatsApp or Signal as the applications recommended by the research team. A phone number and mobile handset will be sourced by the research team to be used exclusively for receiving participants' mobile messages.

Participants will also be provided with a support email address they can use for application-related questions and technical support queries.

The study will include two additional touch points with the researchers:

1. Opening interview: during this session, participants and researchers will set up the Toucan application, designate a trusted ally or allies, and configure the custom notifications. Researchers will gather some background on the designated allies, their relationship to the participants, the reasons why they were selected, the nature of the notifications shared with them, as well as participants' expectations about the utility and impact of the Toucan application.
2. Closing interview: to finalise the study, the researchers will discuss with the participants their use of Toucan during the 3-month study period, and their experiences of financial collaboration and sharing with their trusted allies. The interviews will be supported by the materials generated by participants during the study (diary and mobile messages), and by the metadata collected by Toucan on the notifications triggered during the study period. Participants will be offered the choice of undertaking this interview by themselves or in partnership with their designated financial ally.





Both opening and closing interviews will be carried out face to face when possible, but we anticipate some of them will need to be done remotely via video call due to time and budget constraints. Face to face interviews will take place in participants' homes or in a suitable public space of their choice. Both interviews will last between 60 and 90 minutes.

Potential Ethical Issues

Please describe any potential ethical issues the project may have which are not covered above, and how you have sought to minimise these.

In addition to what has been covered in the section about participant safety issues, information about the trusted financial allies is likely to be disclosed by participants without their explicit consent. Allies will be aware of their involvement with Toucan, since the application notifies them of their addition to the Toucan user profile, and asks for their consent to complete the setup process. However, they may not be aware of all the details of the study and what it entails. To address this issue, the researchers will provide participants with an information sheet for trusted allies (see section “G6: File Attachments”), and encourage participants to share it with their chosen helper. The study will not engage with the trusted allies directly during the 3 months of Toucan use, but participants will be offered the option of involving them in the closing interview.

M2: DBS Clearances Required

 Add  Edit  Delete  Save  Refresh

PERSON	TYPE	REFERENCE	DATE OF CHECK
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(Add new row)

M3: Secondary Data

Tick if you will be using secondary data NOT in the public domain?

M4: Commercial Data

Tick if your work involves commercially sensitive data?

M5: Environmental Data

Tick if your work involves the collection of environmental data?

G3: Research Data Management Plan (Mandatory)

Anonymising Data (mandatory)

Describe the arrangements for anonymising data and if not appropriate explain why this is and how it is covered in the informed consent obtained.

Participants will be given a pseudonym which does not contain their first name, second names, or initials. Mapping of pseudonyms to real participants' names will be done via an “index list”. Once the data is anonymised, the corresponding entry will be removed from the index list. Once all data is anonymised, the index list will be deleted.

Only pseudonyms will be used when reporting on the project via presentations or papers.

Storage Details (mandatory)

Describe the arrangements for the secure transport and storage of data collected and used during the study. You should explain what kind of storage you intend to use, e.g. cloud-based, portable hard drive, USB stick, and the protocols in place to keep the data secure.

If you have identified the requirement to collect 'Special category data', please specify any additional security arrangements you will use to keep this data secure.

The research team will store all personal and research data in electronic format. Consent forms and paper diaries will be scanned and paper originals will be shredded. Interview and video recordings will be transferred from the recording device into storage and encrypted immediately after the completion of each interview.

Mobile messages will be transferred from the mobile handset to a text document at the end of the study period. Once the transfer is complete, the researchers will perform a factory reset in the mobile handset used to receive participants' messages.

Electronic records (video and audio recordings, transcripts, mobile messages text file, scanned diaries and consent forms,) will be encrypted and then stored in a secure server. Encryption will be carried out with Mac OSX Disk Utility using 256-bit AES encryption. Encryption passwords will be generated by and stored in a password manager. Only the research team will have access to the encryption passwords.

Since all research data gathered during the study will belong to Toucan, no data will be transferred to Northumbria University for archiving.

Retention and Disposal (mandatory)

I confirm that I will comply with the University's data retention schedule and guidance.

[Research Data Management link](#)

[Data Protection link](#)

[Records Retention Schedule link](#)

G4: Research Project Timescale (Mandatory) ∨

Proposed Start Date

15/07/2019



Proposed End Date

31/12/2019



G5: Additional Information ∨

Externally Funded

External Funder

Please give details of your 'other' funder

Agresso Reference

Franchise Programme Organisation

Please give details of your franchise organisation

NHS Involvement

Please give details of any NHS involvement

Clinical Trial(s)

Please give details of any Clinical Trial(s)

Medicinal Products

Please give details of any Medicinal Product(s)

G6: File Attachments

Additional files can be uploaded e.g. consent documentation, participant information sheet, etc.

Please note: It is best practice to combine all documents into one PDF (This avoids the reviewer having to op...

[Go To Attachments](#)

G7: Health and Safety (Mandatory)

I confirm that I have read and understood the University's Health and Safety Policy.

I confirm that I have read and understood the University's requirements for the mandatory completion of

risk assessments in advance of any activity involving potential physical risk.

Please tick one of the boxes below...

- There are PHYSICAL risks associated with the work and I have consulted the following approved risk assessments...

State Risk Assessment references and titles

Specific risk assessments, where required, have been produced, approved and submitted to the Risk Asse...

I will take the necessary action, adhere to any identified control measures, and consult with the central Health and Safety Team where necessary to manage the risks.

- I can confirm that there are no physical risks associated with this project and so no risk assessments are required.

G8: Insurance (Mandatory)

- I have read and understood the University Insurance guidance document (link below):

[Insurance Guidance link](#)

I confirm my work is covered by University Insurance. I confirm an insurance risk level of:

Low 

If your insurance risk level is HIGH please attach details of exceptional insurance coverage:

[Click here to attach a file](#)

G9: Electronic Signature (Mandatory)

- I confirm my supervisor has reviewed the contents of this document
- I confirm I have assessed the ethical risk level of my work correctly and answered the above sections as fully and accurately as possible.

Full Name

belen.barros.pena

Date

14 June 2019 15:30:32



[Create PDF](#)*No items to display.*

Review Comments, Conditions and Outcomes

Log of any Ethical Incidents

[Log New Incident](#)

INCIDENT...	CREATED DATE TIME	CREATOR NAME	COMPLAINANT DETAILS
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No items to display.

Title and Objectives (see G1)

[+ Add](#) [Save](#)Reviewer A: Reviewer B: *e.g. Are the research question and/or study aims clear?*

DATE	ROLE	COMMENT
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No items to display.

Proposed Methodology and Analysis (see G2)

[+ Add](#) [Save](#)Reviewer A: Reviewer B: *e.g. Is the design appropriate to the research question?
Are the methods of data analysis appropriate to the research question?*

DATE	ROLE	COMMENT
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No items to display.

Sample and Recruitment (see M1)

[+ Add](#) [Save](#)Reviewer A: Reviewer B: *e.g. Is the sampling approach appropriate to the design?
Is the sample sufficient and achievable?
Is the process of recruitment clearly explained?
Are participants receiving payments for taking part, and if so is the payment appropriate?
If the DBS is ticked, has the appropriate information been included?*

DATE	ROLE	COMMENT
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No items to display.

Consent (see M1)

[+ Add](#) [Save](#)

Reviewer A:



Reviewer B:

*e.g. Is the approach to consent seeking clear?
Is consent from parents/ carers/ guardians required?
Are all necessary recruitment and informed consent documentation included (e.g. letters of permission, letters of invitation)
Is the information sheet adequate to ensure informed consent?
Are the consent form(s) appropriate?*

DATE	ROLE	COMMENT
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No items to display.

Researcher and Participant Safety (see M1) ▼

 Add  Save

Reviewer A:



Reviewer B:

*e.g. Is there any risk of physical harm for the researcher(s) or the participants and if so what attempts have been made to alleviate or minimise them?
Have Risk Assessments been referred to where appropriate?*

DATE	ROLE	COMMENT
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No items to display.

Research Activities (see G2-G8, M1-M5, H1-H5) ▼

 Add  Save

Reviewer A:



Reviewer B:

*e.g. Are the research tasks described clearly?
Do sensitive topics such as trauma, bereavement, drug use, child abuse, pornography or extremism/ radicalism inform the research? If so have these been fully addressed? (and we can use this to amend the information on risk levels on the form)Is there any risk that the tasks may cause psychological harm and if so what attempts have been made to alleviate or minimise them?*

DATE	ROLE	COMMENT
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No items to display.

Data Management Plan (see G3) ▼

 Add  Save

Reviewer A:


Reviewer B:

*e.g. Have sufficient steps been taken to ensure participant anonymity/confidentiality of data?
Are the arrangements for data storage and disposal clearly outlined?
Are these arrangements in line with University and/or the funding body requirements?*

DATE	ROLE	COMMENT
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No items to display.

File Attachments (see G6) ▼

 Add  Save

Reviewer A:

Reviewer B:

Please note: where file attachments have not been added because they are not required, please select Approve.

COMMENT BY	DATE	ROLE	COMMENT
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No items to display.

General Comments (see Help) ∨



Add



Save

Help

DATE	ROLE	COMMENT
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No items to display.

Summer Trial Factsheet

Thank you for participating in the Toucan Summer Trial project! This factsheet will hopefully answer any questions you might have about participating in our research.

If you have any questions you can contact the Toucan research team (Bailey and Belén) anytime on the details below:

Toucan Support

research@usetoucan.com

For support using the app, you can also review our separate [Toucan Trial Guide](#) document which shows you each screen of the app along with descriptions of what to expect when using the app. If you need copies of either document, just let us know using the contact details above. We are happy to provide digital versions or send you a printed copy; whatever you prefer.

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About the App

1. What is Toucan?

Toucan is a new money management app (on both iPhone and Android) which makes it easier to see what's happening with your money and get support from someone you trust.

2. How does Toucan work?

The app securely connects to your bank account using Open Banking (see below for more details), which means that you will log into Toucan using your online banking credentials. From there the app suggests smart alerts around your spending and gives you the option of automatically notifying a trusted family member or friend (a 'Trusted Ally') when there is unusual activity on your account.

3. How can I start using the app?

The research team will share instructions on how to install and set up the app as part of your opening interview (see below for more details).

4. What is Open Banking?

Open Banking is a technology built by banks to allow apps like Toucan to look at your transactions. All major UK high street banks support this technology.

Toucan will only have permission to view your transactions when and if you give the app permission when setting up your account. The app will ask you to log into your online banking portal or use your banking app in order to authenticate Toucan as a trusted third party.

Toucan uses an FCA regulated body, OpenWrks, to complete this authentication so that the process is secure. OpenWrks is as secure as your online banking, since Open Banking is extensively tested and regulated.

5. Is it safe to use Toucan?

When connecting to your bank account, Toucan can only see your transactions; the app cannot access your money or move money between accounts.

In order to connect to your bank account, Toucan uses new technology called Open Banking (see above), provided by an FCA regulated provider, OpenWrks. OpenWrks is as secure as your online banking, since Open Banking is extensively tested and regulated. OpenWrks are regulated as an Account Information Services Provider (AISP) by the FCA, the same governing body that regulate banks.

6. What if I need help using the app?

If at any time you need help using the app, have questions or want to provide feedback, you can contact the Toucan research team (Bailey and Belén) on the details below:

Toucan Support

research@usetoucan.com

They will aim to come back to you as soon as possible during working hours, which are 9am-6pm Monday-Friday (excluding Bank Holidays).

About my Trusted Ally

7. What is a Trusted Ally?

Many people would like to get extra support around money management from a trusted family member, friend or carer.

Toucan allows you to set up a trusted person as your Trusted Ally, who will then receive alerts through text message if there is unusual spending activity on your bank account. Text message alerts will not give any transaction or balance details; they will simply ask your Trusted Ally to check in with you to see if you are alright.

If you use Toucan, setting up a Trusted Ally is optional. You can choose only to receive alerts yourself.

8. Who should be my Trusted Ally?

If you decide you would like to set up a Trusted Ally, think about who you go to now when you want to talk about money matters. This might be a parent, a son or daughter, a spouse, a friend or someone else.

In an emergency, this is the sort of person that won't leave you hanging, and make a stressful situation worse. They mostly tend to make time for you. They should be OK with lending an ear

when you are having money worries. They may or may not have advice, but the key is that they listen to and support you.

9. What's expected of a Trusted Ally?

When you talk to your Trusted Ally about Toucan for the first time, it's a good idea to make sure they know what kind of support you might expect if an alert is sent to them.

The most important thing an ally should give is care, not cash. If you want your ally to go above and beyond, make sure to chat things over so they understand what you need from them. They might want to know how best they could help in that situation, whether that's by calling you, coming round for a cup of tea or with more formal support.

10. How can I ask someone to be my Trusted Ally?

If you have a close, supportive relationship with your chosen person, you could start by telling them about the Toucan app and this research trial. They might want to know why you want to participate, and what part they can play in helping.

There is a separate factsheet ([Toucan Summer Trial Factsheet – Trusted Ally](#)) that we've prepared for you to share with them. This factsheet will hopefully answer some of their questions about the app, the trial and their role.

If they have any questions about Toucan or our research, please encourage them to contact us on:

Toucan Support

research@usetoucan.com

About the research trial

11. What is the aim of the trial?

We are building a brand new money management app and need feedback in order to make decisions about how to improve or change it. We want to understand how you use the app and ask for feedback, so that we can understand any problems and make it better.

12. Who is running the trial?

The Toucan research team is running the trial, with Bailey Kursar leading this team. Toucan is a registered company (Toucan App Ltd., company registration number 11514165). Toucan is funded through grant funding, provided through a Nationwide Building Society programme called Open Banking for Good. Through Open Banking for Good, Toucan are also receiving support from the Money and Mental Policy Institute in the design and development of their app.

Toucan is also partnering with Belén Barros-Pena, a PhD researcher at Northumbria University, who will be collecting feedback for her own research into the role of trusted collaborators and light oversight in improving the financial wellbeing of people living with mental health conditions.

13. What is involved in the trial?

The trial will take place over three months, ideally between July and October. During that time you will have access to the new Toucan app to use, and you will be asked to provide feedback about it.

To begin the trial we'll book an opening interview with you, where we will ask some questions about you and what you want to use the app for, as well as helping you set up the app. We expect this interview to take around 1 hour, and we would love to meet you face-to-face. If it's not possible to meet face-to-face, we will organise between us the most convenient way to have a video call.

To test the app, we'll ask you to securely connect to your bank account and set up at least one alert around your spending. We'll also ask you to set up a Trusted Ally who will receive these alerts automatically (see [About my Trusted Ally](#)).

During the three month trial, we'll ask you for feedback about the app, your relationship with your Trusted Ally and your finances. It's up to you how much detail you go into with your feedback, but any detail you are able to give will help us understand how to improve the app or build new services. We'll set up a way for you to give feedback through text messaging or through another method that you're comfortable with.

At the end of the three month trial, in October, we will organise a closing interview to find out your overall thoughts about the app.

14. Why does the research team want my feedback?

You have been asked to be a part of this trial because you have indicated, through your feedback to The Money and Mental Health Policy Institute, that you would be interested in using an app like Toucan to give you extra support around money management.

We selected you because we believe your feedback will help us make our app better. We hope that by improving Toucan we will be able to help thousands of people who want extra support with money management.

15. How can I give feedback about the app during the trial?

We will set up two ways for you to provide feedback, one of which will be text messaging or chat-based (for example, we could set up a private WhatsApp conversation with you). We will also provide you with a Toucan trial journal for taking notes about your experiences with the app.

16. How will I benefit from being a part of the trial?

You may find using the Toucan app helps you to manage your money, and makes it easier to seek support with managing money from a friend or family member. By taking part, you'll also be helping to develop an app that's designed to help people experiencing money and mental health problems.

At Toucan we care about advocating for better financial services products across the industry. We hope that your feedback will help us influence how banking apps are built not just by our team, but by major high street banks with millions of customers.

We will thank you for your time over the course with the trial with an incentive of an Amazon voucher worth £50. This voucher will be paid at the end of the trial in October, when you complete the three months using the app.

On top, we will also offer an extra Amazon voucher worth a further £50 if, in October, you are able to attend a closing interview. With your permission, we will also invite your Trusted Ally (see [About my Trusted Ally](#)) to participate in your closing interview, and if they are able to join us they will also be thanked with a £50 Amazon voucher.

17. When will I receive my Amazon voucher/s?

You will be thanked for being a part of the trial with an Amazon voucher worth £50, sent to you by email or as a printed copy in the post (according to your preference), at the end of the three month trial in October.

You will also be able to access a further £50 Amazon voucher when you attend your closing interview, after the trial has finished. This voucher will be handed to you in person during the interview, or emailed if the interview is conducted using video chat.

You will be able to earn a total of £100 worth of Amazon vouchers over the course of the trial and closing interview.

18. What will happen at the end of the three months?

We will contact you one week beforehand in order to let you know that the trial will be ending. When the trial ends we will ask that you delete the app. We will then schedule a closing interview with you and, with your permission, we will invite your Trusted Ally.

During your closing interview we will ask some questions about your use of the app and gather your feedback. We expect this interview to take around 1 hour, and we would love to meet you face-to-face. If it's not possible to meet face-to-face, we will organise between us the most convenient way to have a video call.

19. What if I decide I want to stop using the app during the trial?

You can choose to stop using the app at any time during the trial.

If, at any time, you decide you want to disconnect your bank account information from Toucan, you can do so either by informing Toucan or by contacting your bank directly.

20. What if I decide I want to leave the trial before the end of the three months?

You can choose to leave the trial at any point during the three months. To do so, contact:

Toucan Support

research@usetoucan.com

About my opening interview

21. What will be discussed during our opening interview?

To begin the trial we'll book an opening interview with you, which we think will take around 1 hour of your time. We would love to meet you face-to-face, but if that's not possible, we will organise with you the most convenient way to have a video call.

With your consent, we will record your interview so that the Research Team can create a reliable transcript and review your feedback later.

During the opening interview we will ask you about how you manage your money and what you do currently to get support with money management. If you have someone you trust who helps you with money management, we'll ask you about your relationship with them and what kind of support you receive. We will also ask about your expectations around using the app and being a part of the trial.

We hope that our questions won't feel difficult to answer, but if you do not want to answer a question for any reason, you do not need to do so. You will be free to take a break during the interview or end the interview at any time.

About my privacy and data

22. Will my information be kept anonymous?

Yes, everything discussed during this study will be kept anonymous.

No one apart from the Research Team will know that what you say came from you, with the only exception being if something you say leads them to believe you or someone else is at risk of harm.

Any personal information that can identify you, such as your name or where you live, will be kept confidential and removed as part of the research process. All the information will be stored anonymously and securely by Toucan.

When the Research Team uses information from this trial in reports or academic papers they will not use your name or any personally identifiable information.

23. What will happen to my data if I sign up?

We will collect several different types of data during the trial.

During the opening and closing interviews we will collect video recordings of you using the app during the setup process. If interviews are conducted remotely, through video chat, we will record the audio of the interview.

During the three month trial we will collect materials or copies of materials generated by you, such as your completed journal notebook. We will also set up a WhatsApp or equivalent chat with you and we will collect the data you provide through that chat in order to process feedback. If you contact the Toucan team for support through emails or phone calls we will also record those interactions.

Lastly, we will collect data about your use of the app (for example, what alerts you set up or when an alert is triggered).

All of the data collected is stored securely by Toucan, according to their Data Protection Policy. You can request a copy of the Data Protection Policy at any time.

Toucan will store all personal and research data in an encrypted electronic format. Consent forms will be scanned and paper originals will be shredded. Interview recordings will be transferred from the audio recorder device into storage and encrypted immediately after the completion of each interview.

Summer Trial Factsheet – Trusted Ally

It's great that you're considering being a Trusted Ally for someone using Toucan. This factsheet will hopefully answer any questions you might have about participating in our research.

If you have any questions you can contact the Toucan research team (Bailey and Belén) anytime on the details below:

Toucan Support

research@usetoucan.com

They will aim to come back to you as soon as possible during working hours, which are 9am-6pm Monday-Friday (excluding Bank Holidays).

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About the App

1. What is Toucan?

Toucan is a new money management app (on both iPhone and Android) which makes it easier to see what's happening with your money and get support from someone you trust.

2. How does Toucan work?

The app securely connects to a person's bank account using Open Banking (see below for more details), which means that they will log into Toucan using their online banking credentials.

From there the app suggests smart alerts around their spending and gives them the option of automatically notifying a trusted family member or friend (a Trusted Ally) with a text message alert when there is unusual activity on their account.

3. What is Open Banking?

Open Banking is a technology built by banks to allow apps like Toucan to look at transactions. All major UK high street banks support this technology.

Toucan will only have permission to view a person's transactions when and if they give the app permission when setting up their account. The app will ask them to log into their online banking portal or use their banking app in order to authenticate Toucan as a trusted third party.

Toucan uses an FCA regulated body, OpenWrks, to complete this authentication so that the process is secure. OpenWrks is as secure as online banking, since Open Banking is extensively tested and regulated.

4. Is it safe to use Toucan?

When connecting to a bank account, Toucan can only see your transactions; the app cannot access money or move money between accounts.

In order to connect to a person's bank account, Toucan uses new technology called Open Banking (see above), provided by an FCA regulated provider, OpenWrks. OpenWrks is as secure as your online banking, since Open Banking is extensively tested and regulated. OpenWrks are regulated as an Account Information Services Provider (AISP) by the FCA, the same governing body that regulate banks.

5. What if I need help using the app?

If at any time you have questions or want to provide feedback, you can contact the Toucan research team (Bailey and Belén) on the details below:

Toucan Support

research@usetoucan.com

They will aim to come back to you as soon as possible during working hours, which are 9am-6pm Monday-Friday (excluding Bank Holidays).

About being a Trusted Ally

6. What is a Trusted Ally?

Many people would like to get extra support around money management from a trusted family member, friend or carer.

The Toucan app allows someone to set up a trusted person as their Trusted Ally, who will then receive alerts through text message if there is unusual spending activity on their bank account. Text message alerts will not give away any transaction or balance details; they will simply ask the Trusted Ally to check in with you to see if the person is alright.

If someone uses Toucan, setting up a Trusted Ally is optional.

When deciding who would be best to be a Trusted Ally, we ask people to think about who they might go to now when they want to talk about money matters. This might be a parent, a son or daughter, a spouse, a friend or someone else.

In an emergency, this is the sort of person that won't leave them hanging, or make a stressful situation worse. They should be OK with lending an ear when they are having money worries. They may or may not have advice, but the key is that they listen to and support the person.

7. What's expected of me as a Trusted Ally?

It's a good idea to have a chat with the person who wants you to be their Trusted Ally in order to make sure you're on the same page about what support you would be able to give if they experience unusual spending which triggers an alert.

Most often the best support you will be able to give is a friendly ear, whether that's by calling that person or going round to them for a cup of tea. Just by knowing that there is someone who isn't judgemental and wants to help, you'll be able to support that person with their money and mental health issues.

The most important thing a Trusted Ally should give is care, not cash. If you are concerned that you'll be asked to send money to this person if they are in financial difficulty, it's best to approach this topic with them before you agree to be their Trusted Ally.

If you have any questions about Toucan, our app or our research, please contact us on:

Toucan Support

research@usetoucan.com

8. What do I need to do to become a Trusted Ally?

To become a Trusted Ally, the person who is setting up the Toucan app will first send you an invite.

You will receive the invite as an email, and this email will explain some information about Toucan and what's involved in being a Trusted Ally.

In the invite email you will be asked to confirm your consent to become a Trusted Ally. If you do not give consent, you will not receive any alerts. If you do provide consent, you will receive text message alerts from Toucan only if the person using the app has spent an unusual amount or there is unusual activity on their account.

If you do receive a text message alert from Toucan it means that the person using the app needs your support. It might be a good idea to text or call them, just to make sure that they are OK.

9. Do I need to download the app to be a Trusted Ally?

No. You will receive text message alerts and do not need to download the app.

10. What if I don't want to be a Trusted Ally?

You can, of course, decide not to become a Trusted Ally if you are uncomfortable receiving alerts or providing support. In this case you can choose not to consent when you receive your invite email.

If you do not consent, Toucan will provide gentle feedback to the person using the app to let them know that you are not signed up as their Trusted Ally. It might also be a good idea for you to talk to them to help them understand why you decided not to consent.

11. What if I decide to stop being someone's Trusted Ally?

You can decide to stop receiving text message alerts, withdrawing consent to being someone's Trusted Ally, at any time during the three month trial. The best way to do this is to contact the team directly on:

Toucan Support

research@usetoucan.com

They will aim to stop alerts from being sent and inform you of this change as soon as possible during working hours, which are 9am-6pm Monday-Friday (excluding Bank Holidays).

If you decide to stop being someone's Trusted Ally we will let the person using the app know that this has changed. It might also be a good idea for you to talk to them to reassure them and help them understand why you withdrew consent.

About the research trial

12. What is the aim of the trial?

We are building a brand new money management app and need feedback in order to make decisions about how to improve or change it. We want to understand how people who need extra support with money management use the app so that we can understand any problems with it and make it better.

13. Who is running the trial?

The Toucan research team is running the trial, with Bailey Kursar leading this team. Toucan is a registered company (Toucan App Ltd., company registration number 11514165). Toucan is funded through grant funding, provided through a Nationwide Building Society programme called Open Banking for Good. Through Open Banking for Good, Toucan are also receiving support from the Money and Mental Policy Institute in the design and development of their app.

Toucan is also partnering with Belén Barros-Pena, a PhD researcher at Northumbria University, who will be collecting feedback for her own research into the role of trusted collaborators and light oversight in improving the financial wellbeing of people living with mental health conditions.

14. What is involved in the trial?

The trial will take place over three months, ideally between July and October. During that time the person using the app will set up and use the app and will be asked to provide feedback about it.

To begin the trial we'll book an opening interview with the person using the app. To test the app, we'll ask them to securely connect to their bank account and set up at least one alert around their spending. We'll also ask them to set up a Trusted Ally who will receive these alerts automatically. During the three month trial, we'll ask them for feedback about the app, their relationship with their Trusted Ally and their finances.

At the end of the three month trial, in October, we will organise a closing interview to find out their overall thoughts about the app. In this closing interview we will also invite you, as a Trusted Ally, to participate and will offer you an Amazon voucher worth £50 if you are able to join the interview.

15. How can I give feedback about being a Trusted Ally during the trial?

We would love to hear your feedback, both positive and negative, about being a Trusted Ally. The best way to do this is to contact the team directly on:

Toucan Support

research@usetoucan.com

If you prefer, let us know and we can set up a WhatsApp conversation or similar for you to provide more ongoing feedback.

At Toucan we care about advocating for better financial services products across the industry. We hope that your feedback will help us influence how banking apps are built not just by our team, but by major high street banks with millions of customers.

16. How will I benefit from being a part of the trial?

By taking part in our trial you'll also be helping to develop an app that's designed to help people experiencing money and mental health problems.

We will also offer you an Amazon voucher worth a further £50 if, in October, you are able to attend a closing interview. We expect this interview to take around 1 hour and we are happy to either come to you or arrange a video call or similar.

During the closing interview we will ask questions about your experiences being a Trusted Ally and ask for feedback as to how we can improve the app or alerts.

17. What will happen at the end of the three months?

We will contact you one week beforehand in order to let you know that the trial will be ending. When the trial ends you will no longer receive text message alerts if there is unusual spending or account activity for the person who used the app.

We will then schedule a closing interview with you, with the permission of the person using the app.

During your closing interview we will ask some questions about being a Trusted Ally, what kind of support you might have offered and to gather your feedback. We expect this interview to take around 1 hour, and we would love to meet you face-to-face. If it's not possible to meet face-to-face, we will organise between us the most convenient way to have a video call.

About the closing interview

18. What will be discussed during the closing interview?

During the closing interview we will ask you about being a Trusted Ally, your relationship with the person using the app, your experience of Toucan's alerts and about any money management support you have offered. We will also ask for your feedback as to how we could improve the app or experience for either you or the person you're supporting.

We hope that our questions won't feel difficult to answer, but if you do not want to answer a question for any reason, you do not need to do so. You will be free to take a break during the interview or end the interview at any time.

We would love to meet you face-to-face, but if that's not possible, we will organise with you the most convenient way to have a video call.

With your consent, we will record your interview so that the Research Team can create a reliable transcript and review your feedback later.

As a thank you for being able to join the closing interview you will receive an Amazon voucher worth £50.

About my privacy and data

19. Will my information be kept anonymous?

Yes, everything discussed during this study will be kept anonymous.

No one apart from the Research Team will know that what you say came from you, with the only exception being if something you say leads them to believe you or someone else is at risk of harm.

Any personal information that can identify you, such as your name or where you live, will be kept confidential and removed as part of the research process. All the information will be stored anonymously and securely by Toucan.

When the Research Team uses information from this trial in reports or academic papers they will not use your name or any personally identifiable information.

20. What will happen to my data if I sign up?

We will collect several different types of data during the trial.

During the opening and closing interviews we will collect video recordings of you using the app during the setup process. If interviews are conducted remotely, through video chat, we will record the audio of the interview.

During the three month trial we will collect materials or copies of materials generated by you, such as your completed journal notebook. We will also set up a WhatsApp or equivalent chat with you and we will collect the data you provide through that chat in order to process feedback. If you contact the Toucan team for support through emails or phone calls we will also record those interactions.

Lastly, we will collect data about your use of the app (for example, what alerts you set up or when an alert is triggered).

All of the data collected is stored securely by Toucan, according to their Data Protection Policy. You can request a copy of their Data Protection Policy at any time.

Toucan will store all personal and research data in an encrypted electronic format. Consent forms will be scanned and paper originals will be shredded. Interview recordings will be transferred from the audio recorder device into storage and encrypted immediately after the completion of each interview.

Trial Factsheet – Closing Interview

Thank you for being a part of our three month trial. Now that we’re approaching the end and planning for your closing interview, this factsheet will hopefully answer any questions you might have about this next step.

If you have any questions you can contact the Toucan research team (Bailey and Belén) anytime on the details below:

Toucan Support

research@usetoucan.com

They will aim to come back to you as soon as possible during working hours, which are 9am-6pm Monday-Friday (excluding Bank Holidays).

1. What is the aim of the closing interview?	1
2. Who will be involved in the closing interview?	1
3. What will I get for being able to join a closing interview?	2
4. How long will the closing interview be?	2
5. How will we conduct the closing interview?	2
6. What will be discussed during the closing interview?	2
7. What will happen next? Can I still use the app?	2

1. What is the aim of the closing interview?

We are building a brand new money management app and need feedback in order to make decisions about how to improve or change it.

In your closing interview we want to get your valuable feedback about what to improve or change about the Toucan app or experience.

With your permission, we would also love to invite your Trusted Ally to be a part of your closing interview in order to get their feedback.

2. Who will be involved in the closing interview?

The Toucan Research Team is running the closing interviews, with Bailey Kursar leading this team. Toucan is a registered company (Toucan App Ltd., company registration number

11514165). Toucan is funded through grant funding, provided through a Nationwide Building Society programme called Open Banking for Good.

Toucan is partnering with The Money and Mental Health Policy Institute in the design and development of their app. Toucan is also partnering with Belén Barros-Pena, a PhD researcher at Northumbria University, who will be collecting feedback for her own research into the role of trusted collaborators and light oversight in improving the financial wellbeing of people living with mental health conditions.

3. What will I get for being able to join a closing interview?

As a thank you for attending your closing interview we are offering an Amazon voucher worth £50. This is on top of any incentive you will receive or have received for being a part of the trial of the app.

4. How long will the closing interview be?

We expect this interview to take around 1 hour and we are happy to either come to you or arrange a video call or similar.

5 How will we conduct the closing interview?

We would love to meet you face-to-face, but if that's not possible, we will organise with you the most convenient way to have a video call.

With your consent, we will record your interview so that the Research Team can create a reliable transcript and review your feedback later.

6. What will be discussed during the closing interview?

During the closing interview we will ask you about how you found using the app and ask for your feedback as to how we can improve or change the app or experience. We'll also ask about your relationship with your Trusted Ally and about what kind of support they've been able to offer.

We hope that our questions won't feel difficult to answer, but if you do not want to answer a question for any reason, you do not need to do so. You will be free to take a break during the interview or end the interview at any time.

If your Trusted Ally is able to join, we will ask them about their relationship with you and their experience of Toucan's alerts. We will also ask for their feedback as to how we could improve the app or experience. If a Trusted Ally is able to join, we will thank them with a separate Amazon voucher worth £50.

7. What will happen next? Can I still use the app?

Unfortunately at the end of the trial we will not be able to continue supporting use of the app. We hope to release a new version of the app that you will be able to use on an ongoing basis towards the end of 2019.

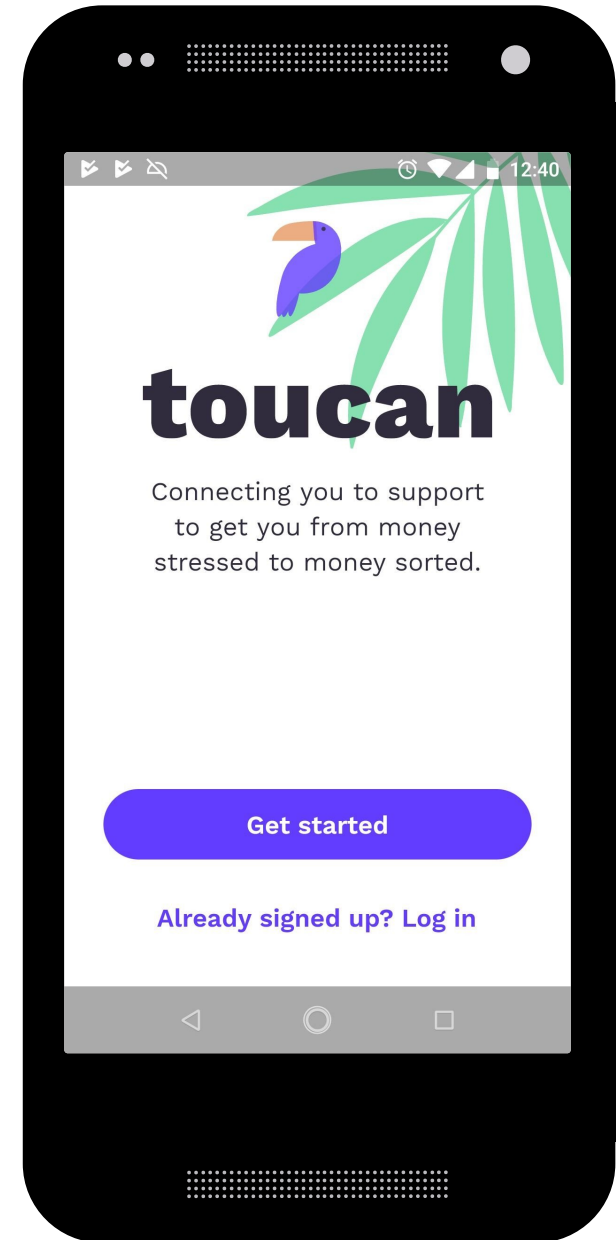
We will contact you one week before the end of the trial in order to let you know that the trial will be ending. When the trial ends you will no longer be able to use the app and will no longer receive text message alerts if there is unusual spending or account activity. Your Trusted Ally will also stop receiving these alerts.

How to install the Toucan app on your Android phone

Questions, feedback? Get in touch

Email: research@usetoucan.com

Call: 07834 777 596

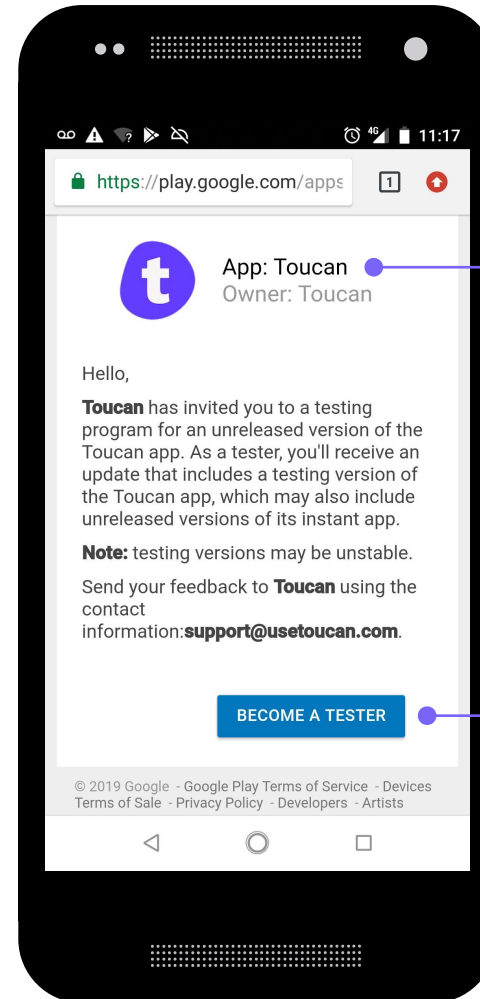


Step 1 - Tap on the test link

Tap on the test link you have received via WhatsApp.

When your browser opens, you may be asked to log into your Google account.

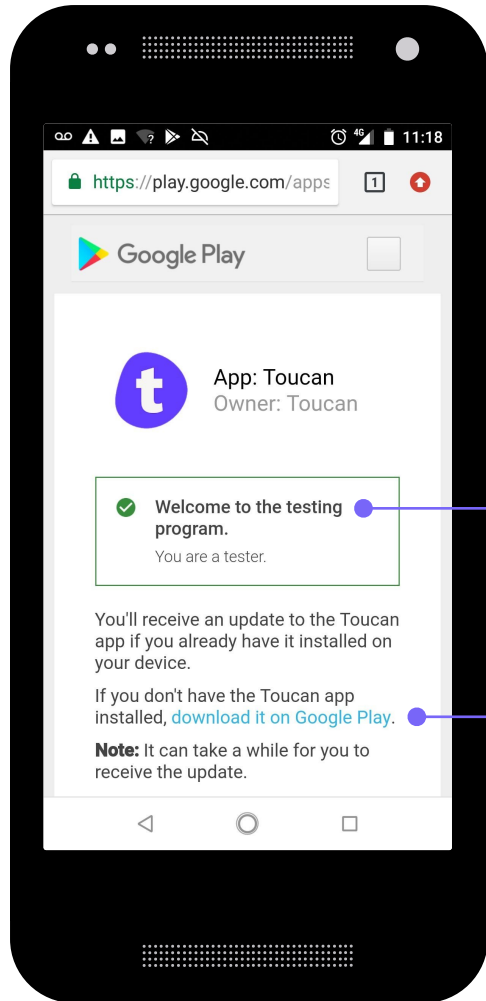
Step 2 - Become a Toucan tester



Your browser will show you an invitation to join the Toucan tester program.

Tap the "Become a tester" button you'll find at the bottom of the page.

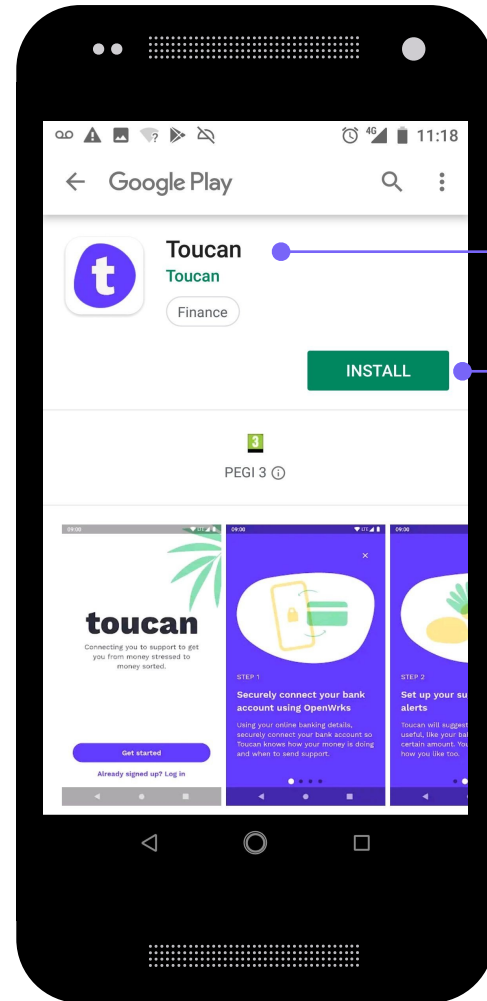
Step 3 - Tap on the download link



You will see a message to welcome you to the Toucan testing program.

To download the Toucan app, tap the "download it on Google Play" link.

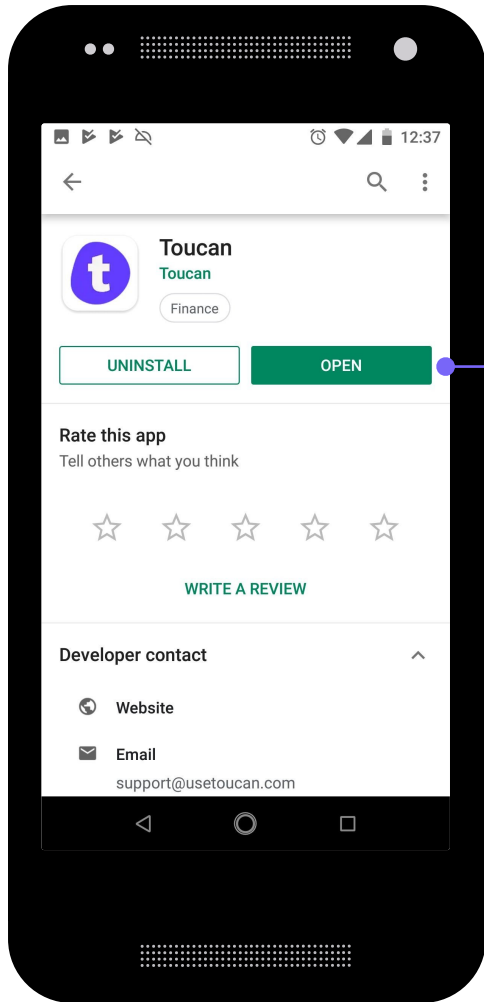
Step 4 - Install the Toucan app



Google Play will show you the Toucan app page.

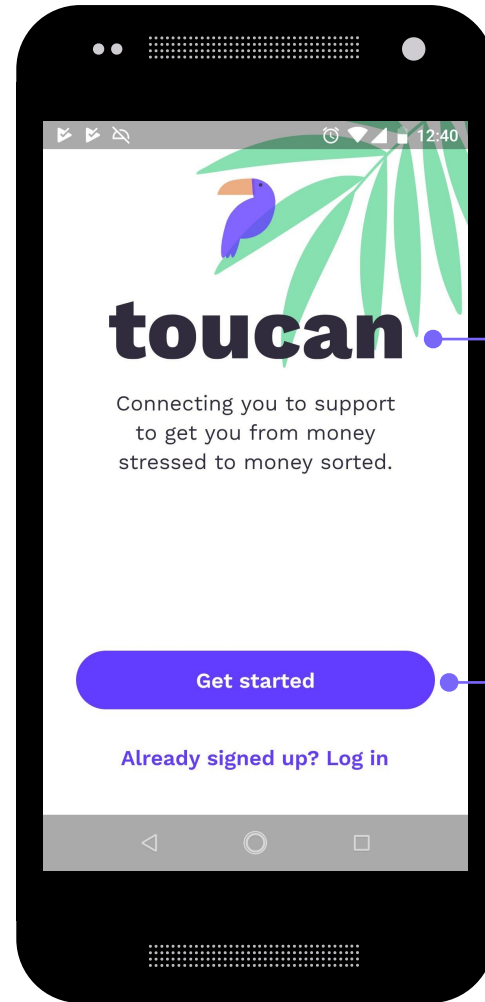
Tap the "Install" button to start the installation process.

Step 5 - Open the Toucan app



Once the installation is complete, you will see the "Open" button. Tap it to open the Toucan app.

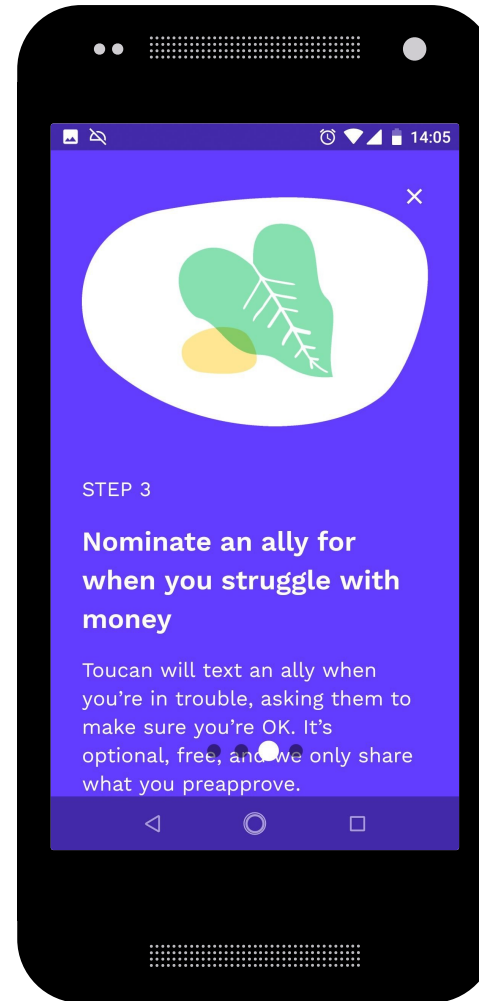
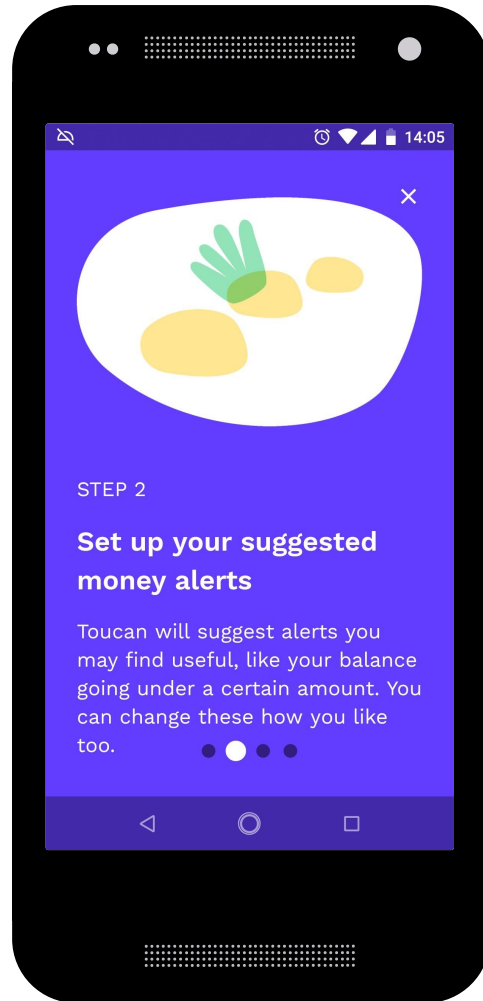
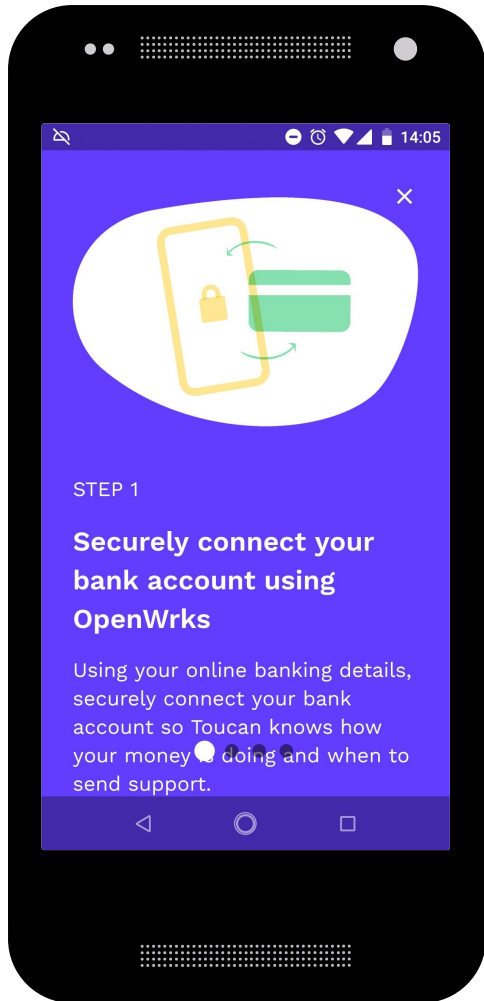
Step 6 - Get started



This is the welcome screen of the Toucan app.

Tap the "Get started" button to start the setup process.

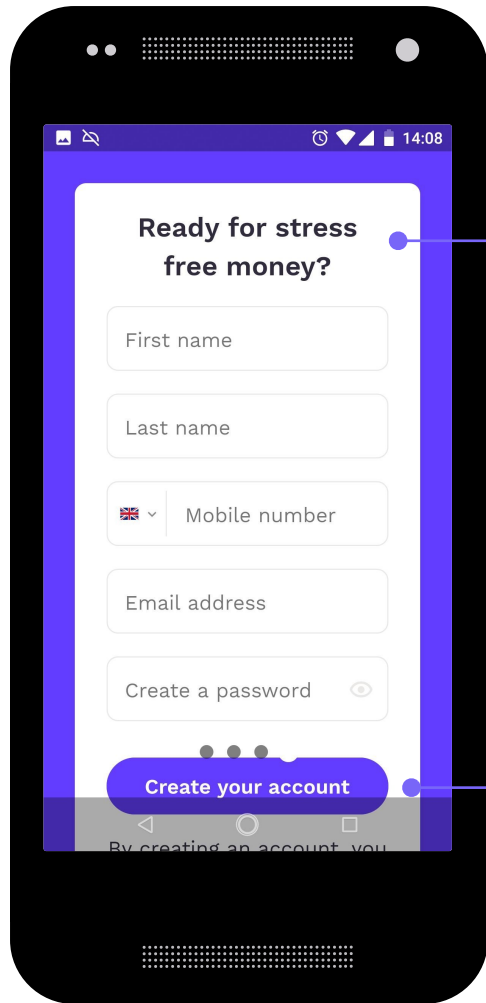
Step 7 - Swipe left and read through the information



Swipe left twice and read through the three information screens.

Once you are done reading, swipe left a third time.

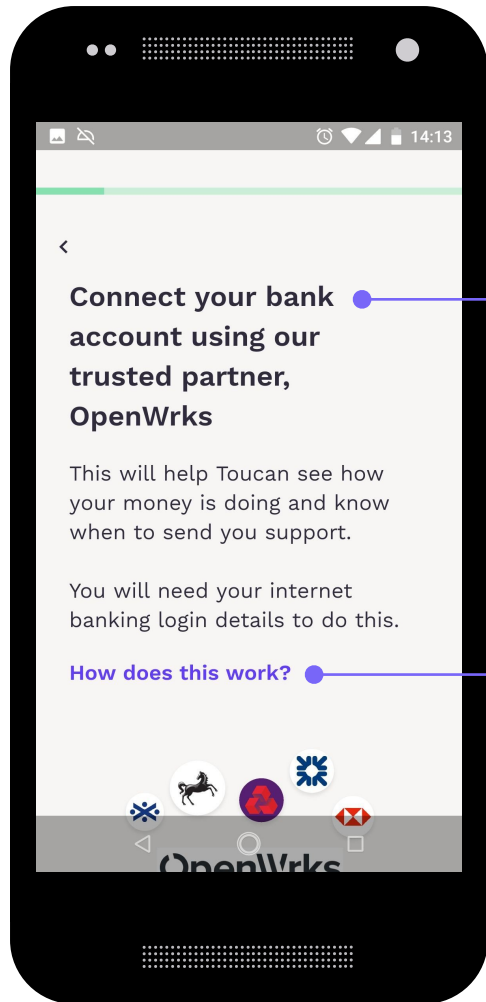
Step 8 - Create your account



On your 3rd swipe you will arrive to this screen, where you will create your Toucan account.

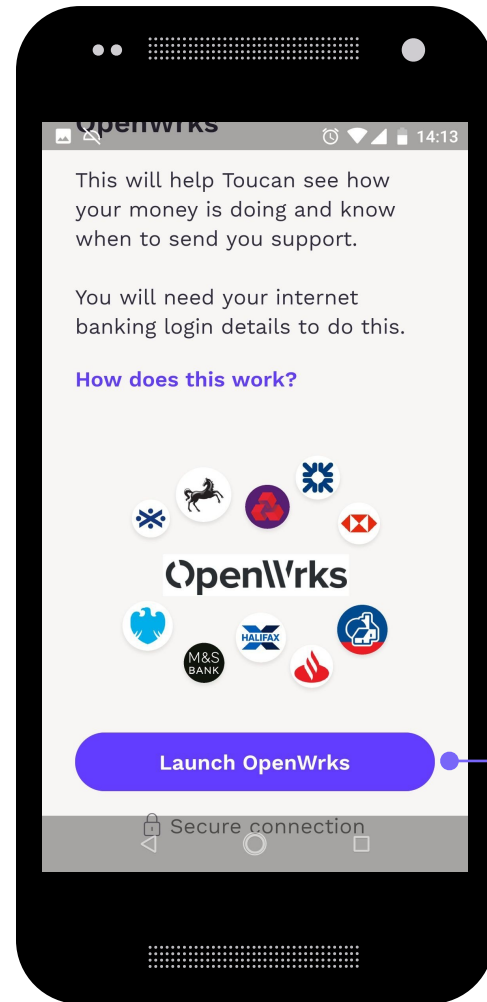
Enter the information requested and, when finished, tap the "Create your account" button.

Step 9 - Launch OpenWrks



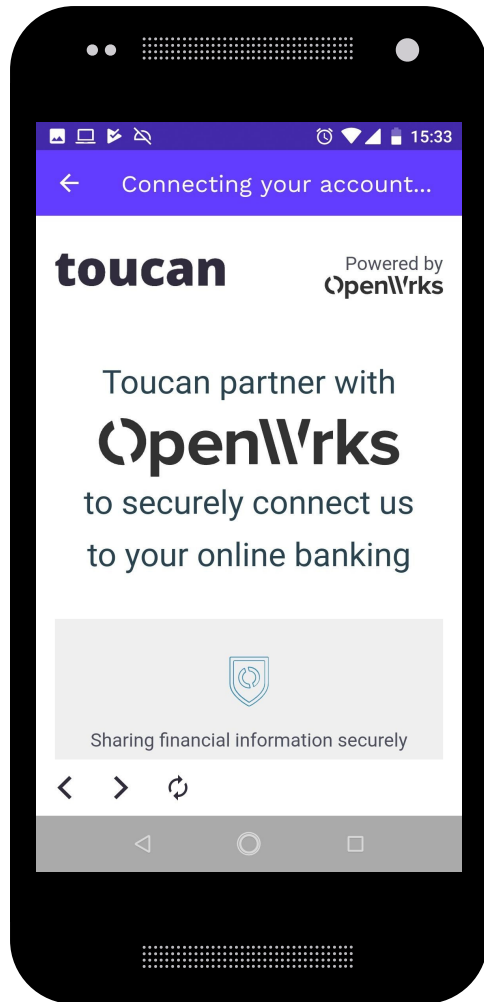
The next screen will tell you about connecting your bank account to the Toucan app via OpenWrks.

If you want more details, tap the "How does this work?" link, which will show you additional information.



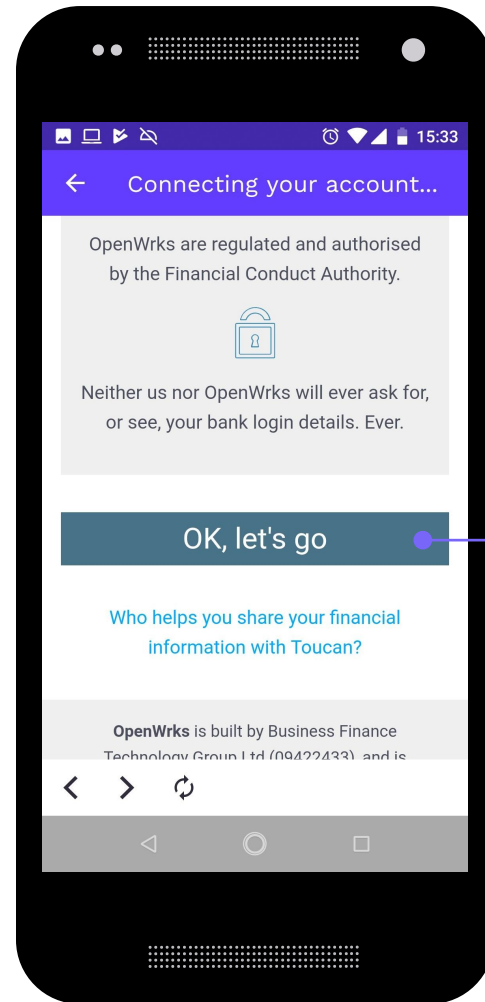
When you are happy to proceed, tap the "Launch OpenWrks" button.

Step 10 - Read about OpenWrks



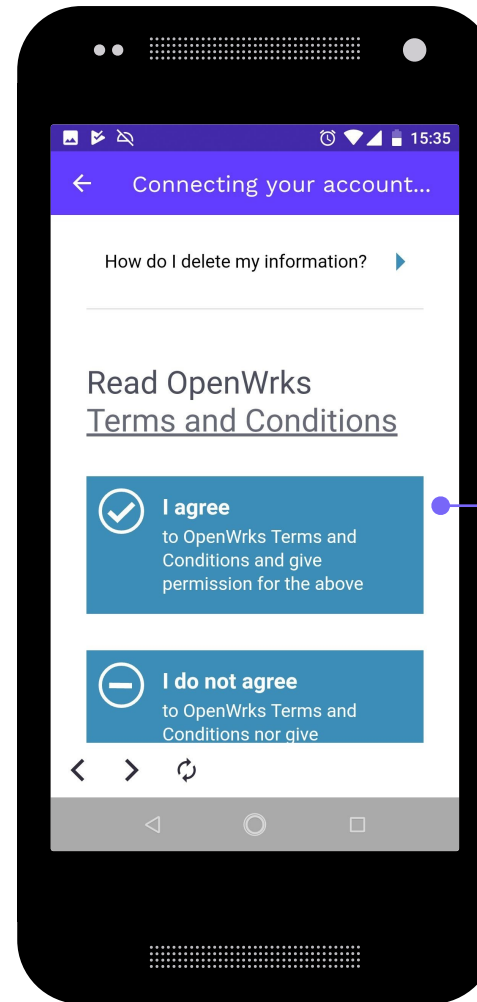
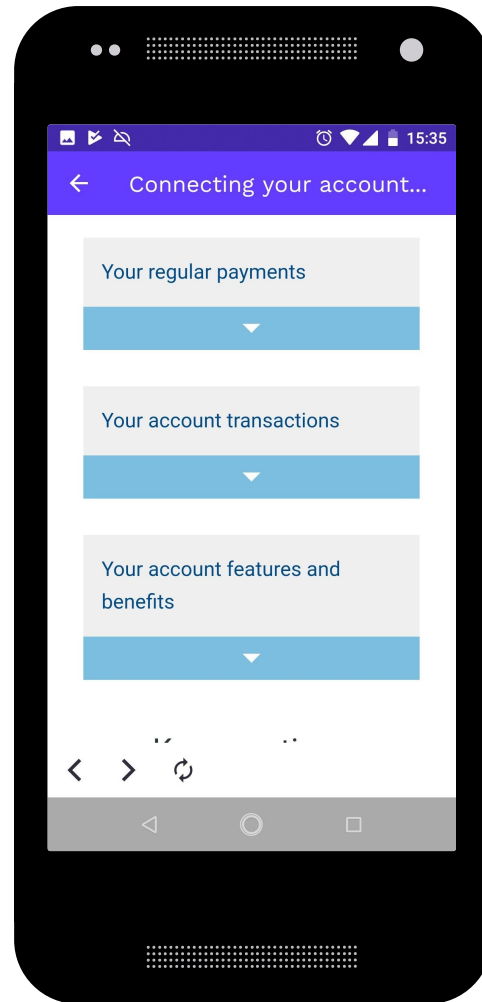
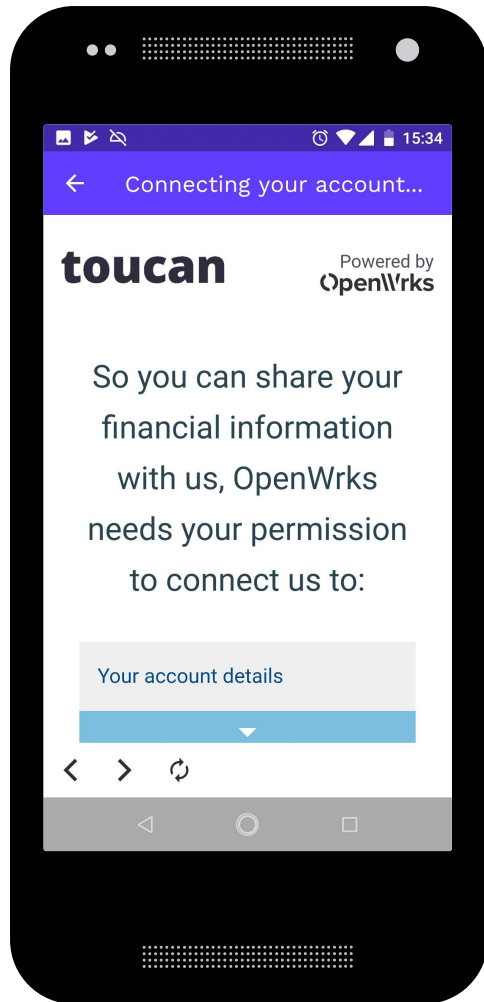
This screen will give you more information about OpenWrks.

Scroll down to learn about how OpenWrks allows you to share financial information securely, how they are approved by the Financial Conduct Authority, and about the confidentiality of your bank login details.



When you are happy to proceed, tap the "OK, let's go" button.

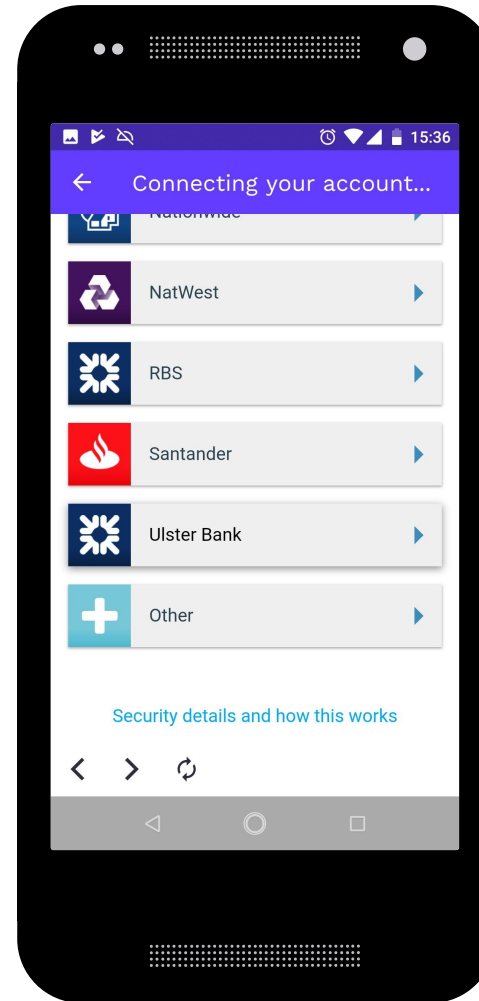
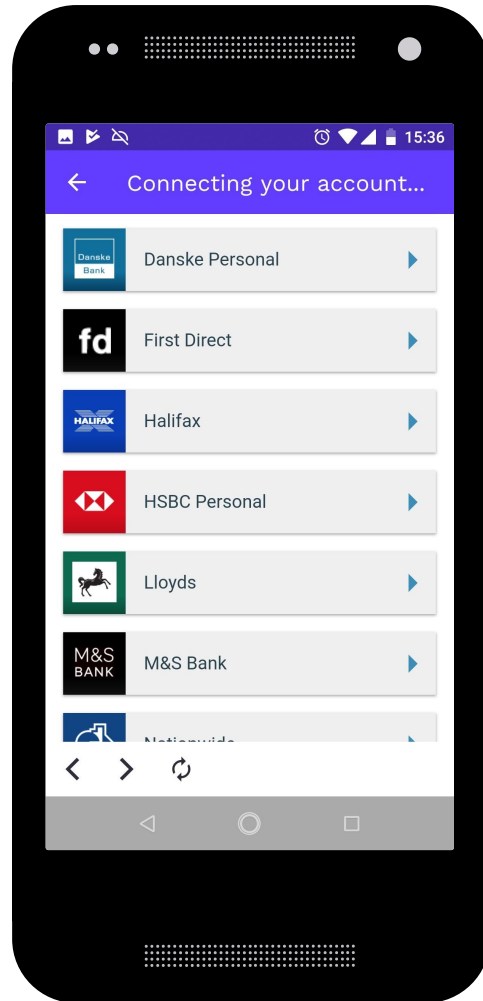
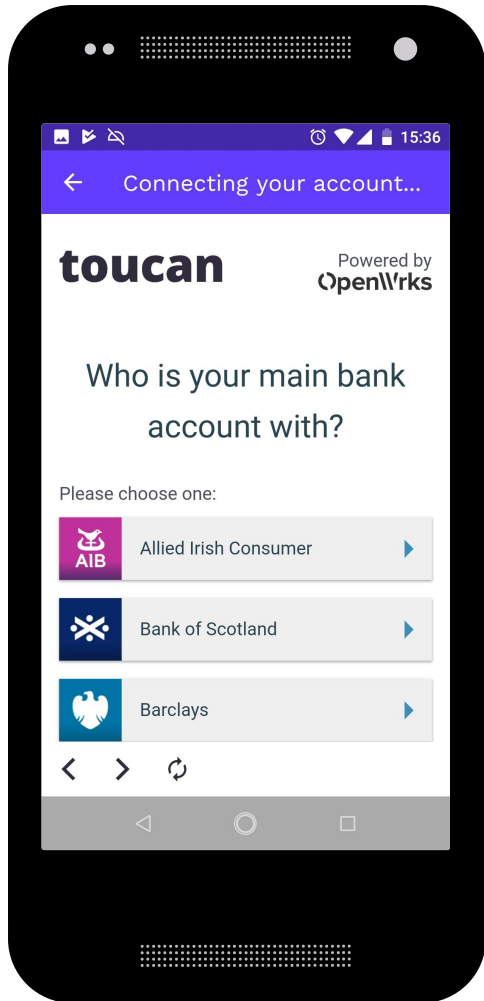
Step 11 - Agree to the OpenWrks terms and conditions



In this screen OpenWrks explains the permissions it requires from you.

If you are happy to proceed, scroll down to the bottom of the screen and agree to the OpenWrks terms and conditions.

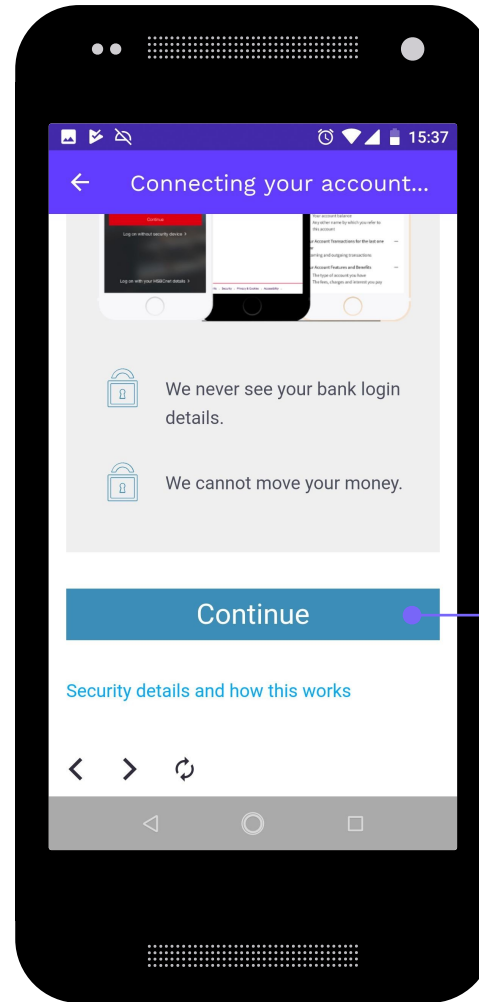
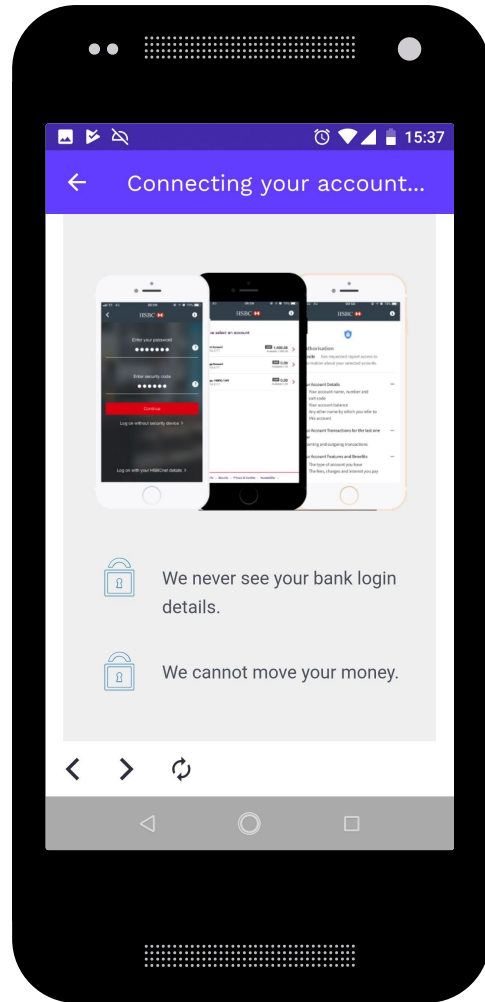
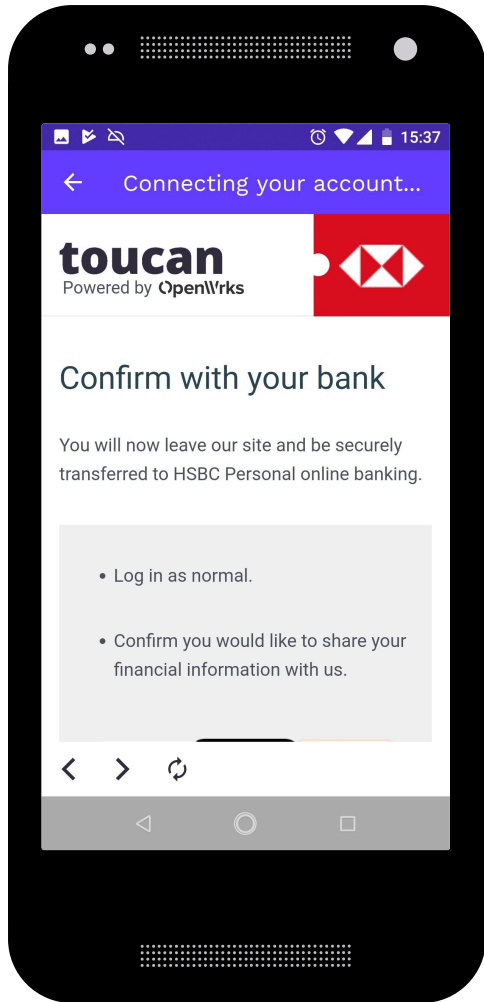
Step 12 - Select your bank



Select your bank from the list provided.

We will use HSBC as an example.

Step 13 - You will be transferred to your bank

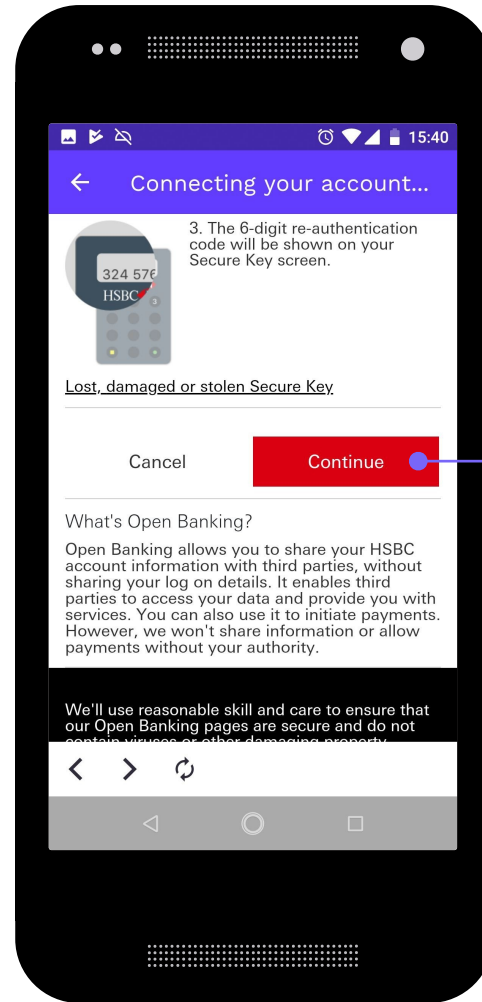
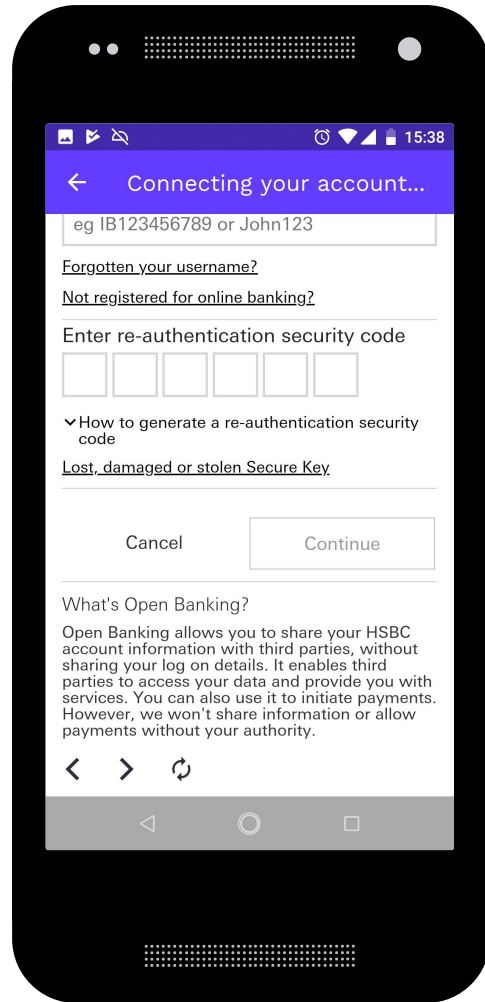
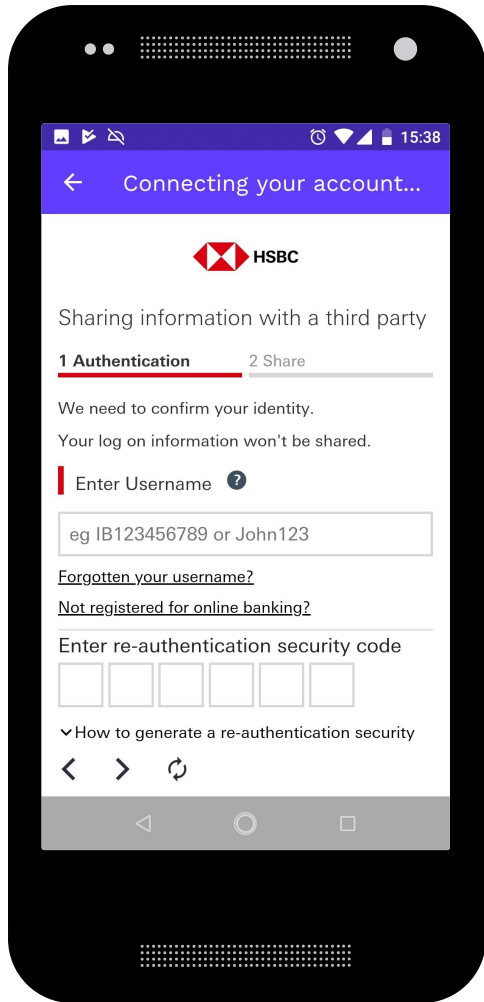


This screen lets you know that you will be transferred to your bank in the next step.

It also reminds you that neither OpenWrks nor Toucan will see your bank login details, or will be allowed to access your money.

When you are happy to proceed, tap the "Continue" button.

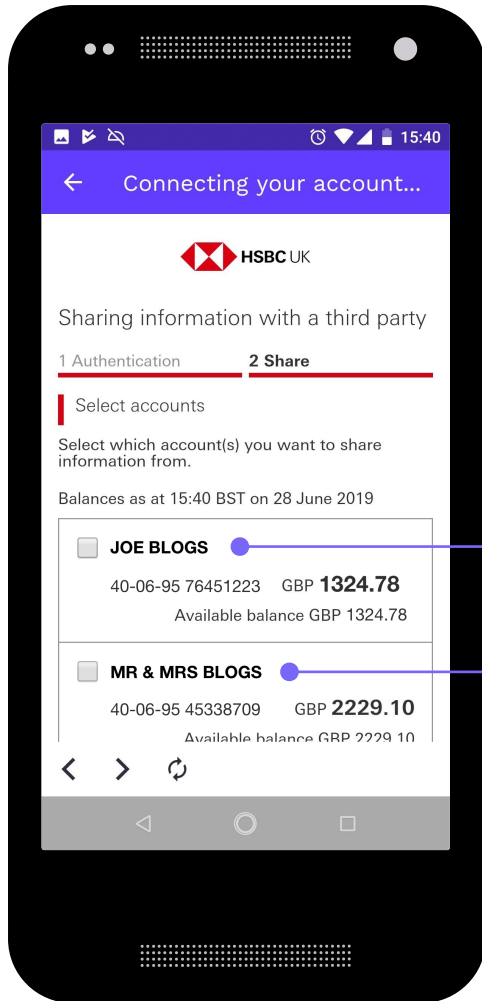
Step 14 - Log in to your online banking



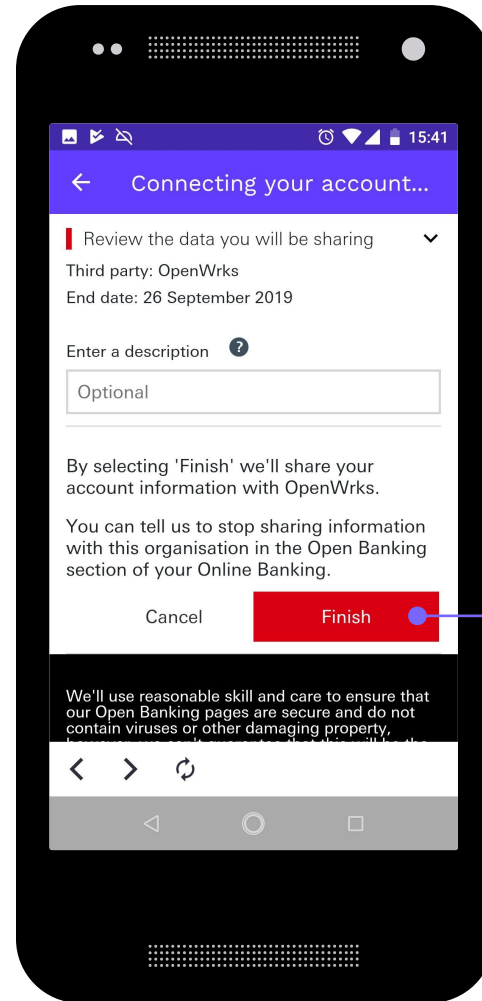
In this screen you will need to provide your online banking login details. The screen will be different for each bank. The examples here show how the screen looks like if you bank with HSBC.

Once you have entered your login details, the "Continue" button will become enabled. Tap it to proceed to the next step.

Step 15 - Select bank account(s)

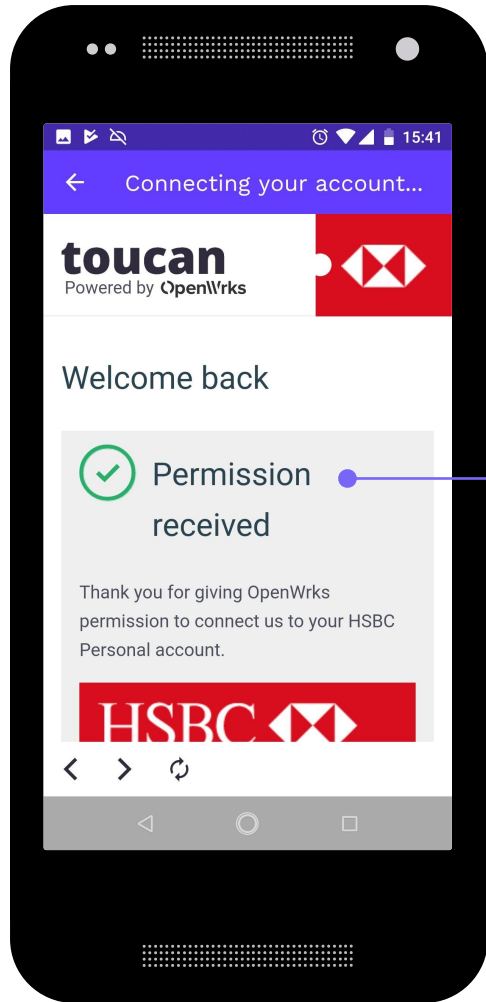


Select the bank account(s) you want to connect to the Toucan app via OpenWrks.



Once you have selected the account(s), tap the "Finish" button to proceed.

Step 16 - Confirmation from OpenWrks

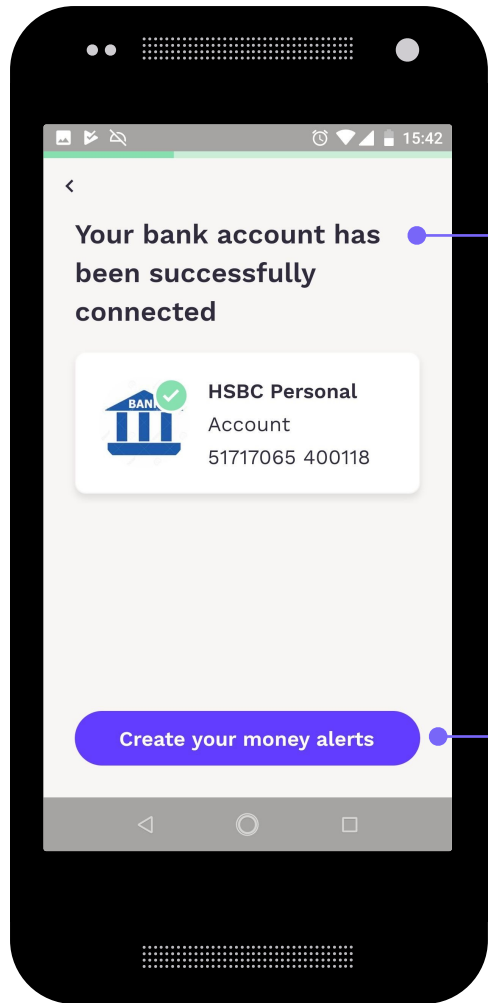


OpenWrks will now show you a message confirming the Toucan app has received your permission to connect your selected bank account(s).



Scroll down and tap the "Excellent, let's go" button to proceed.

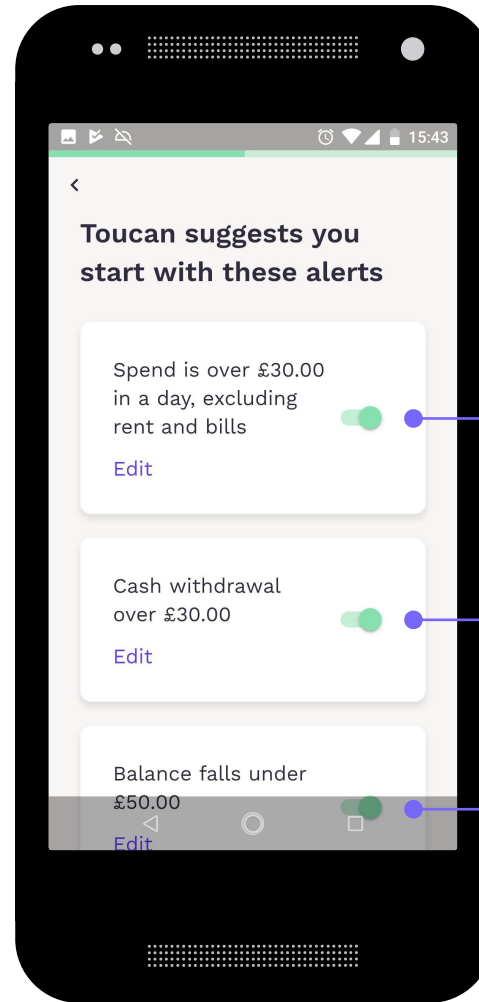
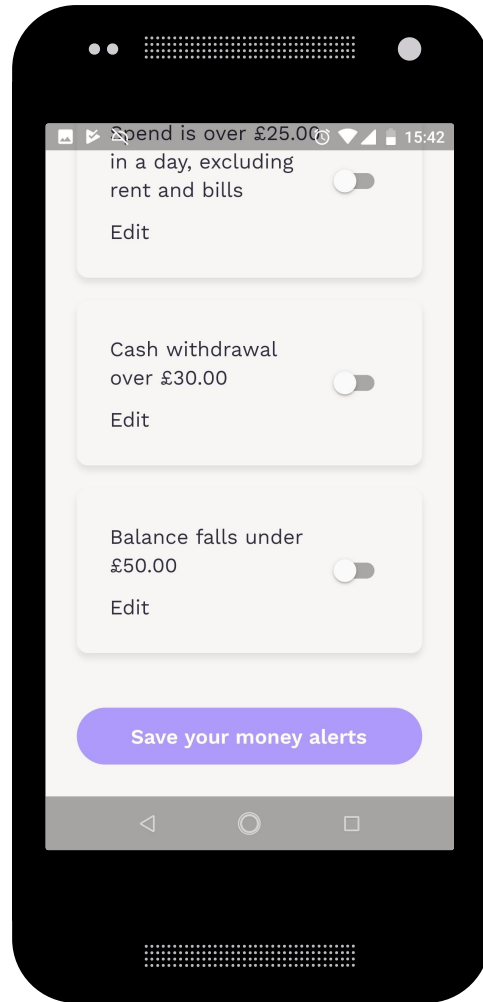
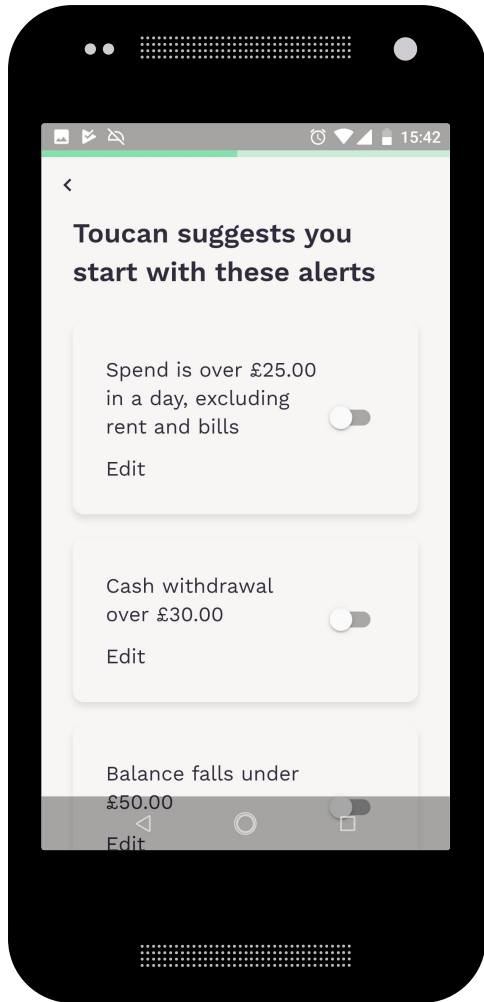
Step 17 - Start the money alerts setup



You are now back in the Toucan app, which will also confirm that your bank account(s) have been connected.

You are ready to set up your money alerts. Tap the "Create your money alerts" button to start the process.

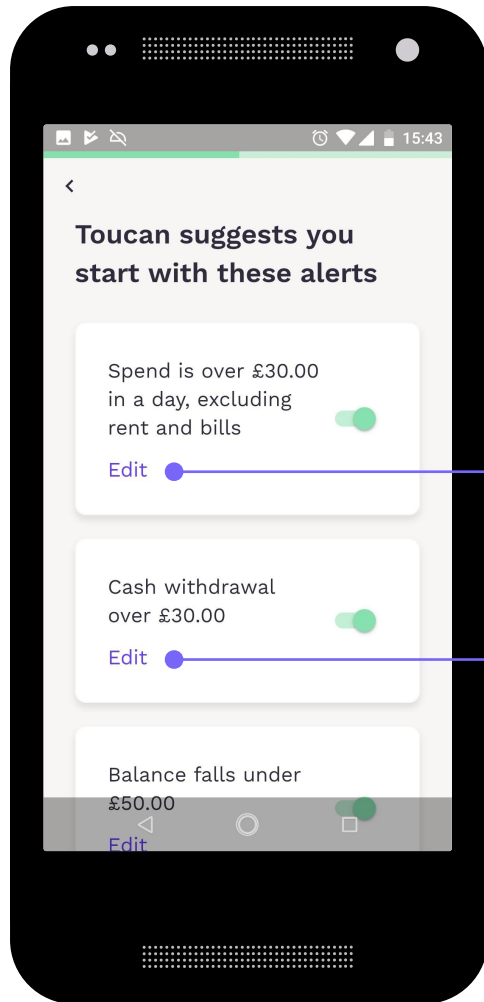
Step 18 - Turn on money alerts



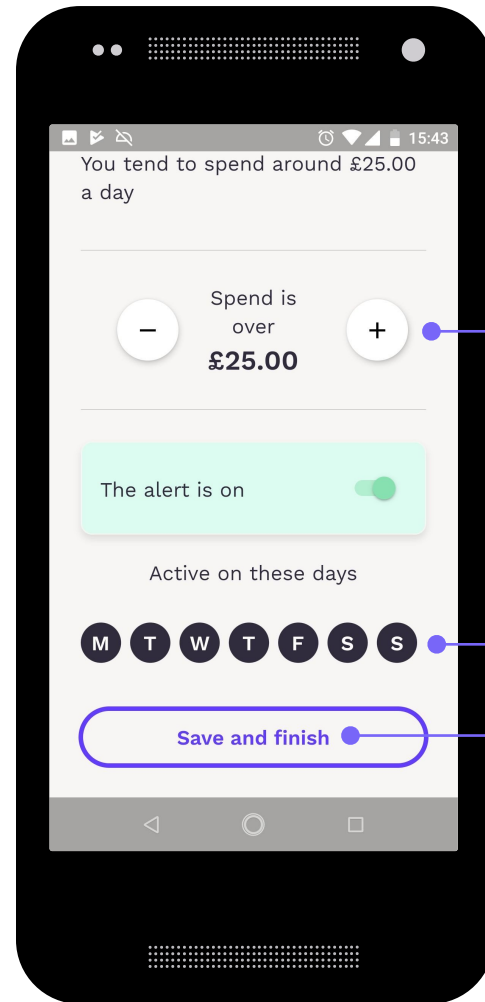
Toucan will now show you the three money alerts available: spending alert, cash withdrawal alert and balance alert.

Select the money alerts you would like to turn on.

Step 19 - Edit money alerts



Once you have turned on a money alert you can tap the "Edit" link to configure it.

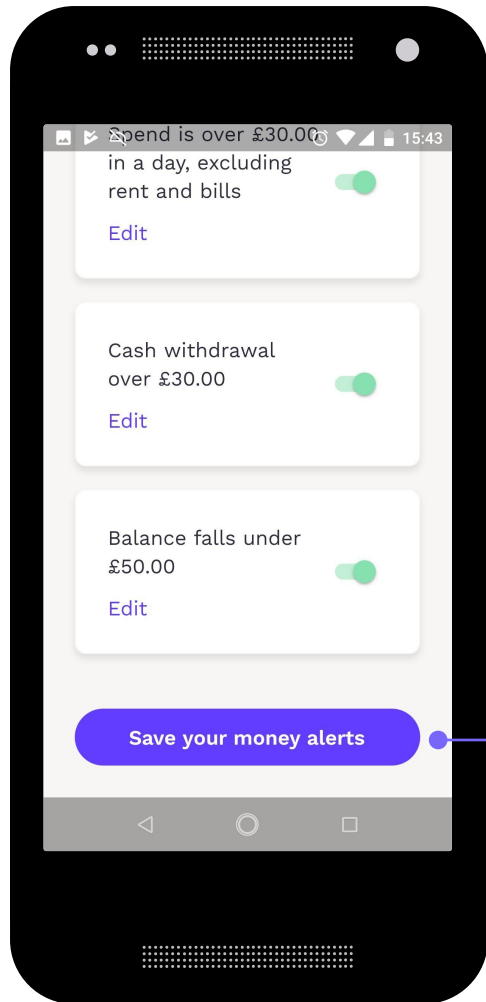


Use the "+" and "-" buttons to modify the amount that triggers the alert.

Use the weekday buttons to select which days you want the alert to be active.

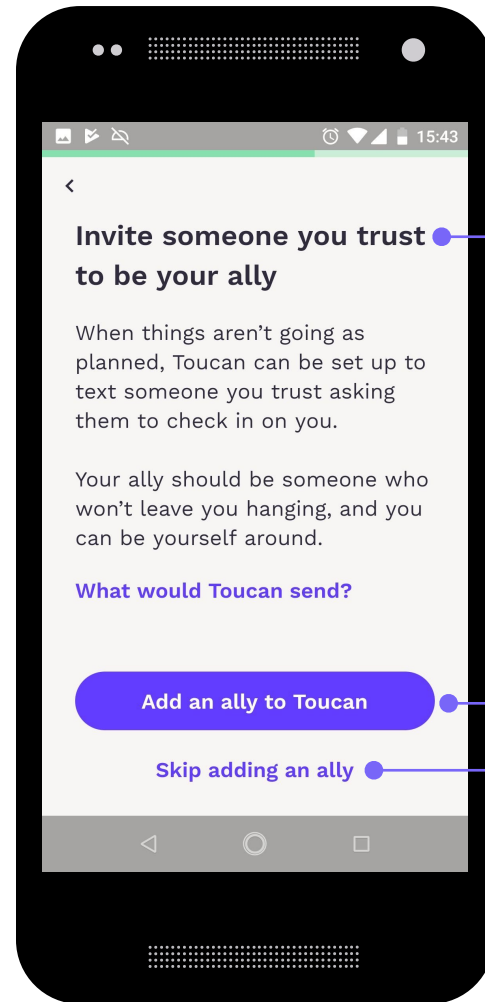
When you finish configuring your alert, tap the "Save and finish" button.

Step 20 - Save your money alerts



Once you are done configuring your money alerts, tap the "Save your money alerts" button.

Step 21 - Add an ally

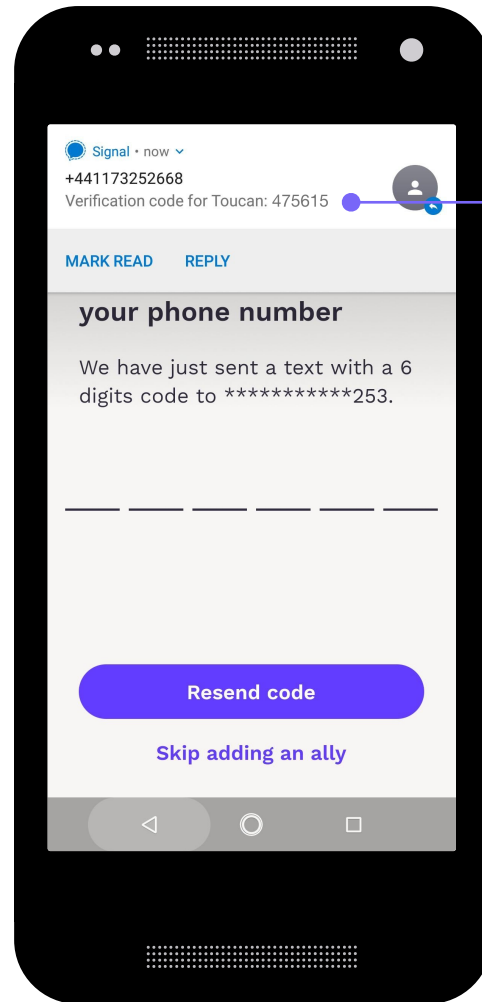
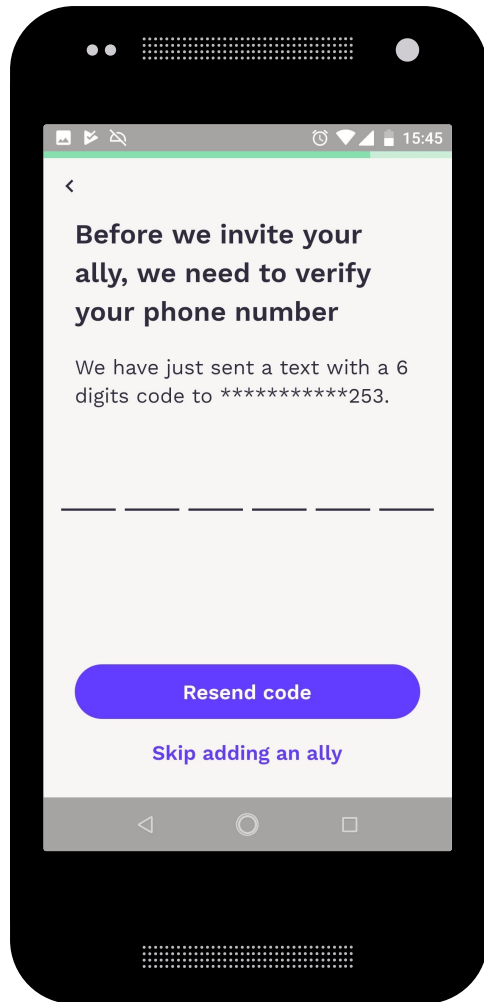


Toucan will now invite you to share your money alerts with a trusted ally.

To set up a trusted ally tap the "Add an ally to Toucan" button.

If you don't want to set up a trusted ally, tap the "Skip adding an ally" link.

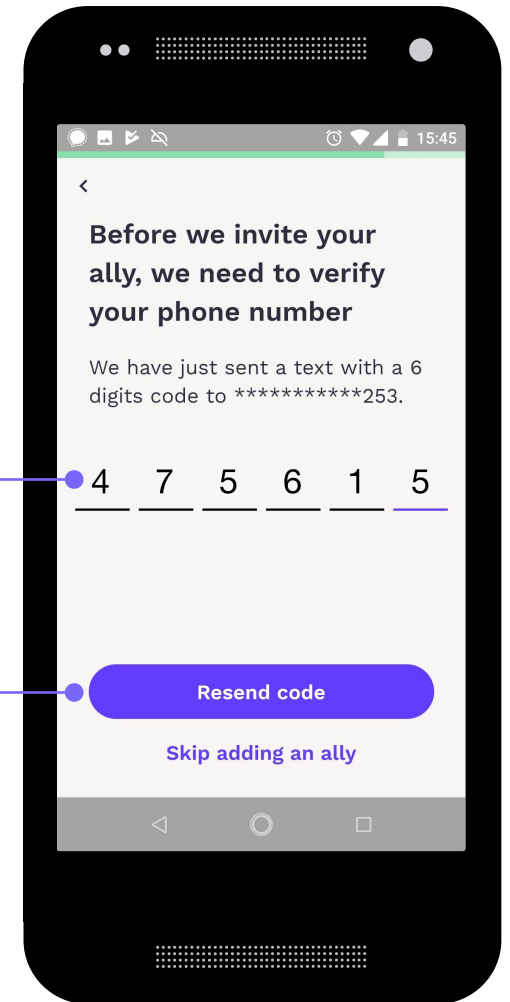
Step 22 - Verify your phone number



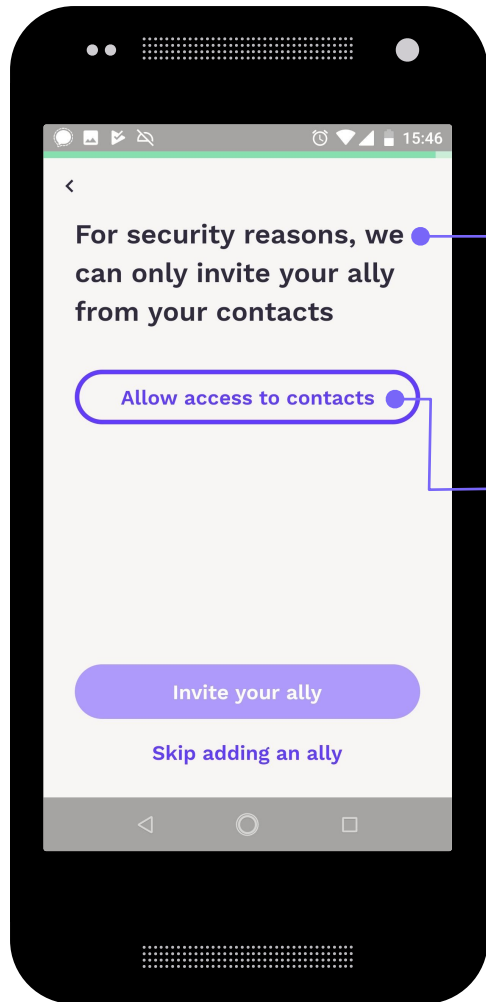
Toucan will ask you to verify your phone number. To do that, Toucan will send you a 6-digit verification code via text message.

Type the verification code on the screen.

If you don't receive the verification code, or you need a new code, tap the "Resend code" button.



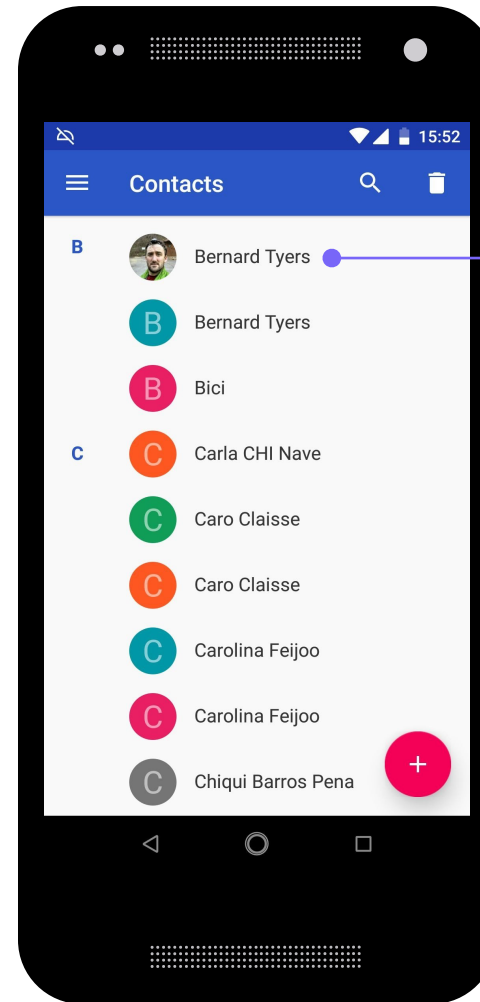
Step 23 - Let Toucan access your contacts



Toucan will only allow you to choose an ally from your contact list.

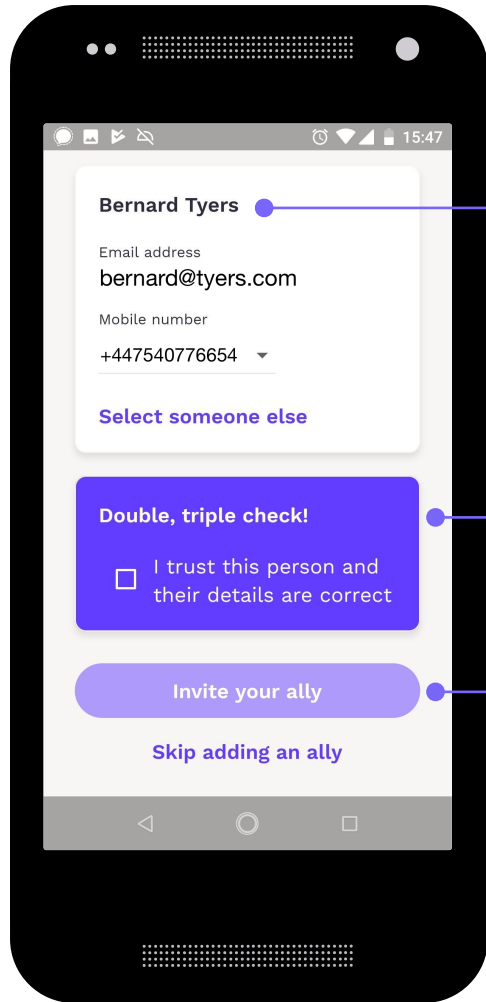
Tap the "Allow access to contacts" button to give Toucan permission to access your contact list.

Step 24 - Select a contact



Your contact list will appear. Select your ally from the contact list.

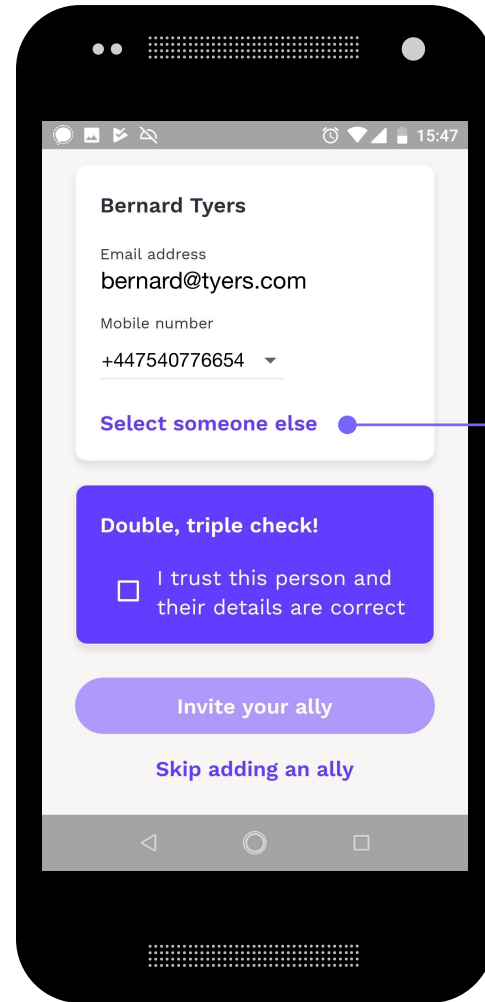
Step 25 - Confirm your ally



Toucan will ask you to confirm this is the contact you want to set as your ally.

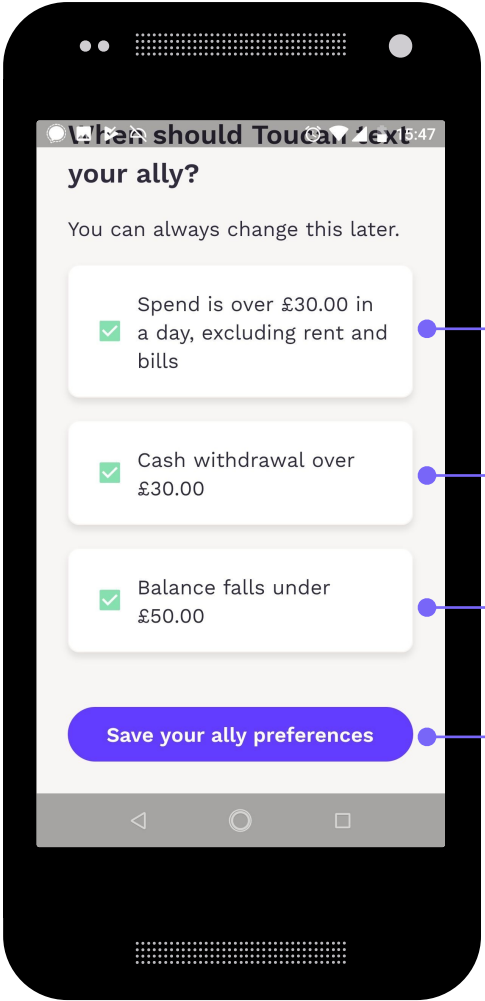
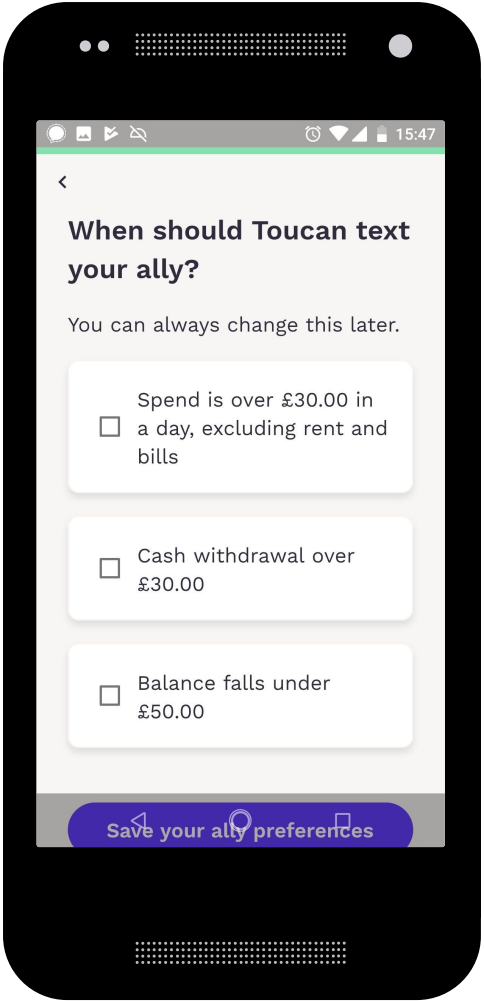
Tap the confirmation check box.

Then tap the "Invite your ally" button.



To change the selected contact tap the "Select someone else" link.

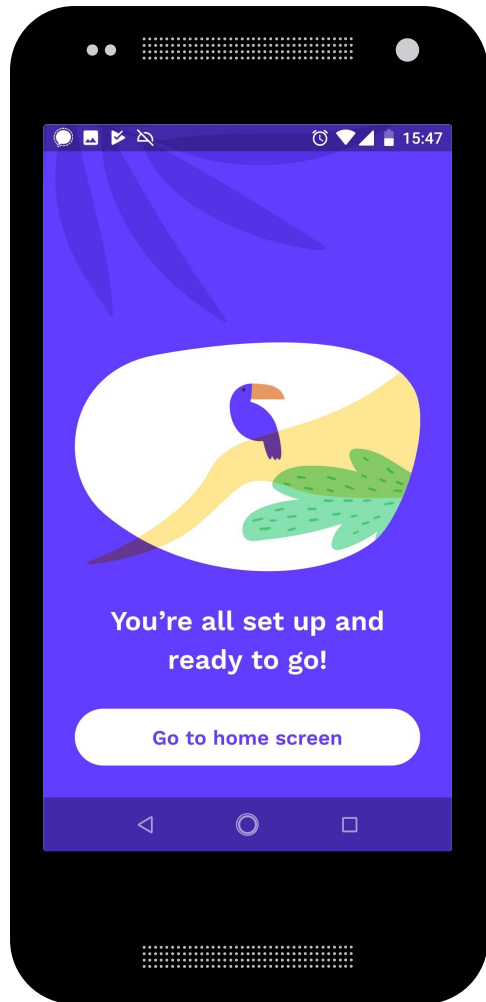
Step 26 - Select which money alerts you want to share with your ally



Select which money alerts you want your ally to receive by tapping on the corresponding checkboxes.

When you are done, tap the "Save your ally preferences" button.

You are done! :-)



You are done! :-)

Thank you so much for staying with us and making it all the way.

We can't wait to hear what you have to say about Toucan.

How to install the Toucan app on your iPhone

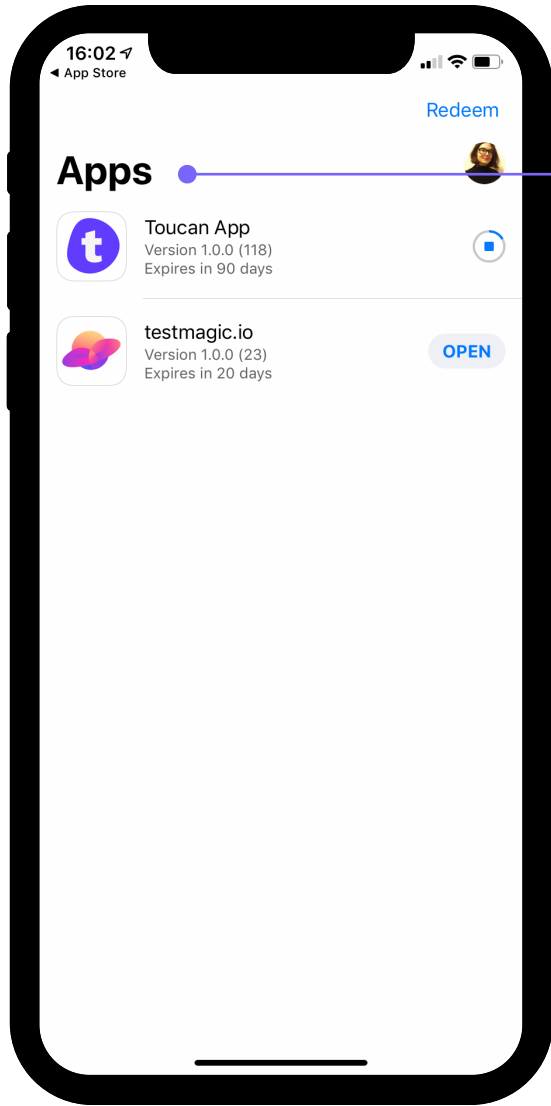
Questions, feedback? Get in touch

Email: research@usetoucan.com

Call: 07834 777 596



Step 1 - Install Toucan and TestFlight



Tap on the test link you have received via WhatsApp and install the 2 applications listed: Toucan and TestFlight.

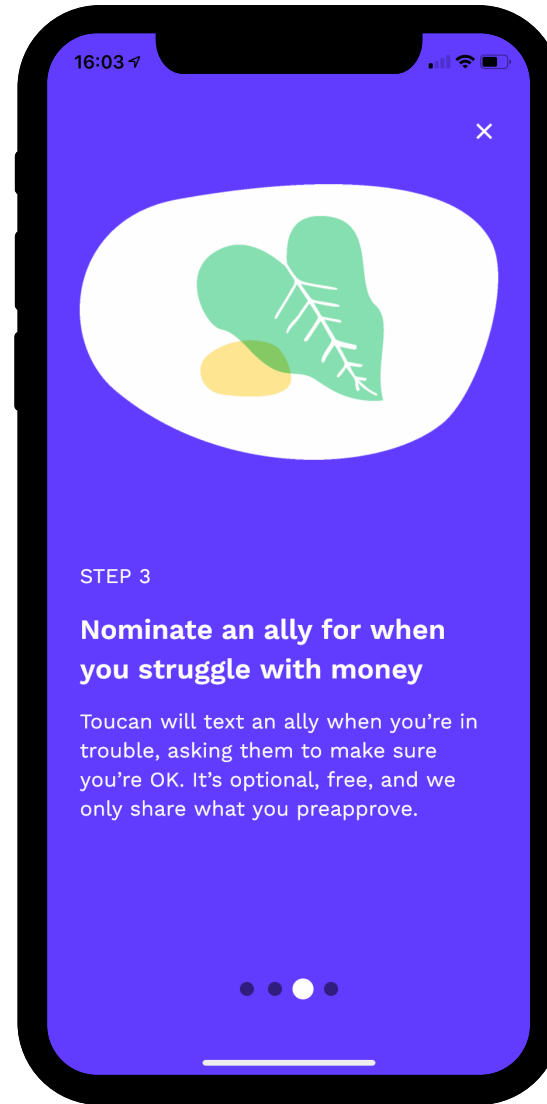
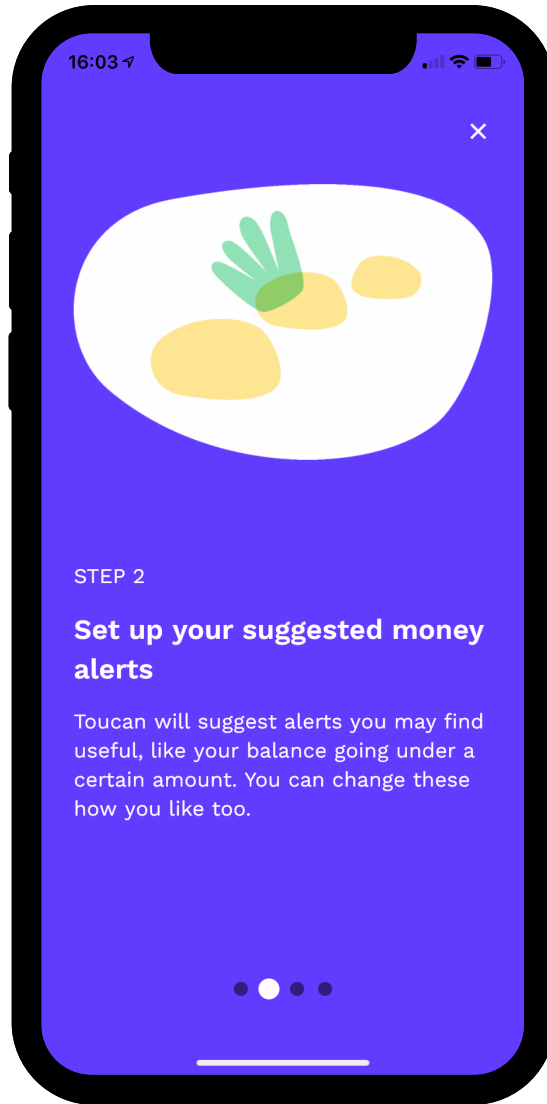
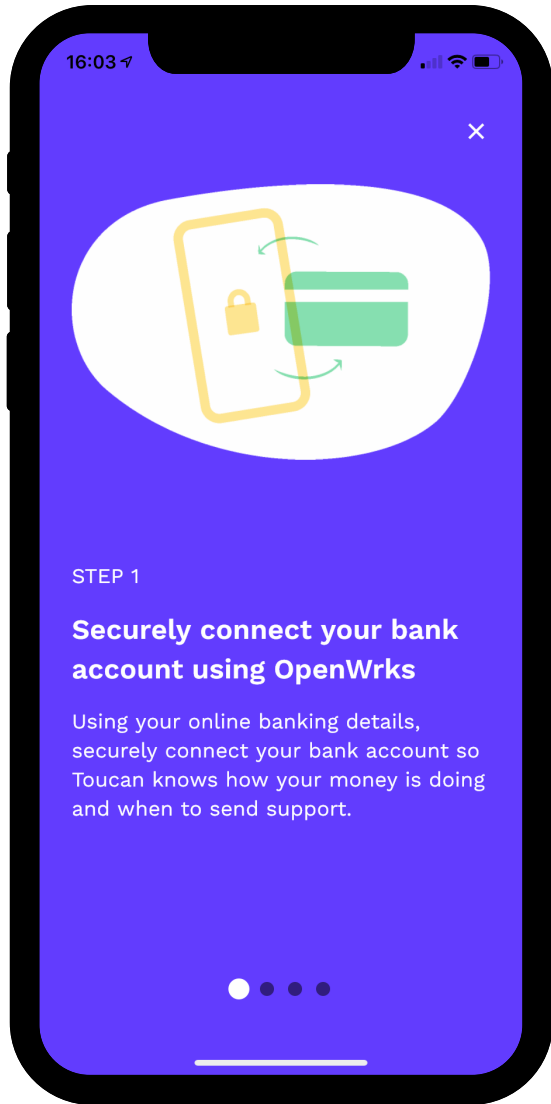
Step 2 - Open the Toucan app



This is the welcome screen of the Toucan app.

Tap the "Get started" button to start the setup process.

Step 3 - Swipe left and read through the information



Swipe left twice and read through the three information screens.

Once you are done reading, swipe left a third time.

Step 4 - Create your account

16:03

×

Ready for stress free money?

First name

Last name

🇬🇧 Mobile number

Email address

Create a password

Create your account

By creating an account, you agree to our [Terms & conditions](#) and [Privacy policy](#)

• • • • •

This screenshot shows a mobile app interface for account creation. The background is a vibrant purple. At the top, the time is 16:03. A white 'X' icon is in the top right corner. The main heading is 'Ready for stress free money?'. Below this are five white input fields: 'First name', 'Last name', 'Mobile number' (with a UK flag icon and a dropdown arrow), 'Email address', and 'Create a password' (with an eye icon). A prominent purple button with white text says 'Create your account'. At the bottom, there is a line of text: 'By creating an account, you agree to our [Terms & conditions](#) and [Privacy policy](#)'. At the very bottom, there are five dots, with the fourth one being white, indicating the current step in a sequence.

On your 3rd swipe you will arrive to this screen, where you will create your Toucan account.

Enter the information requested and, when finished, tap the "Create your account" button.

Step 5 - Launch OpenWrks

16:04

<

Connect your bank account using our trusted partner, OpenWrks

This will help Toucan see how your money is doing and know when to send you support.

You will need your internet banking login details to do this.

How does this work?

OpenWrks

M&S BANK HALIFAX

Launch OpenWrks

Secure connection

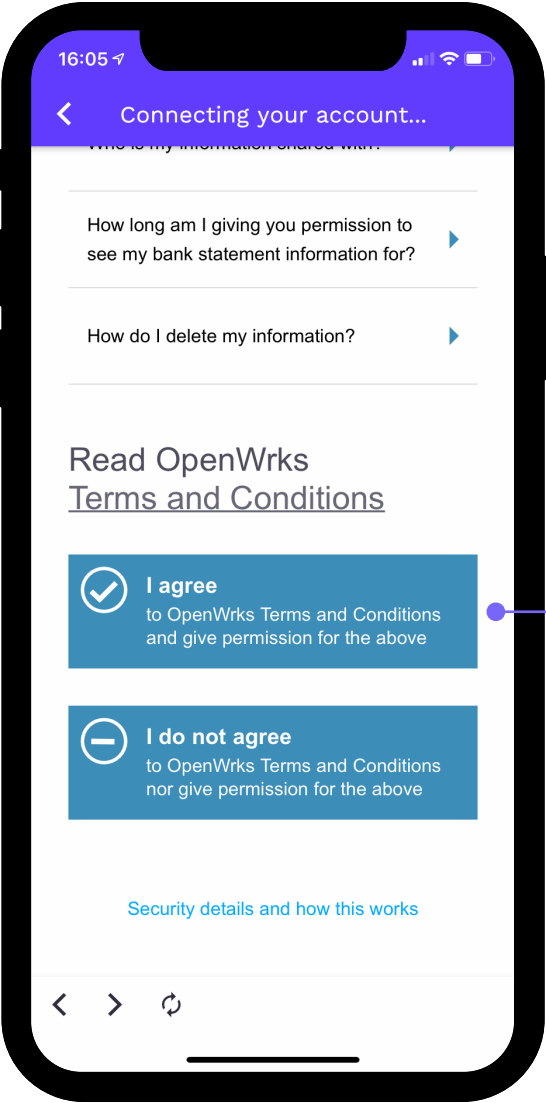
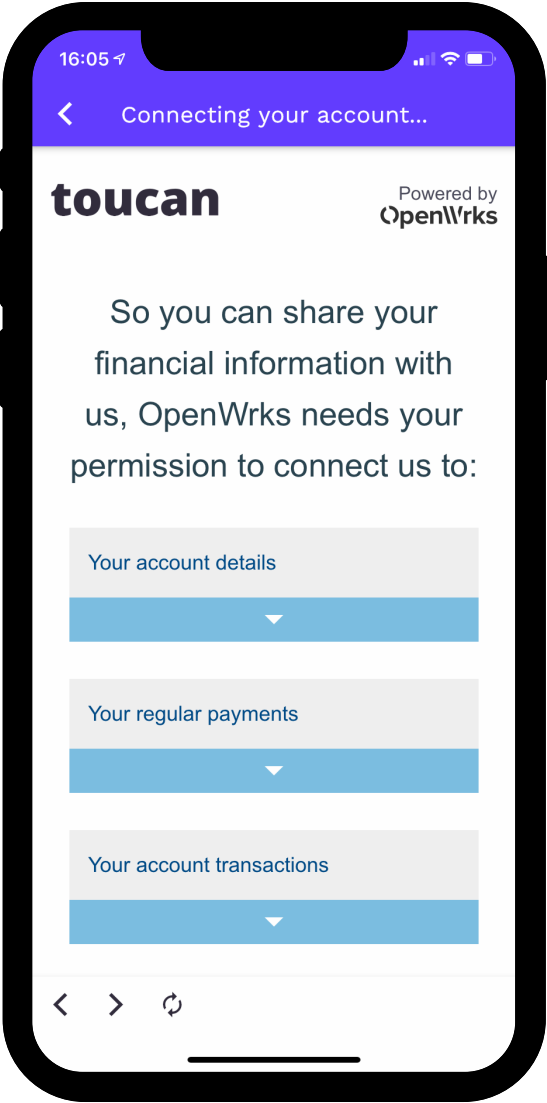
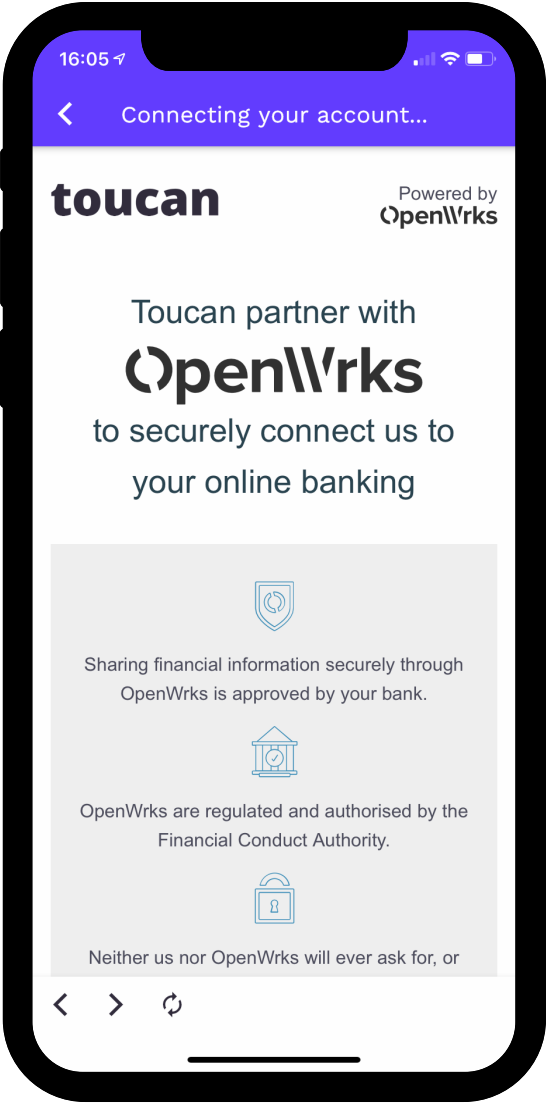
This screenshot shows a mobile app interface for connecting a bank account. The background is light grey. At the top, the time is 16:04. A white back arrow is in the top left corner. The main heading is 'Connect your bank account using our trusted partner, OpenWrks'. Below this is a paragraph: 'This will help Toucan see how your money is doing and know when to send you support.' Another paragraph follows: 'You will need your internet banking login details to do this.' A link in blue text says 'How does this work?'. Below the link is a collection of bank logos including M&S Bank, Halifax, and others. A prominent purple button with white text says 'Launch OpenWrks'. At the bottom, there is a lock icon and the text 'Secure connection'.

The next screen will tell you about connecting your bank account to the Toucan app via OpenWrks.

If you want more details, tap the "How does this work?" link, which will show you additional information.

When you are happy to proceed, tap the "Launch OpenWrks" button.

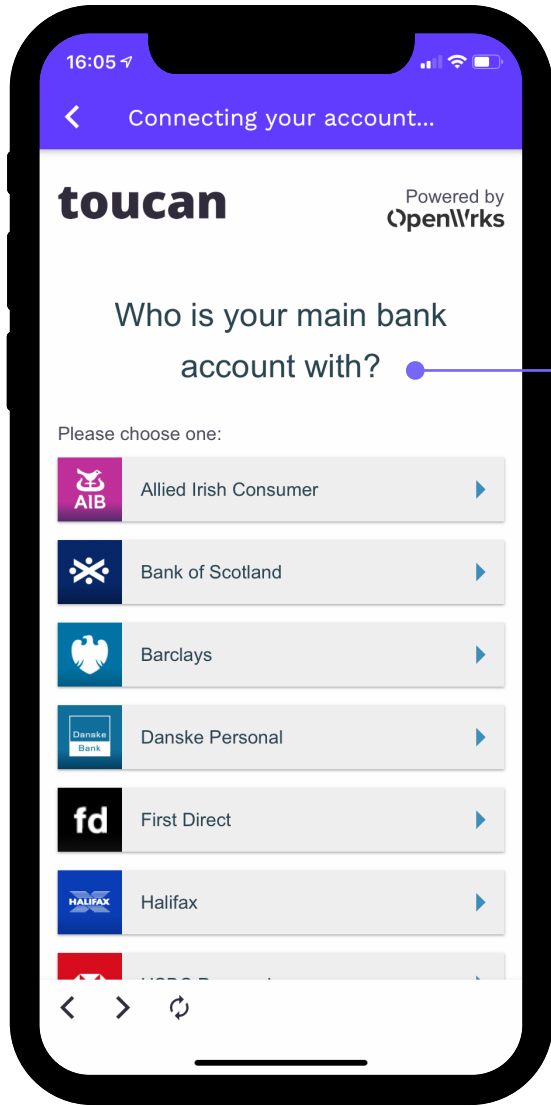
Step 6 - Agree to the OpenWrks terms and conditions



In this screen OpenWrks explains the permissions it requires from you.

If you are happy to proceed, scroll down to the bottom of the screen and agree to the OpenWrks terms and conditions.

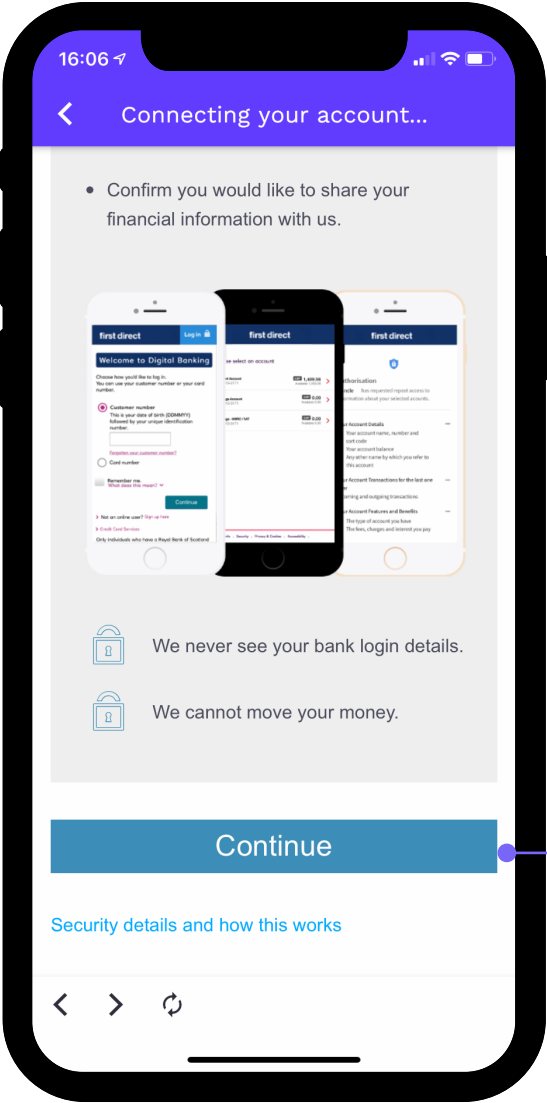
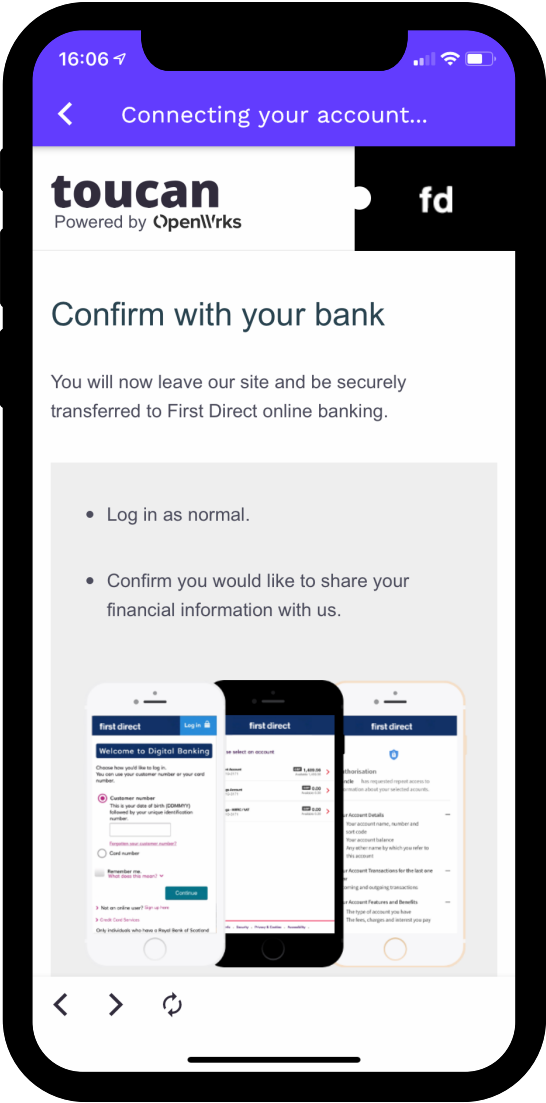
Step 7 - Select your bank



Select your bank from the list provided.

We will use First Direct as an example.

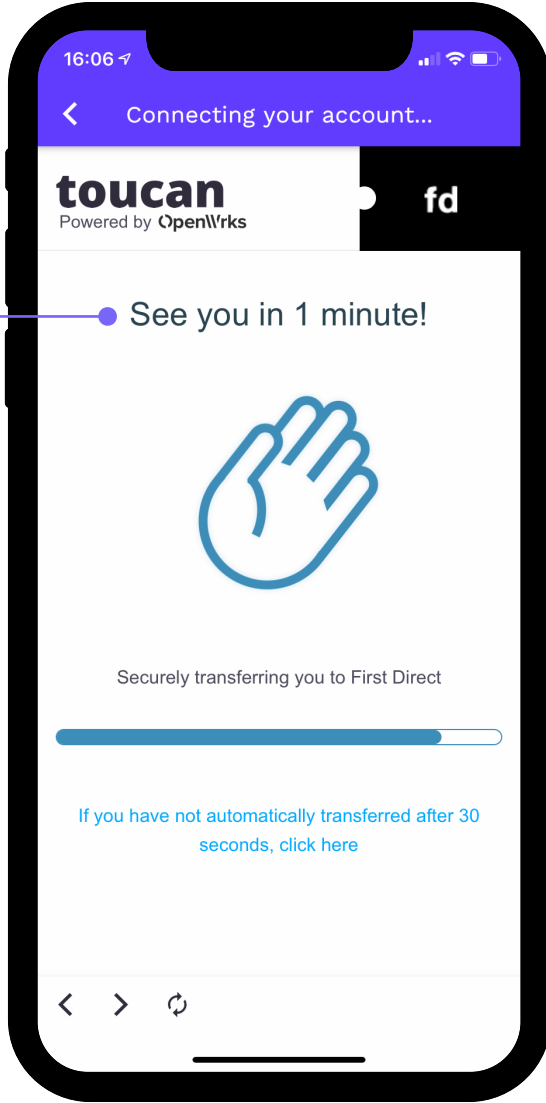
Step 8 - You will be transferred to your bank



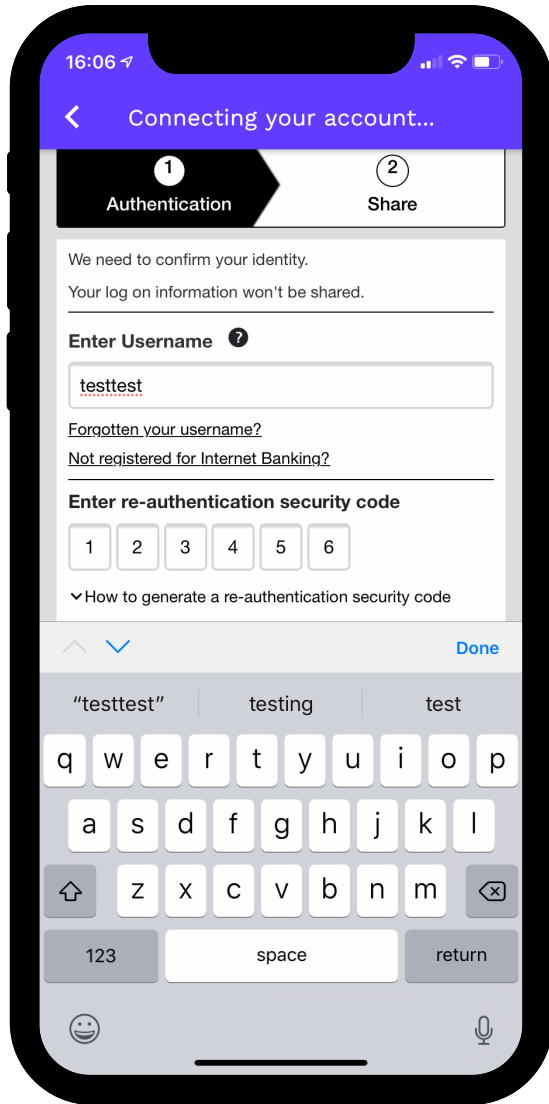
This screen lets you know that you will be transferred to your bank in the next step.

When you are happy to proceed, tap the "Continue" button.

You will be transferred to your bank then.



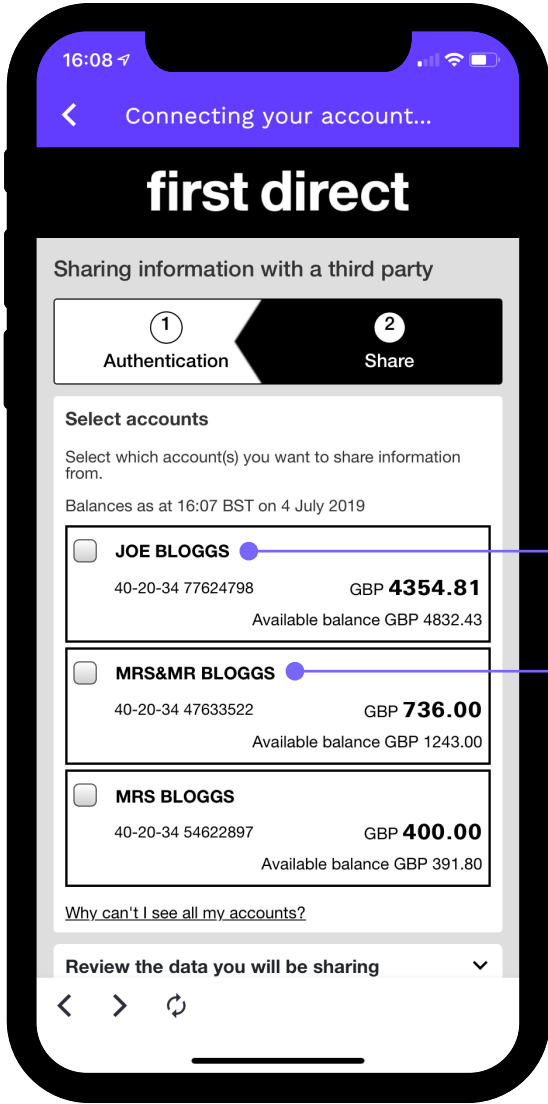
Step 9 - Log in to your online banking



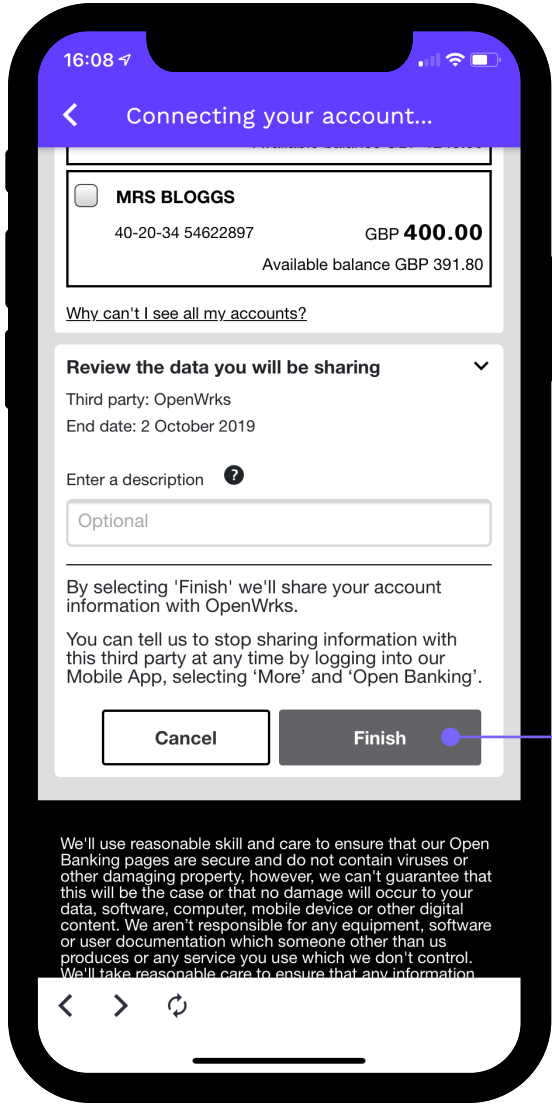
In this screen you will need to provide your online banking login details. The screen will be different for each bank. The examples here show how the screen looks like if you bank with First Direct.

Once you have entered your login details, the "Continue" button will become enabled. Tap it to proceed to the next step.

Step 10 - Select bank account(s)

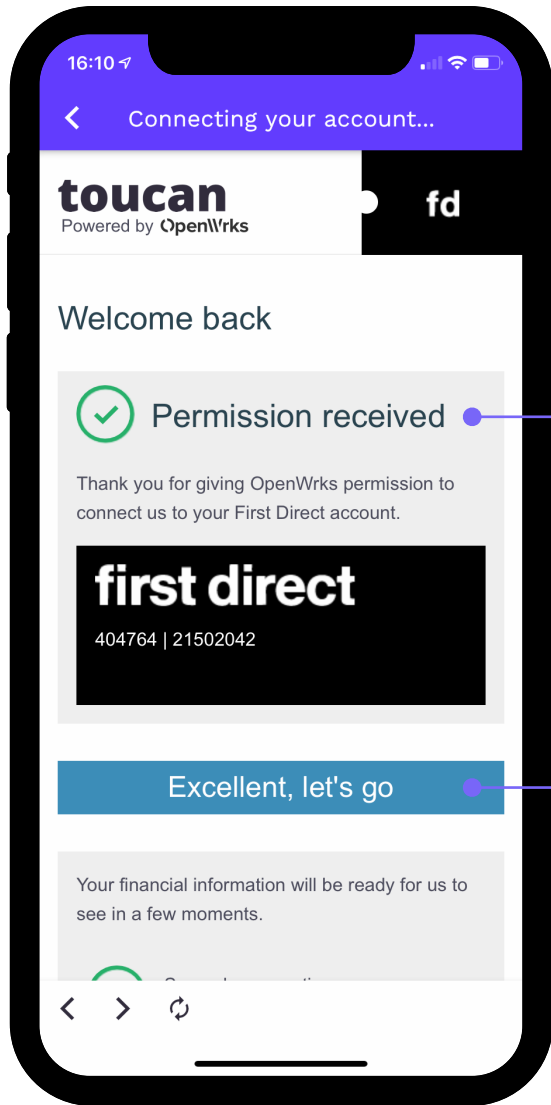


Select the bank account(s) you want to connect to the Toucan app via OpenWrks.



Once you have selected the account(s), tap the "Finish" button to proceed.

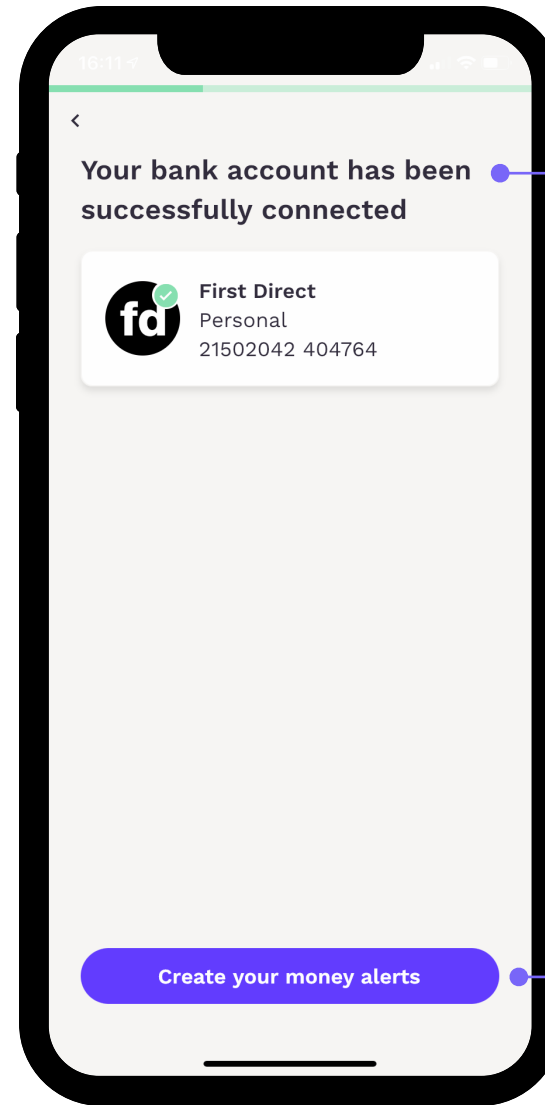
Step 11 - Confirmation from OpenWrks



OpenWrks will now show you a message confirming the Toucan app has received your permission to connect your selected bank account(s).

Tap the "Excellent, let's go" button to proceed.

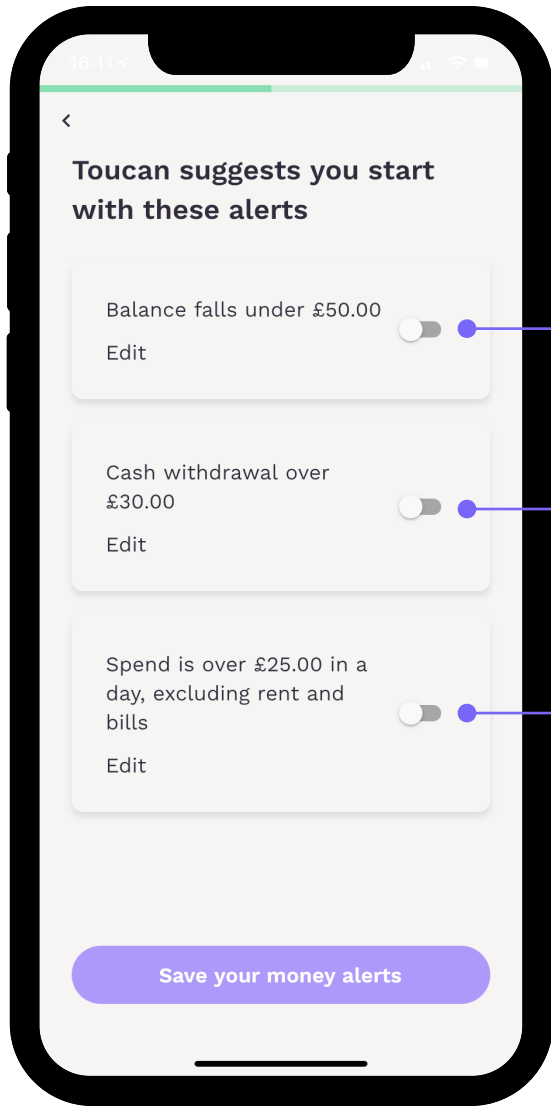
Step 12 - Start the money alerts setup



You are now back in the Toucan app, which will also confirm that your bank account(s) have been connected.

You are ready to set up your money alerts. Tap the "Create your money alerts" button to start the process.

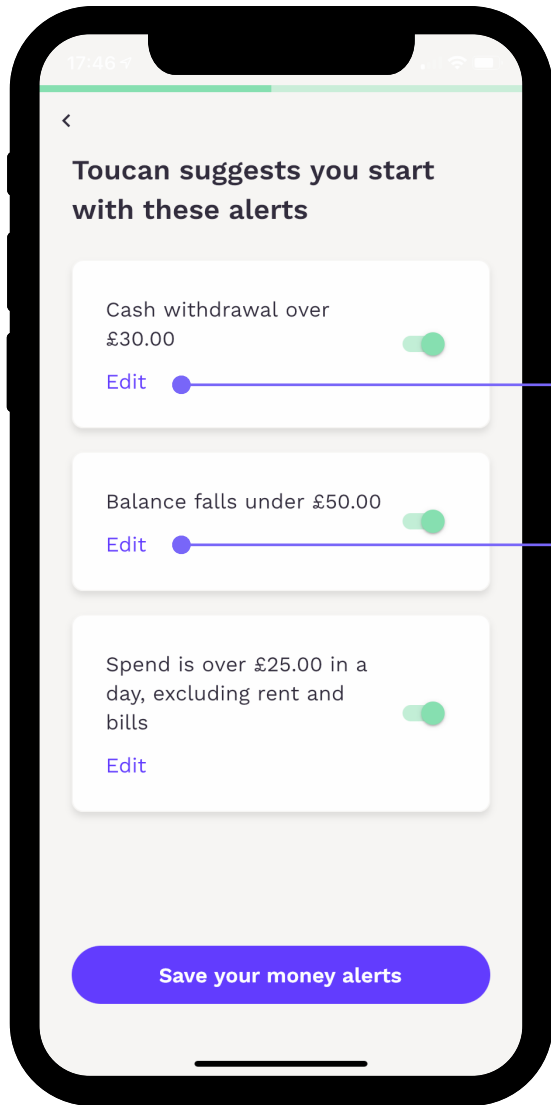
Step 13 - Turn on money alerts



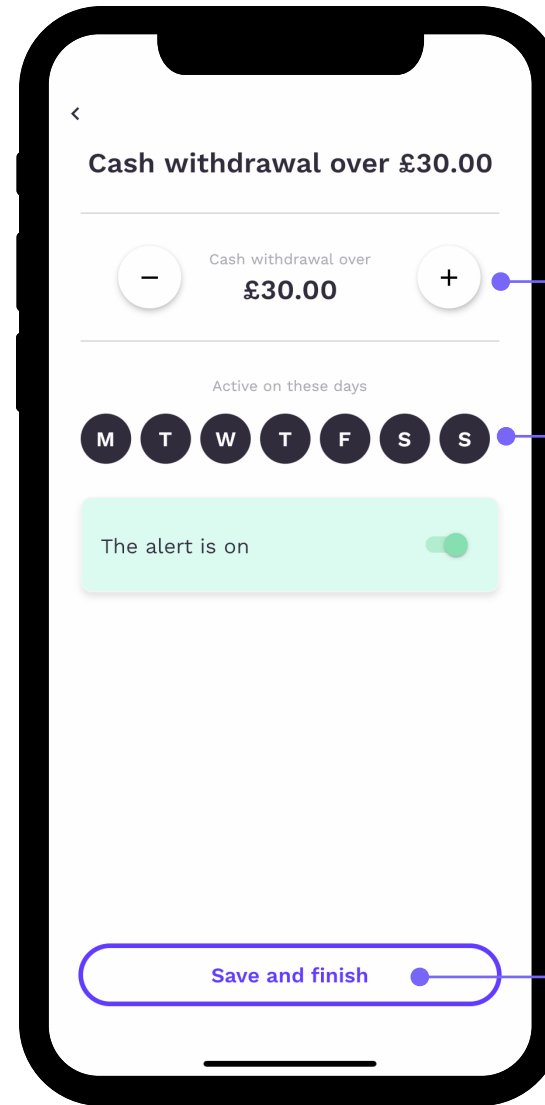
Toucan will now show you the three money alerts available: spending alert, cash withdrawal alert and balance alert.

Select the money alerts you would like to turn on.

Step 14 - Edit money alerts



Once you have turned on a money alert you can tap the "Edit" link to configure it.

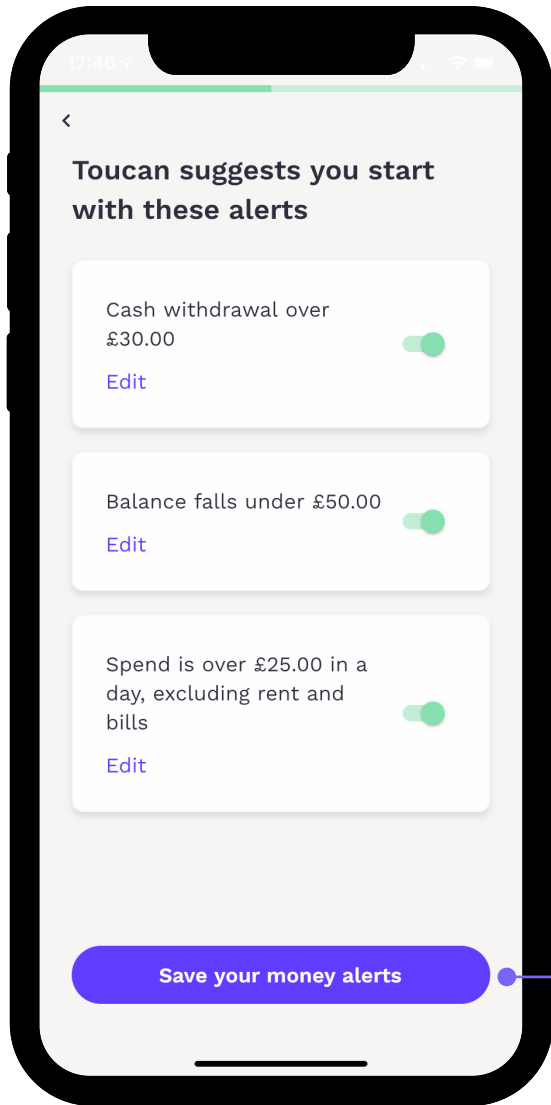


Use the "+" and "-" buttons to modify the amount that triggers the alert.

Use the weekday buttons to select which days you want the alert to be active.

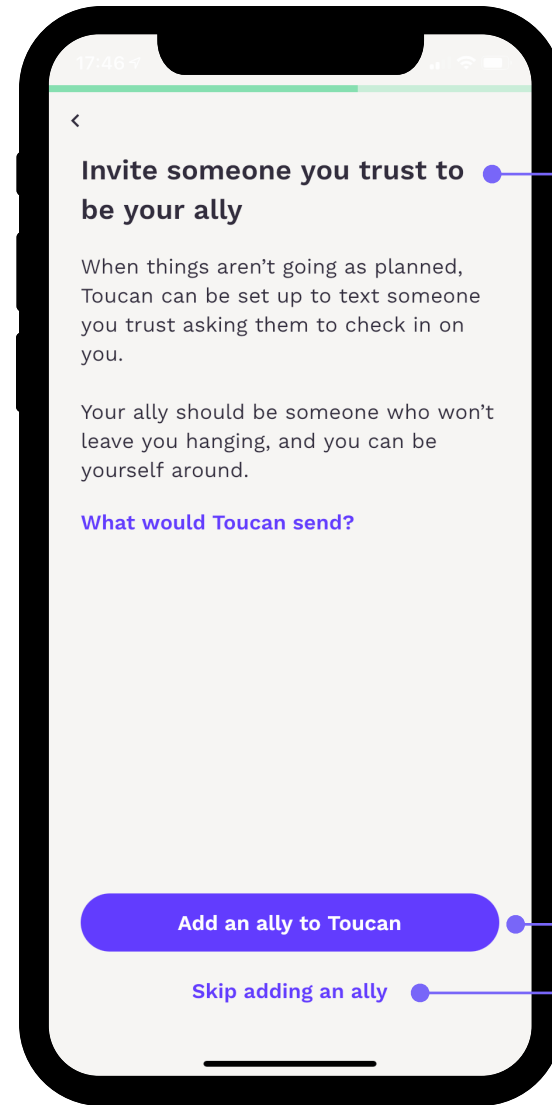
When you finish configuring your alert, tap the "Save and finish" button.

Step 15 - Save your money alerts



Once you are done configuring your money alerts, tap the "Save your money alerts" button.

Step 16 - Add an ally

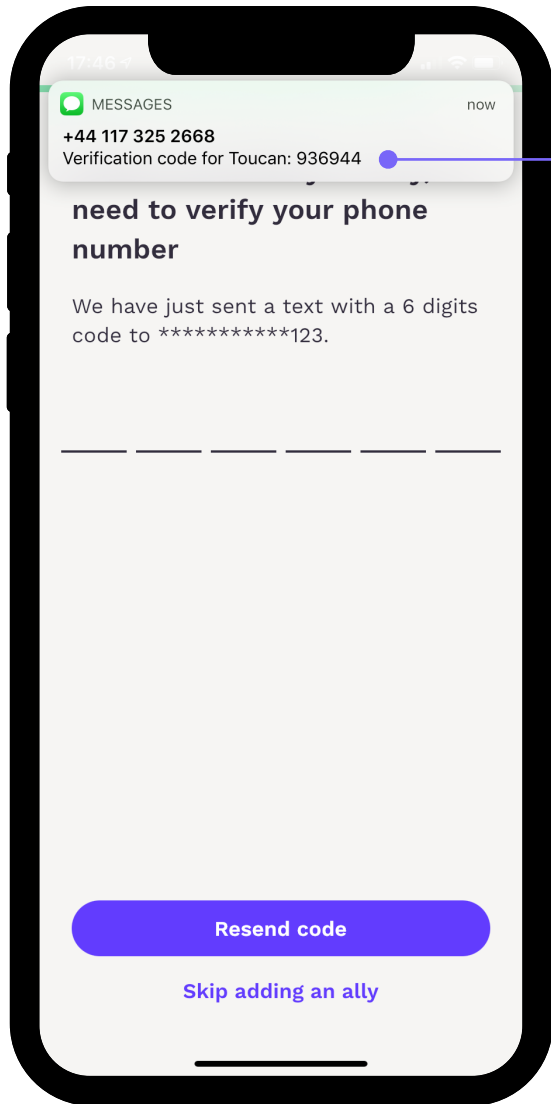


Toucan will now invite you to share your money alerts with a trusted ally.

To set up a trusted ally tap the "Add an ally to Toucan" button.

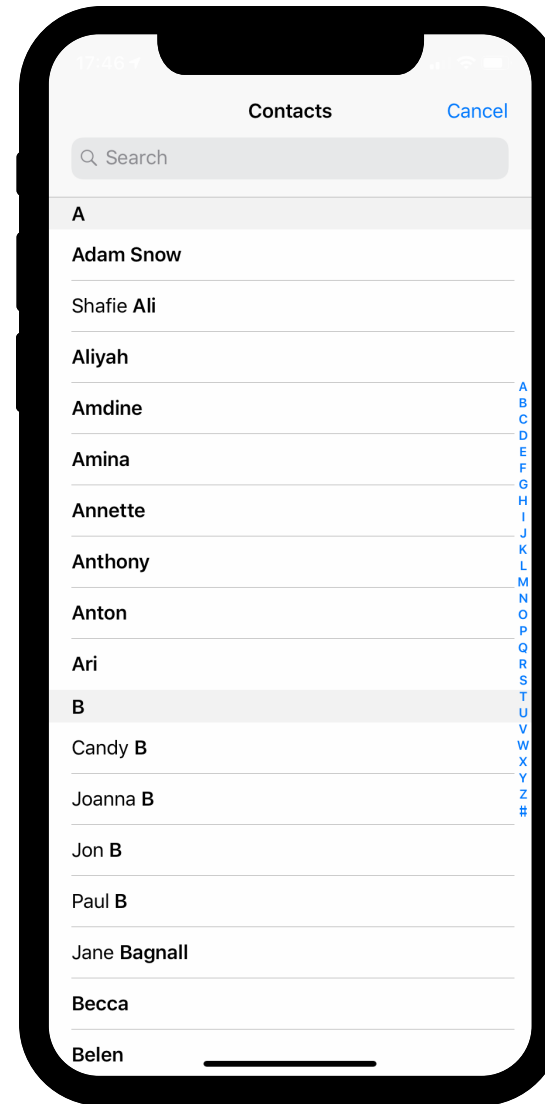
If you don't want to set up a trusted ally, tap the "Skip adding an ally" link.

Step 17 - Verify your phone number



Toucan will ask you to verify your phone number. To do that, Toucan will send you a 6-digit verification code via text message.

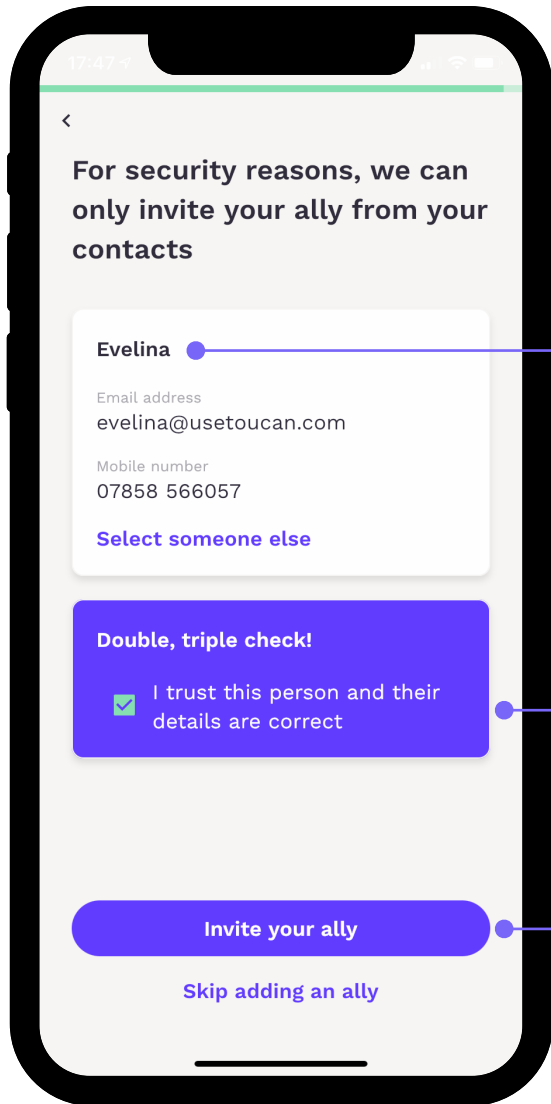
Step 18 - Select a contact



Toucan will only allow you to choose an ally from your contact list, and will ask you for permission to access your contacts.

Once you've given Toucan permission to access your contacts, your contact list will appear. Select your ally from the contact list.

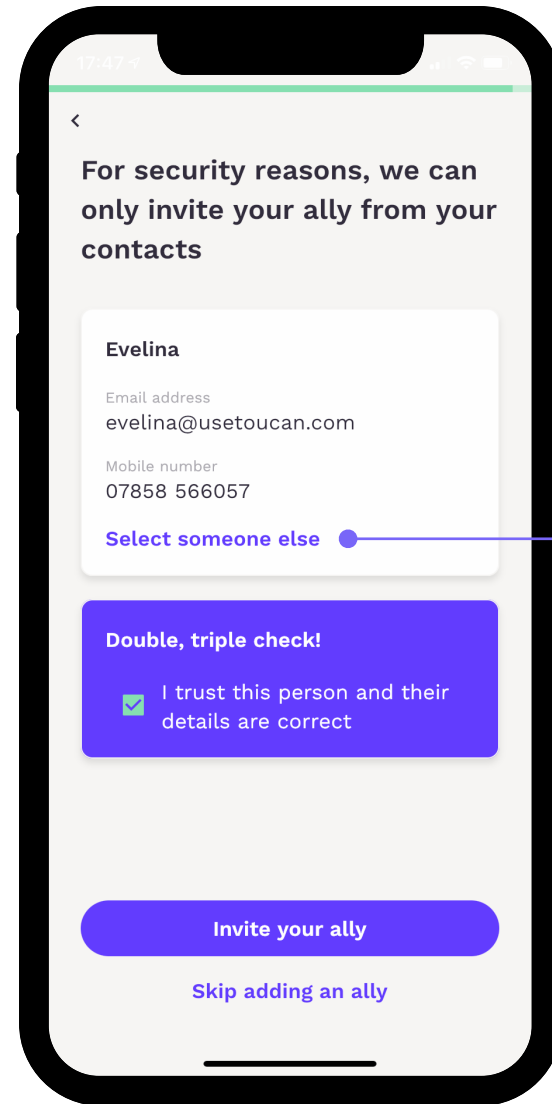
Step 19 - Confirm your ally



Toucan will ask you to confirm this is the contact you want to set as your ally.

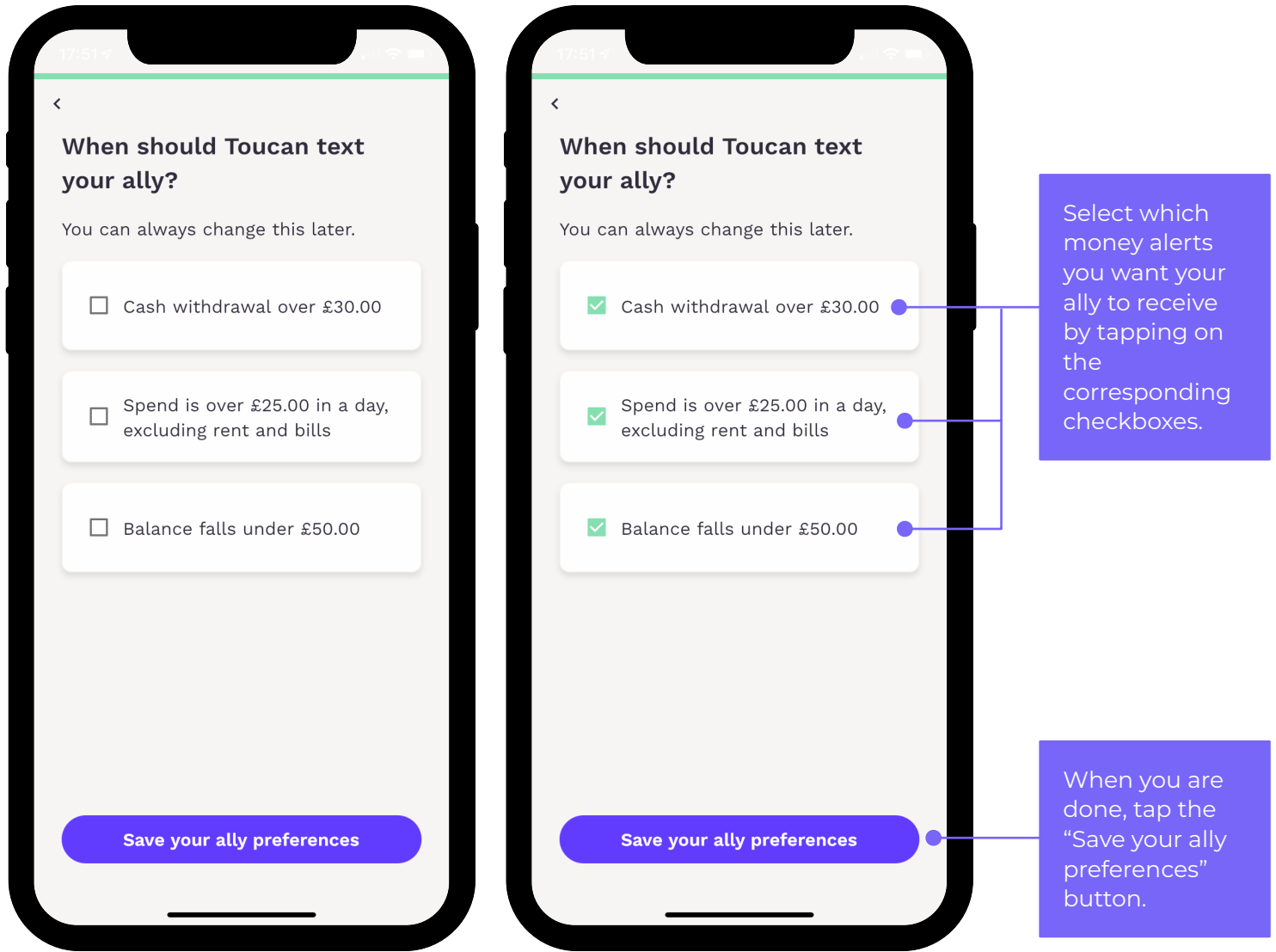
Tap the confirmation check box.

Then tap the "Invite your ally" button.

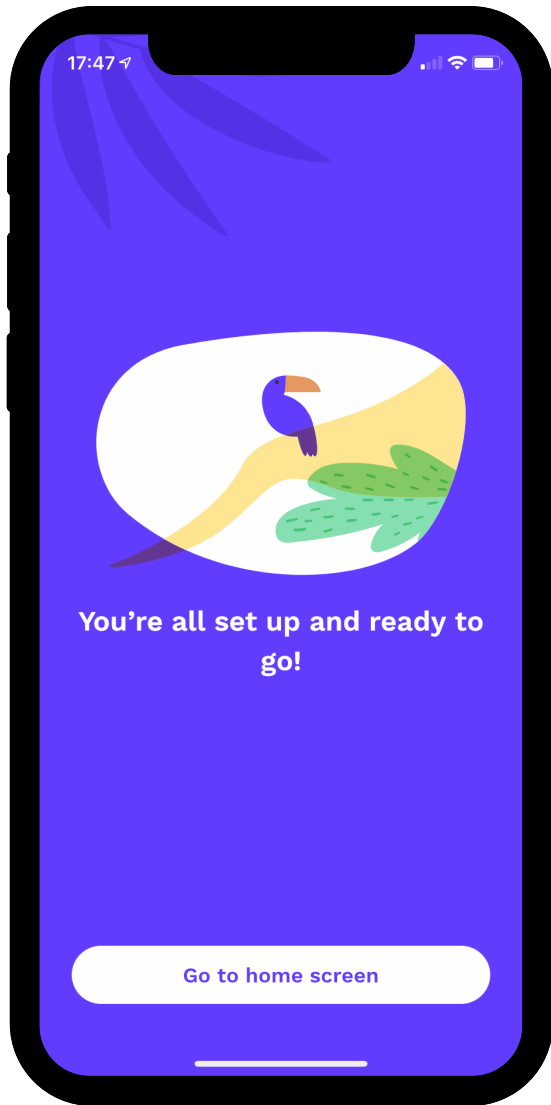


To change the selected contact tap the "Select someone else" link.

Step 20 - Select which money alerts you want to share with your ally



You are done! :-)



You are
done! :-)

Thank you so
much for
staying with us
and making it
all the way.

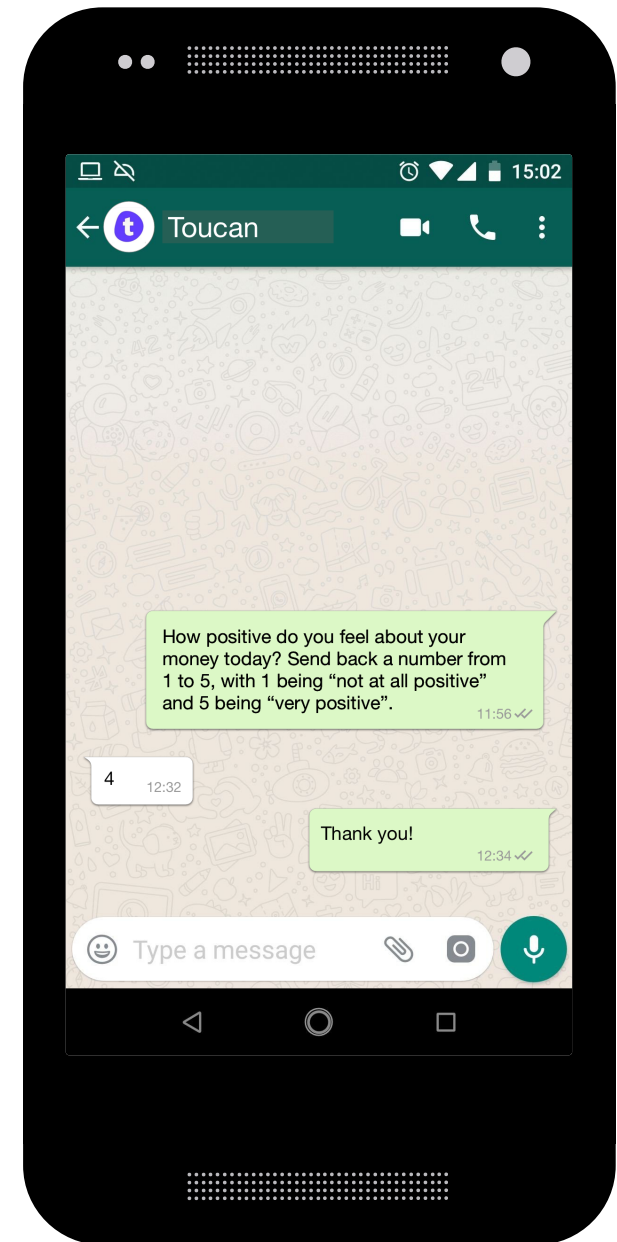
We can't wait
to hear what
you have to say
about Toucan.

WhatsApp weekly questions

Questions, feedback? Get in touch

Email: research@usetoucan.com

Call: 07834 777 596



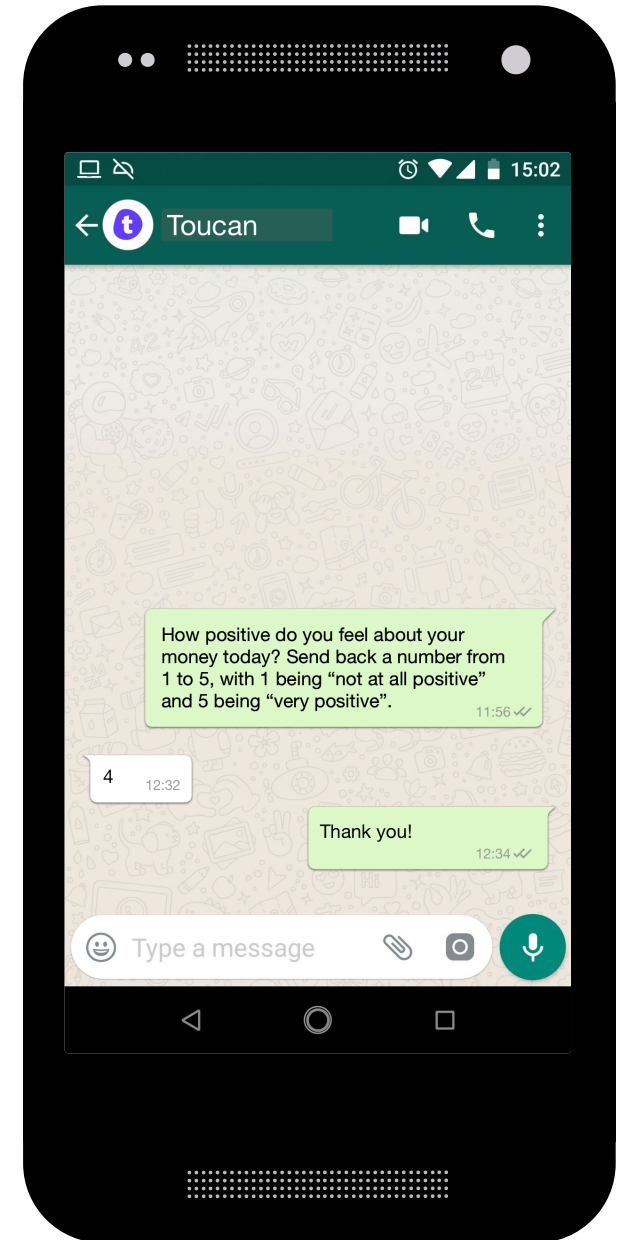
WhatsApp weekly questions

Every week the Toucan research team will send you two questions via WhatsApp. We hope you will find the time to respond.

Question 1

How positive do you feel about your money today? Send back a number from 1 to 5, with 1 being “not at all positive” and 5 being “very positive”.

We will send question 1 every **Sunday**.

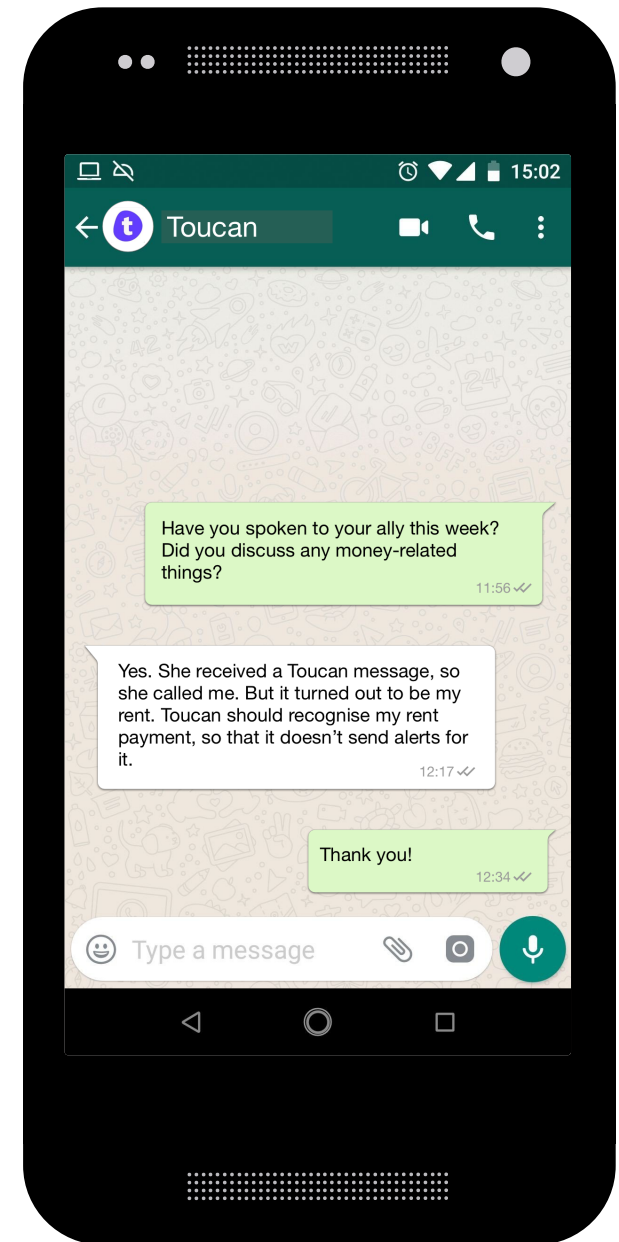


WhatsApp weekly questions

Question 2

Have you spoken to your ally this week? Did you discuss any money-related things?

We will send question 2 every **Thursday**.





toucan

Summer Trial Diary



Thank you for taking part in this summer's trial of the Toucan app! We are really excited to hear your feedback.

This diary is for you to fill in at your own pace during the three months that you'll be using the app. We would love to know how each month goes, and we've given you calendars and blank space for you to write on or use the stickers provided to tell us how you're getting on.

This is your diary. You can use it as you see fit and tell us as much as you are comfortable with. We're particularly interested to hear what you've been up to in these months. What adventures have you been having? How have you got on with the Toucan app? What's been happening with your money and spending? How is your Trusted Ally getting on?

At the end of the trial we'll ask to review the diary, but you'll be able to keep it if you want to.

If you want to get in touch at any point during the trial, remember you can contact us on:

Email research@usetoucan.com or **call** 07834 777596

Thanks again,

Team Toucan

About us

Hello! We are Bailey and Belén. We're working together to learn how the Toucan app could help people to support each other with money matters.

July 2019

Use the stickers in the holder to represent each day.
How was it?

M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Money

Place in the holder something money-related you would like to write about. Perhaps a receipt for something you bought, or a bill you paid.

August 2019

Use the stickers in the holder to represent each day.
How was it?

M	T	W	T	F	S	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Money

Place in the holder something money-related you would like to write about. Perhaps a receipt for something you bought, or a bill you paid.

September 2019

Use the stickers in the holder to represent each day.
How was it?

M	T	W	T	F	S	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Money

Place in the holder something money-related you would like to write about. Perhaps a receipt for something you bought, or a bill you paid.

October 2019

Use the stickers in the holder to represent each day.
How was it?

M	T	W	T	F	S	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Money

Place in the holder something money-related you would like to write about. Perhaps a receipt for something you bought, or a bill you paid.



**Want to send us some
feedback right now?**

Email research@usetoucan.com

Call 07834 777596





Safeguarding Policy and Procedures

Version	Date of Issue	Last Reviewed	Next Review
1	June 2019	June 2019	June 2020

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1.2 Designated Safeguarding Manager	2
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Immediate incident response	4
Making a safeguarding referral	4
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Use open questions	8
Say it back	8
Have courage	8
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2.3 Making a safeguarding referral	9
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1 Policy Statement

This policy will enable Toucan App Ltd. (hereafter referred to as 'Toucan') to demonstrate its commitment to keeping safe adults at risk with whom it works alongside. Toucan acknowledges its duty to act appropriately in situations where it believes someone could be at risk.

These situations include, but are not limited to:

- Someone indicates they are feeling suicidal or is in severe psychological distress.
- There are clear signs of financial abuse or coercion.

It is important to have policy and procedures in place so that all Toucan staff can work to prevent harm and know what to do should a concern arise.

1.1 Purpose

The policy and procedures have been drawn up in order to enable Toucan to:

- Promote good practice and work in a way that can prevent harm and abuse occurring.
- Ensure that any suspicions of psychological distress or allegations of abuse are dealt with swiftly and appropriately.
- Prevent harm from occurring.

The policy and procedures outlined here relate to the safeguarding of adults over 18 at risk of psychological distress, suicidal thoughts or financial abuse. As Toucan is working with service users who may have a history of mental health problems it is important that we acknowledge the higher risks involved with supporting this potentially vulnerable group.

Toucan and its staff are committed to ensuring that every service user is treated in a fair and consistent manner, but also understand that some circumstances require additional interactions and/or steps to ensure that the service user is getting a product/service that is suitable and ethical.

Toucan staff are provided with training on what makes a service user vulnerable and how to identify, assess and deal with any vulnerability. We are committed to ensuring that any service user who has a relationship with the company is treated in a fair, reasonable and supportive manner.

1.2 Designated Safeguarding Manager

The designated Safeguarding Manager for Toucan is currently Bailey Kursar, CEO. Toucan has conducted a basic DBS check and issued them with a certificate as of June 2019.

Mobile: 07843 320123
Email: bailey@usetoucan.com

They should be contacted for support on implementing this policy and associated procedures if necessary.

The roles and responsibilities of the named person(s) are to:

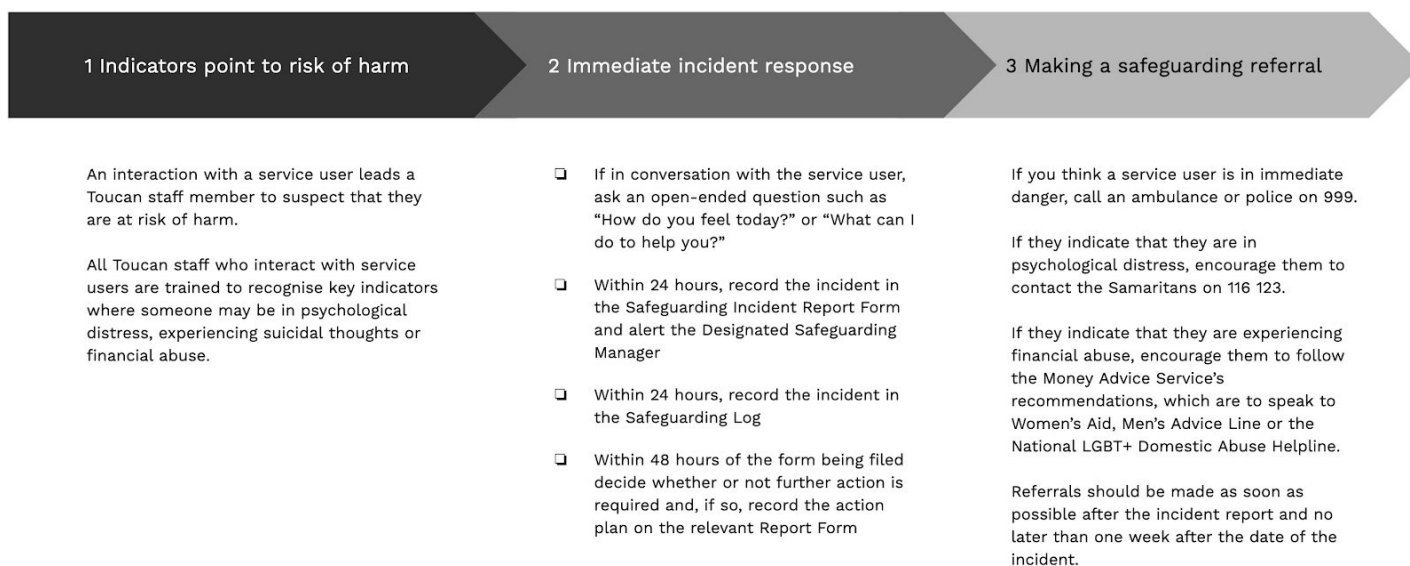
- Ensure that all staff and volunteers are aware of what they should do and who they should go to if they have concerns that a service user may be experiencing, or has experienced, psychological distress, suicidal thoughts or financial abuse.
- Ensure that concerns are acted on, clearly recorded and referred to appropriate organisations or trusted third parties.
- Follow up any safeguarding referrals and ensure the issues have been addressed.
- Manage and have oversight over individual complex cases involving allegations against an employee, volunteer, or intern (paid or unpaid).
- Consider any recommendations from the safeguarding process.
- Reinforce the utmost need for confidentiality and to ensure that staff and volunteers are adhering to good practice with regard to confidentiality and security.
- Ensure that staff and volunteers working directly with customers who have experienced or are experiencing psychological distress, suicidal thoughts or financial abuse are well supported and receive appropriate supervision.
- Ensure staff and volunteers are given support and afforded protection, if necessary, under the [Public Interest Disclosure Act 1998](#): they will be dealt with in a fair and equitable manner and they will be kept informed of any action that has been taken and its outcome.

2 Procedures

Toucan provides a money management app and support for use of the app to service users, many of whom will have a history of mental health problems or associated vulnerability. Toucan also conducts research into their use of the app by asking service users for feedback. These procedures have been designed to ensure the wellbeing and protection of any person who interacts with Toucan.

Toucan is committed to the belief that the protection of adults at risk from harm and abuse is everybody's responsibility and the aim of these procedures is to ensure that all staff act swiftly and appropriately in response to any concern that a service user is at risk.

The following [process chart](#) outlines the three steps Toucan must follow where there has been a safeguarding incident.



Indicators point to risk of harm

An interaction with a service user leads a Toucan staff member to suspect that they are at risk of harm.

All Toucan staff who interact with service users are trained to recognise key indicators where someone may be in psychological distress, experiencing suicidal thoughts or financial abuse.

Immediate incident response

- If in conversation with the service user, ask an open-ended question such as “How do you feel today?” or “What can I do to help you?” (see further recommendations on how to respond below)
- Within 24 hours, record the incident in the [Safeguarding Incident Report Form](#) and alert the Designated Safeguarding Manager
- Within 24 hours, record the incident in the [Safeguarding Log](#)
- Within 48 hours of the form being filed decide whether or not further action is required and, if so, record the action plan on the relevant Report Form

Making a safeguarding referral

If you think a service user is in immediate danger, call an ambulance or police on 999.

If they indicate that they are in psychological distress, encourage them to contact the [Samaritans](#) on 116 123.

If they indicate that they are experiencing financial abuse, encourage them to follow the [Money Advice Service](#)'s recommendations, which are to speak to Women's Aid, Men's Advice Line or the National LGBT+ Domestic Abuse Helpline.

Referrals should be made as soon as possible after the incident report and no later than one week after the date of the incident.

2.1 Recognising the signs and symptoms when someone is at risk of harm

2.1.1 Indicators of psychological distress

Psychological distress is a term used, both by some mental health practitioners and users of mental health services, to describe a range of symptoms and experiences of a person's internal life that are commonly held to be troubling, confusing or out of the ordinary.

Psychological distress has a wider scope than the related term mental illness. Mental illness refers to a specific set of medically defined conditions. A person in psychological distress may exhibit some similar symptoms to that of some mental illnesses, such as anxiety, confused emotions, hallucinations, rage or depression.

When Toucan staff interact with service users, whether through the app, over the phone, in person or otherwise, they will watch out for the following indicators of psychological distress:

- Marked changes in concentration
- Signs of neglect of personal responsibilities
- Withdrawing socially or verbally
- Unusually high frequency of requests for contact
- Talk of suicidal thoughts or violent acts towards self and/or others (see 'Indicators of suicidal thoughts', below)
- Alcohol or drug misuse
- Mood swings
- Experiencing high levels of anxiety or panic attacks
- Irritability or unpredictable outbursts of anger
- Complaints of sleep problems, or falling asleep in unexpected circumstances
- Being tearful or sighing frequently
- Appearing vague or confused
- Experiencing high levels of anxiety or panic attacks

- Displaying agitation
- Displaying speech patterns that seem pressured, racing, or confused
- Sustained low mood
- Frequent expressions of negativity

2.1.2 Indicators of suicidal thoughts

Suicidal thoughts, or suicidal ideation, means thinking about or planning suicide. Thoughts can range from a detailed plan to a fleeting consideration.

When Toucan staff interact with service users, whether through the app, over the phone, in person or otherwise, they will watch out for the following indicators of suicidal thoughts:

- Expressing helplessness – e.g. “Nothing I do makes any difference, it’s beyond my control and no one can help me”, “I want to give up”, or “I hate myself”
- Talking about suicide or death
- Planning for suicide
- Feeling trapped – e.g. “I can’t see any way out of this mess.”
- Feeling like a burden – e.g. “They’d be better off without me.”
- Lack of belonging – e.g. “I just don’t fit in anywhere”, or “Noone would notice if I wasn’t here”
- Hopeless – e.g. “What is the point? Things are never going to get any better.”
- Guilt – e.g. “It’s my fault, I’m to blame.”
- Escape – e.g. “I just can’t take this anymore.”
- Alone – e.g. “I’m on my own... no one cares about me; no one would even notice if I was gone.”
- Damaged – e.g. “I’ve been irreparably damaged... I’ll never be the same again.”

Staff should particularly watch out for signs that the service user has a plan to end their life by suicide. There are four indicators that this is the case:

- Intention – “I’m going to take my own life”
- Plan – “I have a plan to take my own life”, or “This is how I’ve planned it...”
- Means – “I have the means to carry out my plan”, or “I’m ready to do so because...”
- Timeframe – “I know when I am going to take my own life”, or “I will do it on this day...”

2.1.3 Indicators of financial abuse

Financial abuse in intimate relationships is a way of controlling a person's ability to acquire, use and maintain their own money and financial resources.

When Toucan staff interact with service users, whether through the app, over the phone, in person or otherwise, they will watch out for the following indicators of financial abuse:

- Reports from a service user that their funds have gone missing unexpectedly.
- Reports from a service user that a person they trust is pressuring them into certain financial decisions.
- Requests from someone other than the service user that do not seem to corroborate what the service user has already indicated they want.

Toucan staff must read the [financial crime report, written by FinTrail](#), commissioned by Toucan to detail the risks, potential outcomes and potential mitigation measures associated with the Toucan app as they relate to financial abuse. The report also details common fraud patterns, which Toucan staff must be familiar with and watch out for.

If a Toucan staff member witnesses abuse, or abuse has just taken place, the priorities will be:

- To call an ambulance if required.
- To call the Police if a crime has been committed.
- To preserve evidence.
- To keep yourself and others safe.

2.2 Responding to people who display signs they are at risk of harm

2.2.1 In the moment

When talking to or responding to a service user who displays signs they are at risk of harm, it is important to:

- Remain calm.
- Focus on how to help the service user in that moment.
- Gather as much information as possible about their situation so an appropriate response can be arranged as soon as possible after the incident.

Staff should reassure service users that any information shared will be treated very seriously, but they should not promise to keep it secret.

Where appropriate, use the SHUSH active listening technique, taken from the [Samaritans website](#):

Show you care

Focus on the other person.

To really listen to somebody, you need to give them your full attention, maintain eye contact if possible and be engaged.

When in conversation resolve not to talk about yourself at all.

Have patience

Effective listening is about creating trust with the other person. The person sharing shouldn't feel rushed, or they won't feel it's a safe environment.

If they've paused in their response, wait, they may not have finished speaking. It might take them some time to formulate what they are saying, or they may find it difficult to articulate what they're feeling.

Through non-judgemental listening, you are allowing the person to relax into the conversation and to use it as a place to reflect or work through difficult emotions

Use open questions

Use open questions that need more than a yes/no answer, and follow up with questions like 'Tell me more'.

An open-ended question means not jumping in with your own ideas about how the other person may be feeling.

These questions don't impose a view point and require a person to pause, think and reflect, and then hopefully expand.

Avoid asking questions or saying something that closes down the conversation.

Open-ended questions encourage them to talk, the conversation is a safe space that you are holding for them and nothing they say is right or wrong. Try asking, "How are you feeling today"?

Say it back

Check you've understood, but don't interrupt or offer a solution.

Repeating something back to somebody is a really good way to reassure them that they have your undivided attention. And you can check to see that you're hearing what they want you to hear, not putting your own interpretation onto the conversation.

Have courage

Don't be put off by a negative response and, most importantly, don't feel you have to fill a silence.

Sometimes it can feel intrusive and counter-intuitive to ask someone how they feel. You'll soon be able to tell if someone is uncomfortable and doesn't want to engage with you at that level.

You'll be surprised at how willing people are to listen and how, sometimes, it is exactly what somebody needs to be able to share what is going on their mind.

If Toucan staff have a conversation where they think there might be a safeguarding incident, useful questions to ask would be:

- “Have you talked to anyone else about this?”
- “Would you like to get some help?”
- “Do you have someone you trust you can go to?”

If the service user wants to hear back from Toucan about further help, the staff member concerned should tell them that they will hear back as soon as possible, but certainly within 3 working days.

If a Toucan staff member believes that a service user is in immediate danger, they should call emergency services on 999.

It's important to keep thorough notes of any interaction so that the right information can be recorded in the Incident Report. Those notes will also help Toucan make the best decision on whether or not further action is needed, and what that action should look like.

2.2.2 Recording the incident

Within 24 hours of the relevant conversation or indicator being noticed, the Toucan staff member concerned must record the incident in the [Safeguarding Incident Report Form](#) and in the [Safeguarding Log](#) and alert the Designated Safeguarding Manager.

Within 48 hours of the form being filed the Designated Safeguarding Manager must decide whether or not further action is required and, if so, record the action plan on the relevant Report Form.

2.3 Making a safeguarding referral

If a Toucan staff member believes that a service user is in immediate danger, they should call emergency services on 999.

In any other case, the Designated Safeguarding Manager will put an action plan together if required within 48 hours of the incident form being filed.

Referrals should be made as soon as possible after this point and no later than one week after the date of the incident.

Depending on the nature of the incident, the Designated Safeguarding Manager may choose to encourage a service user, or make a referral on their behalf, to go to:

- [Samaritans](#)
- [Mind](#)
- [Rethink](#)
- [Mental Health Foundation](#)
- [NHS Choices](#)
- [Women's Aid](#)
- [Men's Advice Line](#)
- [Galop](#)

3 Recording incidents where safeguarding measures were taken

At the point of the incident, the Toucan staff member concerned will complete a [Safeguarding Incident Report Form](#) and record the incident in the [Safeguarding Log](#).

When an action plan has been decided by the Designated Safeguarding Manager, the relevant Incident Report Form and Safeguarding Log entry will be updated.

Both the Incident Report Form and Safeguarding Log will be stored as encrypted files on the Toucan shared drive. The Designated Safeguarding Manager is responsible for ensuring the password remains secure and is updated regularly.

4 Managing an allegation made against a member of staff

Toucan will ensure that any allegations made against members or member of staff will be dealt with swiftly.

Where a member of staff/volunteer is thought to have committed a criminal offence the Police will be informed. If a crime has been witnessed the Police should be contacted immediately.

The safety of the individual(s) concerned is paramount. A risk assessment must be undertaken immediately to assess the level of risk to all customers posed by the alleged perpetrator. This will include whether it is safe for them to continue in their role or any other role within the service whilst the investigation is undertaken.

5 Recording and managing confidential information

Toucan is committed to maintaining confidentiality wherever possible and information around safeguarding issues should be shared only with those who need to know.

All allegations/concerns should be discussed with the Designated Safeguarding Manager.

By following the process as detailed on the Safeguarding Incident Form a decision will be made as to whether it is appropriate to make a referral.

The information held should be factual and not based on opinions, record what the service user tells the staff member, what has been seen and witnesses if appropriate.

Both the Incident Report Form and Safeguarding Log will be stored as encrypted files on the Toucan shared drive. The Designated Safeguarding Manager is responsible for ensuring the password remains secure and is updated regularly.

6 Reviewing policy and procedures

This Safeguarding Policy and Procedure will be clearly communicated to staff. The Senior Management Team will be responsible for ensuring that this is done.

The Safeguarding Policy and Procedures will be reviewed annually by the Senior Management Team. The Designated Safeguarding Manager will be involved in this process and can recommend any changes based on reviewing the Safeguarding Log. The Senior Management Team will also ensure that any changes are clearly communicated to staff.

7 Safeguarding children

Toucan does not currently provide services to children (individuals under the age of 18).

8 Useful links

This document was prepared having read and reviewed:

- [Safeguarding Policy Template](#)
- [The Money and Mental Health Policy Institute's Safeguarding Adults Policy](#)
- [Age UK's Safeguarding Adults Policy.](#)

Safeguarding Incident Report Form

As at 5 June 2019

Safeguarding Incident Form Number:	
Date incident reported:	
Staff member who took initial details:	
SERVICE USER DETAILS:	
NAME:	
TEL/MOB:	
ACCOUNT NO:	
INCIDENT DETAILS:	
DATE/TIME INCIDENT REPORTED:	
INCIDENT REPORTED BY:	
DATE/TIME OF INCIDENT:	
NATURE OF INCIDENT:	
Further action required: Yes No	
SYSTEM/EMPLOYEE/PROCESS INVOLVED IN RESPONSE:	

INVESTIGATION DETAILS:

ROOT CAUSE ANALYSIS:

MEASURES TO PREVENT REPEAT OCCURRENCES:

OUTCOME:

OFFICE USE ONLY:

Notes

RECEIVED BY:

DATE RECEIVED:

RECORDED ON SAFEGUARDING LOG:

Yes No

INVESTIGATED BY:

Safeguarding Log

As at 5 June 2019

Form no.	Service user involved	Staff member completing form	Type of incident	Action taken	Outcome	Further action required?

Informed Consent Form

This consent form relates to the Toucan Summer Trial project, a 3 month study and trial of the app with participants recruited through The Money and Mental Health Policy Institute.

I agree to take part in this research and confirm:	Initials
<p>1. I have read and understood the information sheet about taking part in the Toucan Summer Trial project, a 3 month study and trial of the Toucan app.</p> <p>I have been able to ask questions about the project and my questions have been answered to my satisfaction.</p>	
<p>2. I agree to take part in this project, including an introductory interview.</p>	
<p>3. I understand that the introductory interview will be audio recorded and transcribed (typed up) with any identifying information removed to protect my privacy.</p>	
<p>4. I understand the researcher may request consent to take photographs, and that I am free to refuse consent without explanation.</p>	
<p>5. I understand all personal information will be covered before photographs are taken to protect my privacy.</p>	
<p>receiving the prompts via mobile messaging, including the fact that they'll be anonymised</p>	
<p>the fact they'll be contacted after the 3 months for a closing interview</p>	
<p>item about the fact that the incentive will be received at the end of the study, if possible with the specific date, which we can add once the opening interview is scheduled, and should be 24 hours before the 3-month period concludes</p>	
<p>6. I understand that electronic and paper research data will be stored securely (password protected for electronic data; in locked storage for paper data) by Toucan App Ltd.</p>	

7.	I give permission for the anonymised information I provide as part of this project to be saved by the research team so it can be used for future research and learning.	
8.	I understand that this project is being undertaken by Toucan App Ltd. which is working in conjunction with PhD researcher Belén Barros Pena of Northumbria University. I understand that the information I share with the research team will be used both to inform the design of money management tools and services and for the purposes of academic research.	
9.	I understand that the information collected for this project will only be used for research purposes, in order both to inform the design of money management tools and services and for academic research. My consent is conditional upon Toucan App Ltd. complying with its duties and obligations under the General Data Protection Regulation 2018.	
10.	I understand that my name, or personally identifiable information, will not be used on any documents about the research.	
11.	I understand that I may request my data to be withdrawn after the interview is complete and up to 15 days after the date of the introductory interview.	
12.	I understand that I can ask questions at any point during any of the activities and about any aspect of the research.	
13.	I understand that I can leave the study at any time without explanation.	

Participant's name:

Participant's signature:

Researcher's name:

Researcher's signature:

Date:

If you have any questions, please ask the **Research Team**:

Toucan App Ltd., 28 Ely Place, London, EC1N 6TD
research@usetoucan.com

Bailey Kursar, bailey@usetoucan.com
Belén Barros Pena, belen@usetoucan.com

Informed Consent Form

This consent form relates to the closing interview of the Toucan Summer Trial project, a 3 month study and trial of the Toucan app.

I agree to take part in this research and confirm:		Initials
1.	<p>I have read and understood the information sheet about taking part in this interview.</p> <p>I have been able to ask questions about the interview and my questions have been answered to my satisfaction.</p>	
2.	I agree to take part in this interview.	
3.	I understand that this interview will be audio recorded and transcribed (typed up) with any identifying information removed to protect my privacy.	
4.	I understand the researcher may request consent to take photographs, and that I am free to refuse consent without explanation.	
5.	I understand all personal information will be covered before photographs are taken to protect my privacy.	
6.	I understand that electronic and paper research data will be stored securely (password protected for electronic data; in locked storage for paper data) by Toucan App Ltd.	
7.	I give permission for the anonymised information I provide as part of this interview to be saved by the research team so it can be used for future research and learning.	
8.	<p>I understand that this interview is being conducted by Toucan App Ltd. which is working in conjunction with PhD researcher Belén Barros Pena of Northumbria University.</p> <p>I understand that the information I share with the research team will be used both to inform the design of money management tools and services and for the purposes of academic research.</p>	

9.	I understand that the information collected during this interview will only be used for research purposes, in order both to inform the design of money management tools and services and for academic research. My consent is conditional upon Toucan App Ltd. complying with its duties and obligations under the General Data Protection Regulation 2018.	
10.	I understand that my name, or personally identifiable information, will not be used on any documents about the research.	
11.	I understand that I may request my data to be withdrawn after the interview is complete and up to 15 days after the date of this interview.	
12.	I understand that I can ask questions at any point during any of the activities and about any aspect of the research.	

Participant's name:

Participant's signature:

Researcher's name:

Researcher's signature:

Date:

If you have any questions, please ask the **Research Team**:

Toucan App Ltd., 28 Ely Place, London, EC1N 6TD
research@usetoucan.com

Bailey Kursar, bailey@usetoucan.com
 Belén Barros Pena, belen@usetoucan.com

Discussion guide

Participant number	
Study start date	
Study end date	
Interview type	<input type="checkbox"/> Remote <input type="checkbox"/> Co-located
Mobile OS	<input type="checkbox"/> Android <input type="checkbox"/> iOS
Mobile account email address	
Mobile number	
Documentation sent	<input type="checkbox"/> Information sheet <input type="checkbox"/> Consent form <input type="checkbox"/> Ally information sheet <input type="checkbox"/> Toucan user guide <input type="checkbox"/> Toucan setup guide <input type="checkbox"/> WhatsApp questions information <input type="checkbox"/> Diary examples <input type="checkbox"/> Printed diary

Setup, pre-interview

- Send email to participant with:
 - iPhone/Android installation guide
 - Consent form
 - Our phone number
 - Installation link
- Make sure you have to hand:
 - A paper diary
 - Diary examples
 - WhatsApp message examples
- Fill in the details above and throughout (end date and bank/device).

1. Introduction and context [5 min]

- ❑ Thank the participant for agreeing to take part in our research.
- ❑ Introduce Bailey as the interviewer and Belen as the observer.
- ❑ Give context for the call:

“Today we’re going to do three main things:

1. Talk through all the things involved with the research and make sure you’re OK with it.
2. Help you download and set up the app.
3. Ask you some questions about how you might use the app.

What we discuss today will be kept entirely anonymous. There is no right or wrong answer to our questions; it’s not an exam.

You won’t hurt our feelings if you don’t like something!

If, at any point, you have any questions, just jump in.

If you’re uncomfortable answering a question at any point, just let us know and we can skip to the next bit or take a break, no problem.

We know we have sent you a lot of information. Don’t worry, we’ll explain all the documents before the end of today’s call.

That sound OK?”

2. Gathering consent [30 min]

- ❑ Introduce this section:

“First, we’re going to go through what the research is going to involve. Unfortunately that’ll mean a lot of me talking for this first bit, I hope that’s OK.

You should have received a fact sheet in my first email; did you get a chance to read it?”

- ❑ Explain the app:

“In a nutshell, this is the opening interview of a 3-month study where you’ll get to trial a new mobile app called Toucan.

Toucan keeps an eye on the activity in your bank account, and sends you a text message when something unusual happens.

You define what ‘unusual’ means; for example, you withdraw more than a certain amount on a given day, or your balance goes below a certain number.

You can also share alerts with a trusted ally, someone who can support you and will be there if you need them. These text messages won’t share any information about your financial situation, just a request for them to get in touch with support.

We have sent you a document for that person to read called the ‘Trial Factsheet Trusted Ally’.

Hopefully you’ve had a chance to share that with the person you’ve picked and

talked to them about what's involved, since they will need to agree to become your ally by clicking on a confirmation link we will send them on an email in a bit.

The app is very new so there'll be lots of things we can improve about it, and that's why we want your feedback.

By using the app you'll be consenting to Toucan's terms and conditions, privacy policy and user licence agreement. If you have any questions about these, let us know."

Explain the WhatsApp or text message feedback:

"During the next three months, we'll be in touch with you on WhatsApp or text message twice a week.

We'll ask you the same two questions in those text messages, one on Thursday and one on Sunday.

One question will be about how you feel about your money that day; the other question will ask if you've spoken to your trusted ally recently.

We'd love to hear all your thoughts and feedback through WhatsApp or text message; the more you feel able to share, the better.

But there's no need to text back if you don't want to on a particular day.

We have sent you a document just now with the WhatsApp weekly questions explained, in case you want to see more about that."

Explain the paper diary:

"We've also sent you a paper diary in the post that looks like this.

It's got different pages for different things: a month-by-month page, like a normal diary, a page about money stories and feelings, a page about your ally and a page about the app.

The diary is for you to write down any thoughts or comments you would like to share with us. We'd love to get as much feedback through the diary as possible.

At the end of the study we'll ask you to send back the diary using the addressed and stamped envelope.

If you would like to keep it afterwards, we can take copies here in the office and then send it back to you – just let us know.

We have sent you some examples of how you can use the different pages in the diary in the post, so you can see the kind of thing we thought you could use the diary for."

Explain how to get in touch:

"Our job throughout this study will be to help you and get your feedback, so do contact us at any time and we'll try and come back to you as soon as possible.

We'll be on WhatsApp, text message or you can email us at research@usetoucan.com."

Explain the end of the study:

"Today, _____ is the first day of the study. The end day of the study will be 90 days from today, on _____.

On that day we'll send you a £50 Amazon voucher on email as a thank you for

taking part in the study. We'll also ask you to uninstall the app.

Before that, we'll also invite you to have a follow up chat with us in a 'closing interview'. For that you can either chat to us alone or with your trusted ally.

That'll be very similar to what we're doing today, in that we'll organise a chat and ask some questions about how you'll have found using the app.

If you're able to join us for that closing interview, we'll send you another £50 Amazon voucher on email, and the same for your ally if they're able to come."

Ask if they have any questions.

Ask for consent:

"Now you've heard all about what the study involves, are you still OK to take part?

Great.

We sent over the consent form for you to take a look at in advance.

At this point could you take a bit of time to read through it? Let us know if you have any questions at all.

Once you are happy with it, we will start the audio recording and we will ask you to record that you consent to take part in this study.

You just need to say your name, and that you consent to take part in the Toucan trial.

Just so you know, we'll record today's conversation and use it to create a transcript for our research. We'll be sure to keep the information anonymous."

Start recording and ask participant to say their name and confirm their consent:

"Brilliant. After this call, we'd appreciate it if you could print and sign the form, too, and email or text us with a photo of the signed pages."

3. Opening questions [10 min]

- ❑ Ask them to introduce themselves:

“I mentioned at the beginning a bit about myself and Belen. Now would be a great time to get to know you!

Can you tell us a bit about yourself?”

“How would a friend describe you?”

- ❑ Ask about their expectations:

“Why did you decide to get involved with this study?”

“What are you expecting to be able to do with the Toucan app?”

“Do you have anything that helps you get support with money now? If so, what do you like or not like about it?”

“What would a great money management app do for you?”

4. Installing the app [10 min]

- ❑ Ask about their use of their phone:

“Now we’re going to install the Toucan app on your phone.

Because the app is still not publicly available, we need to send you an invite to download it. But before we do that, we would like to know a bit more about how you use your mobile phone.”

“Which mobile phone do you have? When did you buy it and why?”

“Is this your first smartphone? How many smartphones have you had?”

“Do you use your mobile a lot? What do you use it for?”

“What are your favourite mobile apps?”

“Do you use WhatsApp? If so, we’ll add you now so we can chat using that.”

- ❑ Installing the app:

“Now we’ll need the invite link we’ve sent to you on email, or we can send it again now on WhatsApp.

When you have the link on your phone, tap it in order to start the set up process.

We’ve also sent you an installation guide which might help if you need it.

At this point, we're going to ask that you describe what you're doing as you go screen by screen.

It's not a very natural way of using an app, so we'll let you know if you've gone quiet, and don't worry if it seems odd to tell us you're tapping a button or reading something.

If you get stuck or have questions, let us know. We might also ask questions as we go, which is for us to make sure the sign up makes sense and not a test of your understanding.

Don't worry, we didn't personally design it, so you won't hurt our feelings with your feedback.”

5. Creating an account [5 min]

- ❑ When they get to the ‘Create your Account’ screen:

“Now that you have read the initial information about the Toucan app, what do you think of it?”

At this point, how do you think Toucan will be useful to you?”

- ❑ After they create an account:

“Any thoughts on this part of the app? How could it be easier?”

[1 hour check]

6. OpenWrks [10 min]

- ❑ When they get to the OpenWrks T&Cs screen:

“What do you think of these screens?”

“Do you have any comments or questions about OpenWrks?”

- ❑ When they see the list of banks to select from:

“Oh, so you are banking with _____. Have you banked with them long?”

“How do you find them?”

“Do you use their digital or mobile banking? What do you think of them?”

“What’s most useful from your existing digital banking?”

“What’s missing from your existing digital banking?”

“How do you currently manage your money? Do you use any tools or apps?”

“Have you ever discussed your mental health with your bank?”

- ❑ When they have connected their account:

“What do you think of the last few screens?”

“What kind of information do you think Toucan will be able to see from now on?”

“How does that make you feel?”

“If you wanted to cancel Toucan’s connection to your account, what would you do?”

7. Setting up money alerts [10 min]

- ❑ Before they save their money alerts:

“What do you think of the Toucan alerts?”

“Can you think of any situation in the past where these alerts might have been useful?”

“What other alerts would you like to have?”

8. Setting up an ally [10 min]

- ❑ Before they tap on the ‘Add an ally to Toucan’ button:

“What do you think of this idea of sharing money alerts with a person you trust?”

- ❑ When their contact list displays:

“Before selecting the contact, tell us a bit about your trusted ally. How do you know each other?”

“Why did you choose your trusted ally?”

“Has your trusted ally supported you in the past? How?”

“Has your trusted ally ever supported you with financial matters? How?”

- ❑ Ask about how they invited their ally to be involved:

“Before you select the alerts to share, how did you discuss the Toucan study with your trusted ally? How did you explain to them what the app does and how they will be involved?”

“How did that make you feel?”

“Is there anything we could have done to make that conversation easier for you?”

9. Sharing money alerts with an ally [10 min]

- ❑ When selecting the money alerts to be sent to an ally:

“Have you agreed on what your trusted ally should do when they receive a Toucan text message?”

If not, do have a think about this – it may be useful for your trusted ally to know what you’d like them to do when they receive a text message from Toucan.”

“Right now you can only share the money alerts with one ally. Would you like to be able to share the alerts with more than one person?”

10. Feedback on setup process [10 min]

- ❑ When they reach the 'all done' screen at the end:

“What do you think about the setup process?”

“Is there anything else you'd like to comment on? Or any questions you'd like to ask?”

11. Next steps and close [10 min]

- ❑ Wrap up and explain next steps:

“The app is now all set up, so we’re almost finished.

Just a quick reminder of what will happen next.

As we mentioned before, we’ll be in touch with you via WhatsApp twice a week from now on with two separate questions. You’ve got a document with examples if you want to see more information.

Also, just a quick reminder about your paper diary. The diary is for you to write down any thoughts or comments you would like to share with us. We’ve also sent you some example pages to show you what kind of thing we were thinking.

The end day of the study will be 3 months from now, on _____. We’ll then send you an Amazon voucher to say thank you, plus an invite to another chat to discuss your time with the app.”

- ❑ Let them know how to get in touch:

“If at any point you need to get in touch with us, or you have any problems with the Toucan app, you can reach us via WhatsApp, or via email on research@usetoucan.com. We’re also happy to arrange a call if that’s helpful.

If you come across any problems with the Toucan app or the alerts, or you find anything that it’s not working as it should, please let us know as soon as possible. It would also help us if you took a screenshot of your mobile screen that shows the problem you are having and send that to us too.

We’ll try and fix things that are broken as soon as possible.”

- ❑ Ask if they have any final questions:

“Before we let you go, do you have any questions or final comments?”

Discussion guide closing interview - Trial participant

- Tell us about the past 3 months: what has been happening in your life?
- Tell us about the past 3 months in terms of your mental health
- Tell us about about the past 3 months in terms of money
- Tell us about your experience with Toucan. How did you find the app?
- Did you encounter any problems with the app? Anything that didn't work?
- Did you get any alerts? Do you remember any of the events that triggered the alerts?
- Do you remember the very first alert you received? [INSERT DETAILS IF THEY CAN'T REMEMBER. E.G. DATE AND TYPE] How did it make you feel?
- Do you remember the last alert you received? [INSERT DETAILS IF THEY CAN'T REMEMBER. E.G. DATE AND TYPE] How did it make you feel?
- Did you edit the alerts after we spoke the first time? Why?
- Which type of alert was triggered most often?
- Which type of alert you found most useful, if any?
- What other alerts would you like to have?
- What did you think of the content of the alert messages?
- What did your ally do when s/he received an alert?
- What did your ally think about the alerts?
- Did the alerts have any effect in terms of your money interactions with your ally?
- In retrospect, did you choose the right person to be you ally? Or would you change it to someone else if you were to continue using the app?
- Based on your experience, and if you had to give advice to a new Toucan user: what makes a good ally?
- Overall, what do think of the Toucan app as an idea? What would need to change to make Toucan useful?
- Any final thoughts?

Discussion guide closing interview - Ally

- We have heard a little bit about you from [PARTICIPANT NAME], but since this is the first time we get to talk, please introduce yourself and tell us a little bit about yourself.
- Tell us about your relationship with [PARTICIPANT NAME]. Why do you think they chose you as their Toucan ally?
- How did you find out about Toucan and the trial we did over the summer?
- What did you think about Toucan when you first heard about it? What questions came to mind?
- Did you get to read the information document for allies? What did you think of it?
- How could we make that document better?
- How did you feel about becoming [PARTICIPANT NAME]'s ally? Is there anything that worried you?
- What did you think of the process of becoming an ally? Do you remember what you had to do?
- Did you discuss what to do if you received an alert from Toucan with [PARTICIPANT NAME]? What did you agree to do?
- Did you receive any alerts from Toucan over the summer? Do you remember what triggered any of the alerts?
- Do you remember the very first alert you received? [INSERT DETAILS IF THEY CAN'T REMEMBER. E.G. DATE AND TYPE] What did you do after receiving the alert?
- Do you remember the last alert you received? [INSERT DETAILS IF THEY CAN'T REMEMBER. E.G. DATE AND TYPE] What did you do after receiving the alert?
- What did you think of the content of the alert messages?
- Did the alerts have any effect in terms of your money interactions with your [PARTICIPANT NAME]?
- After your experience over the past 3 months, would you be willing to become [PARTICIPANT NAME]'s ally again in the future? Why?
- Overall, what do think of the Toucan app as an idea?
- What would need to change to make Toucan useful?
- Any final thoughts?

Let's talk about money

toucan

How third party money alerts from Toucan affected people living with mental health conditions



Working with



Bailey Kursar, with support from Belén Barros Pena and Charlotte Brohier

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Collaboration between Toucan and Northumbria University

The pilot study was planned and run as a collaboration between Toucan and the CoCreate research group at Northumbria University. CoCreate is a design research group based at Northumbria School of Design that explores societal challenges and cultural experiences through participatory and design-led research, with an emphasis on interaction design, social design and creative practice.

This collaboration was funded through a Postgraduate Research grant from the Arts and Humanities Research Council via the National Productivity Investment Fund.

About Toucan

Toucan helps people who need extra support managing their money because of conditions like dementia or mental health problems. The app allows users to securely share financial information, such as spending alerts, with someone they trust, typically a carer.

You can find out more about Toucan on page 44 or by emailing info@usetoucan.com.

Further reading

To find out more about the problems Toucan is solving, you can read:

- **‘A Little Help From My Friends: Tools to support financial decision-making for people with mental health problems’**, the Money and Mental Health Policy Institute, July 2019. Toucan is featured on page 41.
- **‘Strength in Numbers: consumers, carers and financial services’**, the Money and Mental Health Policy Institute, November 2016.
- **‘GC19/3: Guidance for firms on the fair treatment of vulnerable customers’**, FCA, July 2019, currently out for consultation. Third party access featured on page 45.
- **‘Consumers’ access to financial services’**, Treasury Select Committee, May 2019.

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Foreword

By Leah Milner

Leah is an award-winning journalist who regularly writes about personal finance, consumer affairs and mental health for national newspapers including the Daily Mail, The Sun, The Guardian and The Telegraph.



When you are struggling with poor mental health, it can be extremely difficult to stay in control of your finances. The thought of opening bills or checking your bank balance can feel totally overwhelming. Compulsive spending is a common feature of Bipolar and many who suffer with anxiety and depression use shopping to deflect negative feelings. On top of this, mental illness can impact earning capacity as it may lead to time off work or difficulties holding down a job. Once money problems arise, they often exacerbate mental ill-health, amplifying stress, anxiety and low self-esteem.

Over the past three years, research by the Money and Mental Health Policy Institute (MMHPI) has firmly established the frequent correlation between mental illness and financial difficulty. The charity found that almost half of people in problem debt also suffer from

mental health issues. But diagnosing the unhappy relationship between money and mental ill-health is just the first step. Coming up with a treatment plan is far more tricky.

Many people who live with mental illness say they would like to put in place safeguards when they are well to help protect their finances when they are not. Family and friends can play a crucial role, providing support with budgeting, decision-making and dealing with essential services. However, this help often relies on using informal workarounds which put both parties at risk. Four in ten people who have experienced a mental health problem have let someone else use their credit or debit cards and one in five have allowed someone to log in to their online banking, according to MMHPI.

Formal mechanisms do exist, but are unpopular. Lasting Power of Attorney allows people to designate a trusted person to help manage their affairs. In theory, it allows people to set limitations on the powers they are willing to delegate, but in practice this is difficult to implement since there tends to be an all-or-nothing approach. Only 3% of people who have experienced a mental health problem have a Lasting Power of Attorney in place and just one in three would consider doing so, MMHPI found.

I know from first-hand experience how costly living with a mental illness can be and how much support from family can help. As a money journalist I was in a strong financial position before I suffered a breakdown five years ago. I was diagnosed with Bipolar and, like many with the condition, spent compulsively during the manic phase. Thankfully, my parents confiscated my bank cards which stopped me from getting into debt or ruining my credit score. Nevertheless, I was unable to work for eight months while I recovered from the mania and the debilitating depression that followed. In all I calculate that my spending sprees and loss of earnings cost me £25,000. But it could have been much worse. Living almost rent-free with my mum during the episode and for several years afterwards allowed me to rebuild my savings and get my career back on track.

When it was suggested that I should consider giving one of my relatives a Lasting Power of Attorney over my affairs to prevent any future damage to my finances I was horrified. I wasn't willing to put my life in someone else's hands. My own reaction and the extremely low take-up of Power of Attorney for those with mental illness suggests that more flexible options are badly needed.

In *'A Little Help From My Friends'* - a recent report from MMHPI - a number of respondents said they would like to be able to nominate a trusted friend or family member to receive alerts when their spending patterns started to look unusual or their bank balance dropped below a certain level. It was clearly important for individuals to set boundaries and determine how much information they were happy to share with their trusted friend.

It is fantastic to see third party alerts becoming a reality in this pilot by Toucan. The encouraging results suggest they could prove to be a valuable tool in helping people to better manage their money while retaining independence, privacy and control.

Leah Milner

Executive summary

We've written this report to share our key findings having tested third party money alerts in a pilot over the summer of 2019. We believe these findings will be useful to those in the financial services industry grappling with how best to approach third party access tools, as well as those who work at the FCA, charities and Government.

In writing this report, we want to hand a megaphone to the people we've spent time with over the last three months. Those who live with long term mental health problems and have struggled with money issues related to their health.

The 14 people who piloted Toucan were between 27 and 60 years old, with conditions such as: Bipolar Disorder, Borderline Personality Disorder, Depression and PTSD.

Every participant invited someone they trust to receive alerts around their finances, and every one of them was generous with their time and feedback over the course of the pilot.

Since the end of the pilot we've reviewed over 45 hours' worth of interviews, 235 survey responses, 285 text messages and seven money diaries, including one which was 91 pages long. We've isolated over a thousand individual quotes and pieces of feedback for analysis.

There's a lot more to say than we have room for in this report. In this summary we have brought out the key statistics that demonstrate the appetite for third party money alerts, as well as the three biggest benefits we observed across our pilot participants.

“There has never been a better time to start realising the real-world potential of innovation that bridges finance, health and technology.”

Dr. Becky Inkster

There is strong appetite for third party alerts

- **Over 40%** of people surveyed through the Money and Mental Health Policy Institute told us that they have received money management support from someone they trust in the last two years.
- Of those receiving support, **96%** said they would find third party alerts useful when unwell, and 89% said they would find third party alerts useful day-to-day.
- **60%** said they thought a simple ‘red flag’ style alert would be most useful for their trusted third party, rather than disclosing transaction or balance details.

Third party alerts facilitate gentle conversations about money

- When a spending alert was triggered, a text message was sent to both the account holder and their trusted third party, sparking a timely conversation about money.
- Since alerts were sent to both parties, the trusted third party could use it as a gentle conversation opener, anticipated by the account holder. Conversations felt supportive and informal rather than confrontational, partly because of the limited information available to the trusted third party.
- Many participants talked about how their timely, supportive money conversations meant they felt relieved of anxiety and shame, and helped them feel better understood by their trusted third party. Trusted family members also talked about how they felt comforted by the fact that alerts were giving them insight as to how to help their loved one.

“That was the really powerful thing about the Toucan app, I think, prompting a very gentle conversation”

‘Paul’

Timely conversations lead to practical money management strategies

- While some money conversations triggered by Toucan alerts were simply about lending an ear, many of them resulted in practical steps to help with money.
- Several participants and their trusted third parties told us how they used their timely money conversations to problem-solve, from looking at a budget together, to making helpful suggestions to cut costs, to setting up an eBay account to sell off unwanted items.
- Participants whose trusted third party was their spouse reported that alerts helped them realise when they should have been spending from a joint account rather than their personal account.
- Participants who struggled with compulsive overspending online linked to their mental health found that alerts were helping them reflect on their behaviours. Two participants who might normally be tempted to overspend online found that the disincentive of an alert being sent to their trusted third party helped stop them spending. Another participant who suffered dissociative states found alerts helped her cancel online orders she had made while feeling unwell.

Third party alerts help people build better financial habits

- Having set up alerts, participants found themselves more likely to check their bank balance and transactions, even where it had previously been challenging for them to do so because of anxiety. When alerts were received, that was another prompt to check their account.
- Knowing that alerts were set up helped some participants plan ahead more, anticipating upcoming financial commitments such as weddings and birthdays. It also helped participants understand their own patterns of spending related to their mental health.
- Participants found themselves less likely to overspend since they knew their trusted family member or friend may receive an alert about it.

“Day to day, it definitely made me more aware of my spending”

‘Kristen’

Introduction: Why third party money alerts?

What are third party money alerts?

Millions of us might want a bit of extra support when it comes to managing our money, especially those who live with conditions like mental health problems or dementia. There are lots of ways that financial services firms are looking to help these customers delegate access to their finances or get support managing their money.

One of those ways is sometimes referred to as ‘third party notifications’, where a trusted family member, carer or friend is designated by the account holder to receive timely notifications whenever their spending data indicates they might be in trouble. This feature is what we at Toucan call ‘third party money alerts’.

These alerts can help people get support in a wide range of circumstances, including if they have been impulsively overspending, if they’ve fallen victim to a scam or if they simply need some support to keep them on track when getting out of debt or sticking to a budget.

Power of Attorney isn’t working

There were more than 800,000 Power of Attorney applications in the last year.¹ It’s a tool

that helps millions delegate access to their financial affairs, and the number of people using it is growing year-on-year. But it doesn’t work for everyone.

Many people with mental health problems want to get support from someone they trust when it comes to managing their money. But very few of them want to use something as heavy handed as a Power of Attorney. Only 3% of those who have experienced a mental health problem have put one in place.²

There are good reasons for this reluctance. Unlike other cognitive impairments, mental health problems can mean that someone’s need for support fluctuates. During a crisis, mania or a depressive episode, someone with a mental health problem may want support to kick in from someone they trust. However, during periods of good mental health, it may feel intrusive and patronising to give that person full access to their bank accounts.

This fluctuating need means that the all-or-nothing nature of a Power of Attorney isn’t the right solution for many. It also comes with a loss of privacy and risks of financial abuse. But many people with a mental health problem still want to delegate access to their finances to get extra support when they’re not well.

1. Office of the Public Guardian

2. The Money and Mental Health Policy Institute, ‘A Little Help From My Friends’, 2019

Introduction: Why third party money alerts?

Using risky workarounds

When we started working with the Money and Mental Health Policy Institute we surveyed their research panel and asked whether or not they were currently getting support around money management. Over 40% of those surveyed said they were either currently getting support from someone they trust or had done in the last two years.

Unfortunately, the lack of safe, flexible options for delegating access is forcing these people to use risky workarounds. Across the UK, four in ten people who have experienced a mental health problem have handed someone their debit card and PIN,³ while one in five have let someone log in to their online banking.⁴

Using these risky workarounds puts these people, already in vulnerable circumstances, at risk of financial abuse.

“I have been subjected to fraud and am currently in court proceedings with someone who took advantage of my vulnerability while I was manic”

‘Elizabeth’

The idea of third party money alerts

Potential alternatives to a heavy handed Power of Attorney were outlined in the Money and Mental Health Policy Institute’s recent report on third party access options, *‘A Little Help From My Friends: Tools to support financial decision-making for people with mental health problems’*.

One light touch alternative outlined was third party money alerts. Rather than delegating access to their bank account, people wanted to set up alerts that could notify a loved one or a carer that there was potentially an issue that needed to be resolved. The alert itself could reveal some details about the unusual spending, or it could be left vague.

Alerts would assist supported decision making, rather than delegated access, helping users maintain their privacy and limiting the potential for financial abuse.

“Power of Attorney is going into literally someone else taking over the management of your finances, I think, isn’t it? Whereas this is very light touch”

‘Caroline’

3. The Money and Mental Health Policy Institute, *‘A Little Help From My Friends’*, 2019

4. Ibid

Growing demand for third party money alerts

Demand has been growing for banks to introduce third party money alerts.

In 2016 the Money and Mental Health Policy Institute recommended that *“account holders should be entitled to request notifications of specific activities on their account(s) be sent to a carer or trusted friend”*.⁵

A follow up report in 2019 reiterated this recommendation, giving more detail. *“Financial services firms should offer customers the ability to set up simple SMS message alerts to a third party in response to triggers like a balance falling below a certain level, entering an overdraft, or spending above a certain amount”*.⁶

A 2019 Treasury Select Committee report on financial inclusion also proposed sending notifications to a third party.

Despite these calls for the implementation of third party money alerts over the last few years, Toucan is the only firm to date which has built and tested them with members of the public.

“An alert to my partner that I may not be OK will not only make him aware but hopefully make me aware of the money I am spending”

From our survey

5. The Money and Mental Health Policy Institute, ‘Strength in Numbers’, 2016

6. The Money and Mental Health Policy Institute, ‘A Little Help From My Friends’, 2019

Introduction: Why third party money alerts?

Mental health and money

Having a mental health problem affects someone's relationship with money in three key ways.

Firstly, they may find it difficult to budget or do basic financial admin like checking their bank statement. Research shows that 60% of people living with mental health problems say they're dealing with mounting unpaid bills stemming from their struggles to deal with money admin when they're unwell.⁷

Secondly, they may find themselves overspending on things they wouldn't otherwise buy in order to boost their mood or because of increased impulsivity. In fact, compulsive overspending is part of the diagnostic criteria for some mental health conditions, including Bipolar Disorder.⁸

Thirdly, they may find themselves on a lower income because of poor health, having to take time off work or cutting down their hours.

Getting support from someone like a family member, friend or carer can help alleviate the burden of managing money when affected by a mental health problem.

When we ran our survey and interviewed participants at the beginning of our pilot we found that there were common problems that they were looking to overcome with third party money alerts; ignoring their bank account, spending too much and not talking about money.

Ignoring the bank account

Several participants talked about how their anxiety around finances was hurting their ability to proactively manage their money. There was a vicious cycle here, where the more someone overspent, the more anxious about their finances they became, and so at the very point when they would have benefited the most from creating a budget, they felt least able to do so.

“If I know that I have overspent, sometimes I can choose not to look at my bank account. If I am feeling anxious about my money, I will avoid looking at it to be honest”

‘Abigail’

7. The Money and Mental Health Policy Institute, ‘Strength in Numbers’, 2016

8. ‘Evidence-based guidelines for treating bipolar disorder’, Goodwin et al, British Association for Psychopharmacology, 2016

Spending too much

Participants in our pilot as well as respondents to our survey with the Money and Mental Health Policy Institute explained how their spending habits were linked to their mood.

People talked about how, when they were feeling depressed or unwell, they might try to ‘cheer themselves up’ or alleviate boredom with shopping. One participant, ‘Anna’, talked about how her mental health problems included obsessive tendencies, and so she would often become fixated on a certain project or hobby and overspend in order to follow these obsessions.

One participant, ‘Roxana’, spoke about her online shopping as being problematic, particularly overnight as she struggled to sleep. Another participant, ‘Kristen’, said that she frequently had dissociative episodes where she might buy things online without realising what she was doing.

“I sometimes go through waves of buying stuff to try and make myself feel better”

From our survey

Not talking about money

When we first met our pilot participants, many were not comfortable talking about money regularly with the people closest to them. Some felt ashamed, others felt defensive.

It’s not surprising. Money is, after all, a tough topic to bring up for most of us.

“When someone says to you, oh I need to talk about your money, stupidly it puts your back up straight away, doesn’t it”

‘Ralph’

Their difficulty to have regular, healthy money conversations affected both our participants and their trusted family members and friends. It meant that participants were ‘bottling up’ their feelings of anxiety and shame, while their family and friends were frustrated because they weren’t finding out about money troubles until it was too late.

“It was only talked about when it needed to be talked about. When it was too late”

‘Roxana’s’ daughter

Case study: ‘Sarah’

Meet Sarah

Sarah is a warm, loyal and positive 40-year-old from the North West. She’s very close to her family and loves doing puzzles to calm her active mind.

When we met Sarah (not her real name) in July, she told us that she has struggled with her mental health these last couple of years. She’d been waiting for back surgery and that had made life difficult, exacerbating her mental health issues; she’d previously been diagnosed with Borderline Personality Disorder, Depression and Agoraphobia.

Unfortunately Sarah finds it hard to leave the house and sometimes found herself overspending on things online. She found managing her finances ‘too daunting’ and would put off looking at her bank statements for weeks. She had accumulated debt that she wasn’t sure how to tackle.

Sarah had a great support network but struggled to know how to ask them for help. She lives with her Mum, who has her own stresses, and although they are close, her sister is hugely busy with a job and three growing kids.

When we met Sarah she said she felt like a burden on her family, and that was severely affecting her mental health.

Using Toucan

When we gave her access to Toucan, Sarah set up her sister as someone she trusted to receive alerts whenever her spending looked unusual. The app connected to her bank account and helped her personalise the rules behind the alerts.

When the first alert was triggered, Sarah had a twinge of anxiety. Luckily, though, her sister got in touch because she’d got one too. Her sister popped round to see if she could help out and they ended up looking through the bank statement together. From then on, Sarah knew that whenever she got an alert, her sister would be there to help her.

As the pilot went on, the two of them got better and better at coming up with ideas to help Sarah financially. They came up with some practical money saving and making steps, like switching from cigarettes to e-cigarettes. By the end of the three months they were pros. They even started an eBay account together to generate some much needed cash from Sarah’s hoarding habit.

At the end of the pilot, Sarah found she had managed to open up to her sister much more about her struggles both with money and with her mental health. It brought them closer as sisters and meant Sarah felt able to look at her bank statement without that feeling of dread.

Sarah

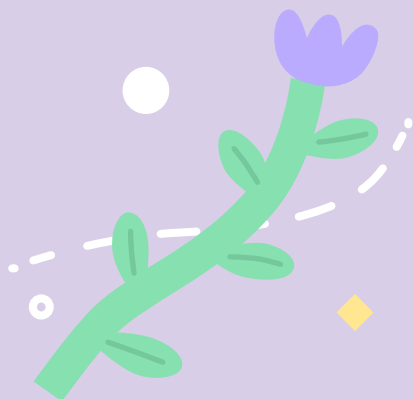
“I can’t tell you how amazing it’s been.”

It helped me to stop ignoring my bank and open my bank account and look at it and budget. It helped me do that regularly, not just once.

It helped me speak and share my worries about my finances with my family, which I wasn’t doing before.

It’s just opening communication that I wasn’t having and it has broken down a lot of anxiety and shame.

I just found it really, really supportive. I felt like I wasn’t on my own, lost in my own little world trying to keep it to myself and bury it all anymore.”



Sarah’s sister

“It’s like a team, rather than her facing it on her own.

It is not a big commitment at all. Sometimes it’s just a quick chat, sometimes it is more in depth.

I’ve enjoyed it really because it has brought me and Sarah even closer and it has made me think, *‘How can I help her with her finances?’*

I found that she opened up a lot more to me, rather than just saying the odd comment, *‘Oh, I’ve got no money’*. We would talk about it in more detail. *‘How much money have you got left?’* *‘When do you next get paid?’*

It is a good idea for the family members, because we worry about her. It is reassuring that you guys are there.”

How we tested third party money alerts

1. Experts through lived experience

In March 2019 the Toucan team came together with leading research charity the Money and Mental Health Policy Institute through work funded by Nationwide Building Society's Open Banking for Good.

At the time, Toucan was just a concept. We wanted to design the app and alerts only after careful consideration and feedback from the experts at the charity.

We sent out a survey to Money and Mental Health's research panel of over 5,000 people, asking about the support they get around money management and about how third party alerts should be designed.

Currently getting support

Over 200 people responded to our survey, and four in ten respondents said that they either currently get support from someone else around money management, or have done in the last two years. These people ranged in age between their 20s and their 70s.

Four in ten get support around money management.

Of those that answered the question, ‘*How do you receive support?*’, 58% said they share their debit card and PIN, and 38% said they share their online banking credentials; two informal workarounds that put these people at risk of financial abuse.

Currently getting support

We asked how many people used online banking, a prerequisite for using open banking to connect to an account. Only 9% said they had never used online banking. 91% said they did currently or had done so in the past.

We also asked respondents if they used a smartphone. 86% said they did.

To assess whether or not people might be open to trying a new app, we asked how many people were using challenger banks or open banking products.

- **10%** of respondents said they were using or had tried Monzo, Starling or Revolut
- **6%** were using or had tried either Yolt, Cleo, Plum or Chip

These figures show that being in vulnerable circumstances doesn’t necessarily mean that someone is less likely to use new technology.

The demand for alerts

In our survey we asked those who were already receiving support about their views on third party money alerts.

- **96%** of those people said they would find alerts useful when they’re unwell
- **89%** said they would find alerts useful day-to-day

All of these respondents said they would want the alerts to be on either always, often or sometimes.

89% getting support would find third party money alerts useful day-to-day.

“Great idea. Hope more opportunities to help develop apps are promoted through Money and Mental Health”

From our survey

Designing alerts

We asked those used to receiving support to tell us when it would be most helpful for their trusted person to receive alerts.

- **77%** said ‘when I’m running low on money’
- **65%** said ‘when I’m spending an unusually high amount’
- **31%** said ‘when I’m spending on specific things, like gambling’

We also asked what level of disclosure respondents would prefer in the alerts themselves, for example did they want a simple ‘red flag’ style alert, or to disclose their bank balance or transaction details.

- **60%** said they thought a simple ‘red flag’ alert would be most useful for their trusted family member, friend or carer
- **66%**, however, said they would be comfortable sharing more detail in alerts

The feedback gathered through our survey with the Money and Mental Health Policy Institute helped us make crucial decisions as we designed and built our app.

2. Spending time on safeguarding

New tools present new risks. We recognised that there were risks involved in introducing third party money alerts into someone’s life, particularly with people living with mental health problems. Alerts could cause or add to stress and anxiety; alerts triggered to a family member or carer could cause arguments or even abuse.

We worked with experts to understand the potential for harm and to design policies and procedures that would safeguard participants throughout the pilot. Our safeguarding policy outlines what the Toucan team needs to look out for in terms of psychological distress and financial abuse, and how they should then respond.

“All Toucan staff who interact with service users are trained to recognise key indicators where someone may be in psychological distress, experiencing suicidal thoughts or financial abuse”

Toucan’s Safeguarding Policy

Consultants FINTRAIL helped us map the risks associated with building third party money alerts.

“Individuals unfamiliar or underconfident with technology, who might be classed as vulnerable, are especially exposed to risks posed by a misuse or abuse of technology by illicit actors.”

The logo for FINTRAIL, featuring the word "FINTRAIL" in a bold, sans-serif font. Two diagonal lines intersect the letters: one line goes from the top-left of the 'F' to the top-right of the 'I', and another line goes from the bottom-left of the 'I' to the bottom-right of the 'L'.

3. Recruiting participants

By the summer we were ready to test our app and wanted to recruit a small group of participants for a qualitative pilot. We were again grateful to have the support of the Money and Mental Health Policy Institute, who helped us recruit participants through their research panel.

Out of 371 people asked in a relevant Money and Mental Health survey, over 60% said they were interested in testing Toucan.

From there, we asked the Money and Mental Health team to distribute more detail and, after further selection, 25 people consented to their details being sent across to Toucan. From there, we were able to bring 15 people onto our app, with 14 being a part of our pilot.

Who were the participants?

Of our 14 pilot participants, 11 were women, and three were men. They ranged in age from 27 to 60 and lived all over the UK, from the South West to Scotland.

Participants were not asked to disclose any information about their mental health, but the twelve who chose to share details with Toucan through the course of the pilot revealed that they were living with various diagnoses. Many were living with more than one condition.

- **8** participants mentioned that they have Depression
- **4** told us they have Borderline Personality Disorder
- **3** told us they have Bipolar Disorder
- **1** participant reported having Schizophrenia, another said they have underlying Psychosis

Of the 14 participants, six were in employment and five said that benefits were their main source of income. Eight were either dealing with problem debt at the time or had done so in the past.

4. Choosing trusted friends and family

When we invited participants to join the Toucan pilot, we asked them to approach someone they trusted who could receive alerts.

Who were the third parties?

We gave participants free rein as to who they invited to be their Toucan trusted friend.

- **7** of the 14 chose their spouse
- **2** chose their sister
- **2** chose their adult daughter

Of the three remaining participants, one chose their mother, one chose a close friend and one wanted to choose their professional support worker.

Of the 13 third parties selected, three live with mental health problems themselves.

Unfortunately we were unable to set up alerts for a professional support worker, despite their willingness to participate in the pilot, due to the fact that our app was only able to send text messages. The participant in question said that her support worker felt

that it would be inappropriate to receive text messages to her personal phone, but would have been happy to receive alerts through her professional email.

Why these people?

In terms of why participants chose the third parties they did, on the whole they chose people with whom they were already comfortable talking to about their health and financial situation. Most participants said that they had picked someone who they felt would not be judgmental when talking about money.

However, there were differing opinions on whether or not it was best to send alerts to someone very close, or whether a bit of distance might be helpful in order to remain more neutral when having money conversations.

“I am choosing my partner. It was a no brainer”

‘Kristen’

“I think that it is good to have a level of detachment... not too closely linked that it has an immediate impact on you”

‘Ralph’s’ sister

“I wouldn’t do a friend, I would do a family member”

‘Rose’

5. Setting up alerts

In July we helped all participants set up the app and interviewed them to ask about their experiences and expectations.

Customising alerts

The initial setup of the Toucan app involved participants connecting to their current account through open banking, setting up one or more alerts and then inviting their trusted person to consent to receive alerts.

We gave participants three different possible alerts to choose from initially, based on previous feedback from the wider Money and Mental Health research panel.

- An alert if their **bank balance** went under a specified amount
- An alert if they **spent more than a specified amount** in one day, excluding rent and bills
- An alert if they took out **more than a specified amount in cash** in one day

Participants were able to customise their alert thresholds and select the one or more alerts which would work best for them. Most participants selected the bank balance and overspending alerts, feeling that those would be the most helpful.

Selecting the right alert threshold for the overspending alert proved challenging for many, since they were unsure what they spent in an average 24 hour period. Luckily participants were able to tweak the thresholds as time went on, so if they received alerts when they did not believe their spend was unusual they could increase the specified amount as the alert threshold. Five of the 14 participants used this feature during the pilot.

“It’s really easy to alter the amounts and turn the alerts on. It’s all really user friendly”

‘Elizabeth’

6. Alerts sparked timely conversations

Participants were able to configure alerts so that when they were triggered, Toucan sent a text message both to them and also their nominated third party.

The text message for the participant specified which alert had been triggered, for example, *“Hi Bailey, Toucan noticed that your spending might be higher than expected.”*

The text message for the trusted family member or friend did not disclose any information, for example, *“Hi Belén, Toucan noticed that Bailey could do with a chat about money. Drop them a line soon.”*

What happened next?

After alerts were received, the trusted family member or friend would use the text message as a way of gently bringing up money with their loved one, either dropped into everyday conversation or over a call, text message or email.

Half of the participants lived with their nominated third party, meaning that conversations would often happen face-to-face.

“So when he comes in from work and, you know, we just had a brief discussion really and I just explained what had happened”

‘Abigail’

The other half of participants did not live with their nominated person, and so conversations happened over text messages, calls or email.

“She texted me right after she got it”

‘Ralph’

We’ll go into detail as to what action these conversations initiated in the next section of this report.

The effect of third party money alerts

Over the course of the three month pilot, a total of 430 alerts were sent across the 14 participants. 217 of those were only sent to the participant themselves, since there was an option to set up an alert to only receive it personally.

A total of 213 alerts were sent as third party money alerts, received simultaneously by both the participant and their trusted family member or friend.

- **75%** of these were alerts signalling overspending, indicating the daily spend threshold had been reached
- **15%** were bank balance alerts, indicating their balance had fallen below the threshold specified
- **10%** were cash withdrawal alerts, indicating they had taken out a certain amount of cash

Nominated third parties had a range of experiences with Toucan. Four received no alerts at all, while one received 48 over the three month period, roughly one every two days. Of those who received no alerts, in two cases participants experienced an issue around setting up their third party, one chose not to share alerts with their third party and one wanted to set up their support worker as their third party but was unable to do so.

As anticipated, when sent, third party alerts triggered money conversations. Those conversations had a range of benefits, discussed in detail in this section.

What was less expected were benefits to participants beyond money conversations. Having alerts in place seems to have helped participants develop better financial habits.

“Day to day, it definitely made me more aware of my spending”

‘Kristen’

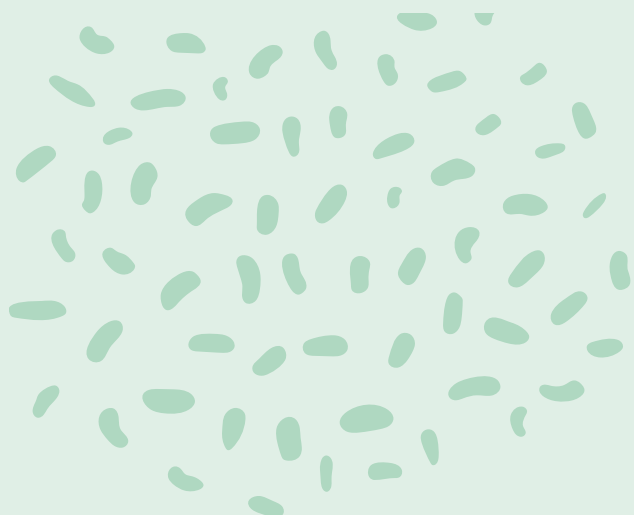
1. Opening up about finances

The first and most obvious effect of third party money alerts was that they triggered timely conversations about money between the participant and their trusted family member or friend.

Whereas normally it might be awkward or feel confrontational to talk about money, getting an alert from Toucan helped participants open up about their struggles and gave their nominated third parties a gentle way to start the conversation.

“It opens the conversation to get the support that I need”

‘Sarah’



Finding the words

Participants said that because Toucan’s notifications were a ‘gentle’ prompt, the app brought down barriers and helped them enter their comfort zone when discussing money. Money related topics came up organically in discussions with their trusted family member or friend, facilitating communication about their financial health and mental health.

Whereas normally it might be difficult to share worries about money, when a Toucan alert was triggered and went to both the participant and their nominated third party, participants knew there was an opening.

“Because I will have had the same alert, it wasn’t like, ‘Right we need to sit down and talk about money’, it was just very gentle”

‘Paul’

The alerts themselves didn’t need to reveal in-depth details like bank balances or transaction information to be useful. A simple nudge to have a chat helped people find the words to ask for help if they needed it.

“There is something to be said about letting the person have their privacy in that way”

‘Caroline’

The effect of third party money alerts

Starting the conversation

On the other side of the fence, many of the nominated family members and friends were pleased that they now had been given a licence to bring up money matters whenever they got an alert.

When we interviewed them at the end of the three months, many of these people told us how difficult it was for them when their loved ones were struggling because of money but hadn't been able to reach out until it was 'too late'. Several talked about how they had found out about hidden debt problems or compulsive overspending after the fact, and how frustrating it had been to not have been able to help or intervene earlier.

“It normally comes to the point where my Mum says that she’s in debt and I sort tell her off, saying, ‘Why didn’t you tell me you were in debt?’”

‘Anna’s’ daughter

With just a simple mechanism, a timely 'red flag' text message alert, these family members and friends were able to gain insight into their loved one's financial situation. They knew that it was a good time to check in about money. They also knew that their loved one would also have received a text, meaning they were expecting to have a conversation.

“I’d just be like, ‘Oh, by the way, the money people texted me’. Whereas before, I would never dream of mentioning, like, ‘by the way’”

‘Roxana’s’ daughter

Alleviating anxiety and shame

Opening up about money worries helped participants feel less alone, and in some cases alleviated their feelings of shame and anxiety about their situation.

“Even though I would never judge her for not having any money, she feels embarrassed sometimes. But I think that embarrassment is going now and she knows that her family are here to support her”

‘Sarah’s’ sister

Through the support of their nominated third party, participants said they gained a sense of comfort in the knowledge that someone they trusted was watching out for them, without taking away their independence.

The family members also found that knowing they had Toucan set up helped them feel a sense of relief. More regular money conversations were helping them better support their loved one, and they talked about how their relationship had benefited as a result.

“He has definitely changed since we’ve been able to talk and everything about money. So it has been a really good thing. A really, really good thing”

‘Paul’s’ partner

Sharing insight

Better and more frequent money conversations gave nominated family members insight as to their loved one’s situation, both financially and with their mental health.

By sharing their experiences, many participants found that they felt closer to their chosen family member or friend. They felt better understood, and in turn that also led them to feel a sense of relief, knowing that it would be easier to open up to their family more about their struggles.

“He is now fully aware of the pressure I was managing independently, so it certainly feels a relief for me”

‘Natalie’

2. Practical help with money

Some money conversations triggered by Toucan were simply about lending an ear, where the nominated family member or friend could provide a sounding board or offer sympathy.

However, the majority of participants said that at least one of their money conversations resulted in practical steps to help with money.

Four participants reported borrowing or accepting money from their Toucan third party, in all cases a person they regularly borrow from, such as a partner or parent. On the whole, though, conversations triggered by Toucan did not lead to informal borrowing, rather to practical money saving and making strategies.

Suggestions from a friend

Several participants told us that timely money conversations were able to help them go into more of a problem-solving mode with their trusted family member or friend. Tactics ranged from looking at a budget together, to making helpful suggestions to cut costs. One participant was encouraged to switch from buying cigarettes to using e-cigarettes, for example, which saved her money.

“She would come and help me sort it out, like, ‘You don’t need this!’, ‘You can take that off the shopping list’”

‘Sarah’

One participant who wanted to use her support worker as her nominated third party wasn’t able to do so, but still used every alert she received as an opportunity to talk openly about money with the support worker. Doing so led that worker to realise that the participant was eligible for a grant, and so the two of them focused on applying for that extra financial help.

“Even though they weren’t directly getting the messages, they were still asking me about my financial situation. It made me open up and get more support, like a grant”

‘Lisa’

One participant and their sister became so good at coming up with money saving and making strategies that they seemed to get to a point where they had fun with it. By the end of the three months they had started an eBay account together, planning to sell off unwanted items to free up spare cash for Christmas presents.

“We started coming up with ideas on how to make money!”

‘Sarah’s’ sister

Splitting the bill

Half of the participants using Toucan set up their spouse as their nominated third party. This meant that some people were using alerts not only to regulate their own spending, but also to remind each other when particular household bills needed splitting equally.

A couple of participants reported this as a particularly useful benefit. They would receive an alert when they had seemingly overspent, but in fact the transaction was simply a household bill such as a large weekly grocery shop. The alert then triggered a conversation between the couple, helping them to sort out who owes what.

For at least two participants and their partners it seems that receiving Toucan alerts has helped them split costs more equally in the household.

“It wasn’t until I got a few of those messages that I sort of realised, ‘hang on a minute, we’ve got a joint account for shopping for the house and I am still using my account’”

‘Natalie’

Stopping the spend

Mental health problems can affect spending behaviour in many different ways.

One participant suffers from dissociative states, where she feels detached from reality for a period of time. On more than one occasion, she was able to use Toucan alerts to realise that she had unknowingly spent money online the night before while experiencing a dissociative state. The alert then prompted her to cancel the online order before it was dispatched, meaning she did not spend money unnecessarily but also that she did not need to deal with the packages if they were to turn up.

“I’ve had a few alerts that have made me realise that whilst in a dissociative state, I had bought stuff online and hadn’t remembered the next morning so I was able to get online and cancel the order in time!”

‘Kristen’

Other participants talked about how they were more likely to overspend when feeling depressed, anxious or obsessive. Online shopping is particularly challenging to control because it’s available 24/7 and can prove extremely tempting.

Two of the participants found that the Toucan alerts were making them more aware of how their mood was influencing their spending, and so they employed a neat trick to stop an alert from being triggered.

When they felt the need, they went online and started shopping, filling up their virtual baskets to their hearts’ content. Then they would take some time away from the screen, come back and decide to delete the contents of the basket. This tactic would give them the thrill of shopping without the usual unnecessary spend.

“When I feel I need to buy stuff, I go online and fill a shopping basket and then I don’t actually go any further with it”

‘Natalie’

3. Building better financial habits

An unintentional benefit of testing Toucan with participants was that the mere knowledge that third party alerts were set up changed people's behaviour and improved their everyday money habits.

Checking their account

Many of the participants told us that they checked their bank account much more regularly than they would normally during the three month pilot. For some participants, this was a big change since they would normally feel anxious about dealing with their finances.

“It helped me to stop ignoring my bank and open my bank account and look at it and budget”

‘Sarah’

For others, just knowing that alerts were set up that could trigger a text message being sent to their nominated third party made them more likely to go and check their balance, to check they were keeping within their alert thresholds.

When participants received alerts it was yet another opportunity to go into their bank account and check why the alert had been sent.

“It made me go and have a look at my account. Like I did on a number of occasions when I got the alert, just to make sure that it was what I was expecting”

‘Eleanor’

Planning ahead

After a month of receiving alerts, some participants reported that they were learning about their own patterns of spending and could start to plan ahead, more than they would do normally.

“I know I have learnt a bit already in regards to my illness and spending and the trial is still in early days”

‘Kristen’

This increased awareness helped several participants anticipate upcoming financial commitments such as birthdays and weddings, as well as learn when they were most likely to overspend.

One participant talked about how he used to give into temptation regularly and buy things he wanted on credit, but with the alerts and money conversations during the pilot he was finding he was able to wait until payday. Another said she was planning ahead much more because of the alerts.

“Just being part of this has made me aware, probably far more aware than I would have been and planned ahead a little bit, because I am not a plan ahead girl”

‘Natalie’

Trusted family members and friends were also able to get insight as to their loved ones’ patterns of spending, helping them to predict when support might be needed most. ‘Rose’s’ mother said she would miss the Toucan alerts because they had opened up conversations with her daughter, but that by the end of the three months she knew when to expect them, so even without the app she could continue starting money conversations.

“I will have to keep on saying ‘Toucan has informed me’. I know the days of the month”

‘Rose’s’ mother

Weighing up what to buy

Improved awareness around spending meant that many participants said they felt they were choosing not to spend on things that they might have otherwise.

Partly, this was because participants knew that if they overspent, their trusted family member or friend would ask them about it. That provided enough of a disincentive to make them think twice before spending on something they thought might be perceived as frivolous.

In another way, alerts helped participants understand their own tendencies to overspend, and nudged them towards keeping more to a budget.

“My secret spending is no longer secret”

‘Natalie’

Challenges and opportunities

From our research we identified a number of challenges relating to third party access, also being mindful of how to best support people with mental health difficulties. None of these challenges are insurmountable, but serve as a useful reminder that third party access cannot be solved with a simple 'one size fits all' approach.

1. Designing flexible alerts

The challenge

It became clear during our pilot that there is lots of complexity involved in designing third party money alerts that work for everyone.

Sharing more detail in alerts

Before our pilot we had asked about how much detail people would want to disclose in their alerts through a survey we ran through the Money and Mental Health Policy Institute. In that survey, 60% said that they thought a simple 'red flag' style alert would be the most useful for their trusted family member or friend.

We listened. We designed our alerts so that they did not disclose any personal information, simply providing a timely nudge for the third party to contact their loved one for a chat.

At the end of the pilot, our participants broadly agreed this was the right approach but thought that more options would be useful.

Many of the trusted family members and friends said that they thought the alert provided enough information, and that they would be uncomfortable knowing more. They felt it was important for there to be boundaries in order to maintain a healthy relationship and not feel there was too much of a power imbalance.

“I don't need to know every single penny my Mum spends and even though she's unwell, she is entitled to that sense of privacy”

‘Roxana’s’ daughter

Other participants and their nominated family members or friends said that the generic content of the alerts during the pilot had limited their usefulness. One participant and his sister agreed that it would be helpful to know what kind of alert had been triggered, or to provide some level of escalation with particularly unusual alerts.

Another participant and his trusted friend found the limited content of the alerts frustrating, since they felt they did not share enough information to facilitate a specific conversation. The participant told us how he would have been happy to share much more detail with his friend.

“She was kind of frustrated in that all she got was the same text message. I would be more than happy to authorise her knowing more specifics with regards to where the money had been spent or how much I’d spent”

‘Kyle’

Adding friction to change alerts

During our pilot we handed control to the participants. They were able to add and edit alerts or even change their third party whenever they liked. We wanted to see how people choose to set up and edit alerts when given that freedom.

Many of the participants found this freedom useful. Five used the app to change their alert thresholds and settings during the pilot, and one participant changed her nominated third party.

However, several participants pointed out that if they were to have Toucan set up while experiencing mania, they would have the ability to edit alerts in order to hide their spending, without disclosing the reasons to their third party.

One participant who has Bipolar Disorder talked about how he could have manipulated the alerts in order to give his trusted family member the impression that he was spending normally.

Another participant with Borderline Personality Disorder also felt this loophole was important to fix.

The opportunity

We have learned a huge amount from our pilot about how to build flexible third party alerts that balance letting people set their own boundaries with receiving the right level of support.

Tools such as a time bound agreement between the user and their third party when alerts are set up could pin down the expectations of both parties and then be scheduled for review in a specific time period.

This structure allows us to facilitate a negotiation of sorts between the two parties about the level of detail they want to share in alerts, and what level of friction should exist in order to edit or remove alerts.

2. Supporting the third party

The challenge

Having tested third party money alerts we believe it is crucial that any organisation offering this feature provide appropriate support tools for the trusted third party.

Third parties need support too

A common theme when speaking to the nominated family members and friends at the end of our pilot was that they felt they needed more tools and information to better support their loved ones.

Some third parties spoke of the need to have access to further support, such as appropriate charities or support services.

“You could have a website that you could just go on, whether it will be a list of addresses for help with different things”

‘Ralph’s’ sister

This need for extra support became even more apparent when we understood that three of the 13 third parties in the trial were in vulnerable circumstances themselves, living with mental health problems. It’s important to make sure that alerts work well for these people, too, so they don’t feel overwhelmed by the responsibility they have signed up to.

Defining responsibilities

Several third parties talked about how they had struggled to understand exactly what responsibilities they were taking on as part of the Toucan pilot. When we interviewed them at the end of the three months, some said that it had been far less of a commitment than they’d anticipated.

However, it had been difficult for these people to understand exactly what was expected of them when they consented to receive alerts at the start of the pilot. One third party said that she had felt a bit confused by the whole concept.

“I’m kind of thinking, ‘Well, what is my role?’, ‘What am I expected to do?’, I don’t know, I was thinking, ‘Well, do I have to do more?’”

‘Paul’s’ partner

Having more context

Alerts during the Toucan pilot did not reveal any details about why the alert had been sent. It was designed as a simple nudge for the third party to open a conversation. While these nudges proved useful, several third parties said they would appreciate more context. Some nominated family members said that more context would help them understand when the problem was most acute.

“Whether there was a lot of expenditure or it was very, very frequent it might trigger more of an alarm. Maybe like a green, amber and red warning system”

‘Ralph’s’ sister

Another trusted third party asked if she might get access to an app that gave her visibility on the alerts that had been sent in the past, so she could understand her mother’s patterns of overspending.

An added benefit of sharing more context with third parties would be that the nominated family members and friends could feel less ‘in the dark’, which during the pilot occasionally caused them to worry.

“I thought, ‘Is this actually something that I should be worried about?’”

‘Eleanor’s’ partner

Different tools for professionals

It wasn’t enough to offer Toucan alerts through text messaging only. One participant wanted to set up her support worker as her trusted third party since she felt that they would be less judgmental than her family might be.

Unfortunately the support worker was unable to set up Toucan alerts due to professional boundaries. If her support worker had access to alerts through email or similar, she would have been happy to use Toucan.

“I have strong connections with my Family Support Worker and my Care Coordinator. It was frustrating because they were happy to do it”

‘Lisa’

The opportunity

We have a much better understanding now about the support we need to provide to the third party, thanks to the people who took part in our pilot.

Our solution to the challenges around offering more support to the third party is to design and build a version of Toucan they can use.

However, we need to be mindful that not every trusted family member or friend will want to use a mobile app. Not only are there professional support workers and carers who will want to use this product with a work email or phone number, but there will also be people who would prefer to receive alerts as a text message. For these people we will design different versions of Toucan.

3. Dealing with consent

The challenge

Differing views on refreshing consent

When consenting to share third party money alerts with a trusted person, it's important that Toucan users are able to know upfront how they might reconsider or revoke consent in the future. However supportive the relationship is between the user and their family member or friend, it's possible that it could sour or become strained.

Before the pilot, participants had a variety of views about how frequently they would want to grant consent for a loved one to be able to access their finances.

- **Two** felt they would be happy granting consent only once, without the need to refresh permission with their family member. Both of those people invited their spouse to become their trusted third party.
- **Five** people felt they would want to refresh consent once a year.
- **One** person thought every three months would be best.

Any solution in terms of managing consent between the two parties would have to include a way for both the user and their third party to be able to check the agreement in place at any time, to remain aware of the consent status.

Losing mental capacity

Designing an effective mechanism to give consent, refresh consent and revoke consent becomes even more challenging in cases where mental capacity is lost. Given the nature of the mental health problems affecting our participants, loss of mental capacity is a scenario that must be well thought through.

One participant was hospitalised on three separate occasions during the three month pilot, experiencing severe mental health problems. During this time he stopped using the smartphone on which the app was installed, meaning that although the alerts were still being sent to his trusted friend he could no longer edit them or receive them himself.

This participant spoke to us at the end of the pilot and reassured us that he was comfortable with the fact that he could have revoked access to Toucan through his online banking, stopping the alerts. Understandably though, at the time, the pilot was not the first thing on his mind.

“I could have logged onto my online banking and revoked access to the app, having access to my bank account at any point. I had no issue with that at all”

‘Kyle’

Although this participant was comfortable that throughout his experiences through the pilot he knew he could have revoked consent, his case demonstrates some of the issues around how Toucan should handle consent where an episode such as mania or psychosis could lead to a loss of mental capacity.

It's not a straightforward problem to solve. On the one hand, the regular refreshing of consent can safeguard users who might not be capable of giving consent for third party alerts to be sent. On the other hand, those periods of time when a user has lost mental capacity may be the most important times for Toucan to be reporting problematic or unusual spending behaviour to the trusted third party.

After all, alerts during a manic episode in particular could help highlight to a loved one that the user is experiencing mania far sooner than if alerts were not in place.

“When my mental health declines and I become manic, the amount of spending I do in this situation is a clear sign of me struggling”

From our survey

The opportunity

Toucan is working with the relevant regulators in order to work through the challenges around how to manage consent journeys between the user and their nominated trusted person.

In the future, agreements between the user and their third party in the app can set out when consent must be refreshed by both parties. Regularly refreshing consent will provide an opportunity for users and their trusted family members and friends to ‘check in’ about how useful the alerts have been, tweaking them if needed.

4. Using open banking

The challenge

Open banking is a relatively new way of connecting to bank account data. It went live in the UK in January 2018 and is designed to provide a secure way for consumers to use their own banking data for a range of use cases, such as shopping around to get a better deal or aggregating their accounts into one app.

Open banking is the technology that underpins the Toucan alerts, making them possible. Since it's still early days for open banking, there are challenges both about how well consumers understand it and with the technology itself.

A perception barrier

Although we saw some nervousness about open banking, four of our 14 participants actually told us they already used upstart open banking products, namely Chip, Yolt, Emma and CreditLadder.

What this uptake shows is that, where the service is compelling, users tend to be happy to use open banking products. They also said that they trusted apps which were mentioned or endorsed by a trusted source. For example, one participant said her mother had been worried about her using Chip until she saw that Martin Lewis had talked about it.

Every one of our 14 participants were happy to connect the Toucan app to their banking data using open banking. Partly this was because of the trust they had in Toucan's pilot, particularly because of the links to the Money and Mental Health Policy Institute.

However, some did tell us that using open banking made them feel nervous, especially because they felt it was new.

“It’s just that ‘open banking feeling’.

It’s just a new thing isn’t it, and I guess as it goes on through time and people don’t hear bad stories about it then more people will do it.”

‘Paul’

Getting the right data

Although alerts around spending amounts and bank balances were relatively simple to configure and send for our pilot, there are some potential limitations to designing alerts in the future, due to the data currently provided through open banking.

For example, alerts were sometimes sent in error because the categorisation on certain transactions was flawed. One alert we allowed participants to set up helped them identify when they were spending over a certain amount in a day, excluding their rent

and bills. But the majority of transaction data we received from banks was mislabelled and categorised as 'Other expenditure', so it was often not possible to exclude rent and bills, as we had thought we would be able to.

What's more, we were only able to pull data from each account four times a day. This factor, combined with the fact that transaction data was often delayed or mislabelled, meant that alerts could not be sent in real time.

The opportunity

Our pilot has made us aware of the need to do two things in order to combat the challenges presented by open banking.

Firstly, we are delighted to have been selected as a finalist in Nesta's Open Up Challenge 2020. As part of the challenge, Toucan and other open banking products will be promoted to the wider public, helping to address the perception barrier head on.

Secondly, we are tackling the limitations presented by open banking data by investigating ways to augment our data sources and improve our labelling and categorisation. We intend to partner directly with banks themselves, which will help us overcome the limitation of pulling data only up to four times a day. These solutions will help us design much more flexible alerts and send them in real time.

5. Offering a cross-bank product

The challenge

During our pilot it became clear that participants would want to connect Toucan to multiple accounts across multiple banks to be truly useful. Many participants also told us they would prefer it if Toucan remained independent of their bank.

Connecting multiple accounts

For the pilot, our app limited participants to connecting only one current account. We designed the app this way to keep things as simple as possible for testing. However, it became clear that in the future we would need to allow users to connect to multiple accounts and products, across banks.

Firstly, we saw that several participants did not just bank with one provider, but instead used current accounts across multiple banks.

“I’ve got a couple of bank accounts. HSBC is my main one. I’ve got Halifax. I’ve got NatWest.

‘Rose’

Secondly, participants mentioned that they regularly spend money not only from their main current account, but from joint accounts and credit cards too. They wanted to be able to set up alerts from any one of these accounts at once.

Lastly, participants told us they wanted even more from the app. They wanted to be able to connect accounts and products from different banks and providers, all in the same app.

“Eventually everything will come under one umbrella instead of being fragmented here, there and everywhere”

‘Roxana’

Offering through a bank

When asked whether or not they would be comfortable using Toucan if offered by their bank, participants were split down the middle. Some felt unsure about using third party money alerts through their main banking app because they felt they may be penalised somehow by the bank.

“I’d be a bit paranoid about it because I would be worried that it could affect my credit rating, my credit score”

‘Kyle’

For these people their preference was for Toucan to remain a separate app, funded by the banks but independent from them.

“It could be funded by the banks for example, but as a separate app. I think personally I would find that more trustworthy and more likely to use it”

‘Kyle’

“I’d rather have the Toucan app than the banking ones”

‘Sarah’

Others thought it was a great idea for their bank to offer Toucan directly.

“It being from your bank, you would automatically think it was much more secure and reputable”

‘Eleanor’

The opportunity

At Toucan we believe it's in the user's best interests to create an app for sharing alerts and financial data that sits outside of the banks. By maintaining independence we will be able to help users connect to accounts and products across all their various providers.

With the advent of marketplace banking we want to build an app that any bank can plug into to support customers in vulnerable circumstances.

About Toucan

Toucan uses open banking to help people manage money better together with someone that they trust, typically a carer.

Sharing the load is unnecessarily risky

Over six million people in the UK live with some kind of cognitive impairment, such as dementia or a mental health problem. These people often want to be able to delegate access to their finances and share the burden of financial admin.

More than 800,000 Power of Attorney applications were completed last year in the UK,⁹ and yet that's only scratching the surface of the problem. Tools don't yet exist to help those with Power of Attorney delegate access to their finances, never mind those who want a lighter touch, less intrusive solution.

There's a huge gap between the number of people who need a safe way to share access to their finances and the number using Power of Attorney for that purpose. Only 3% of people with mental health problems have used a Power of Attorney to allow someone to

help them with money management, yet 20% have let someone else log into their online banking on their behalf.¹⁰

By choosing to use risky workarounds like sharing their online banking login details, these people who are already in vulnerable circumstances are putting themselves further at risk of financial abuse.

Solving these problems with tech

Toucan helps people who want extra support with money management share timely spending alerts or selected financial information securely with someone they trust.

Digital tools provide a safe and flexible way to delegate financial admin, an alternative to sharing online banking details or a debit card and PIN number.

For the first time, open banking enables these tools to be built outside of a bank's core infrastructure.

⁹. Office of the Public Guardian

¹⁰. The Money and Mental Health Policy Institute, 'A Little Help from My Friends', 2019

A spectrum of third party access

At Toucan, we think about third party access tools as sitting across a spectrum that ranges from light touch, with third party money alerts, all the way through to full access, where a third party could have delegated access to all accounts, with permission to move money and pay bills (*see below*).

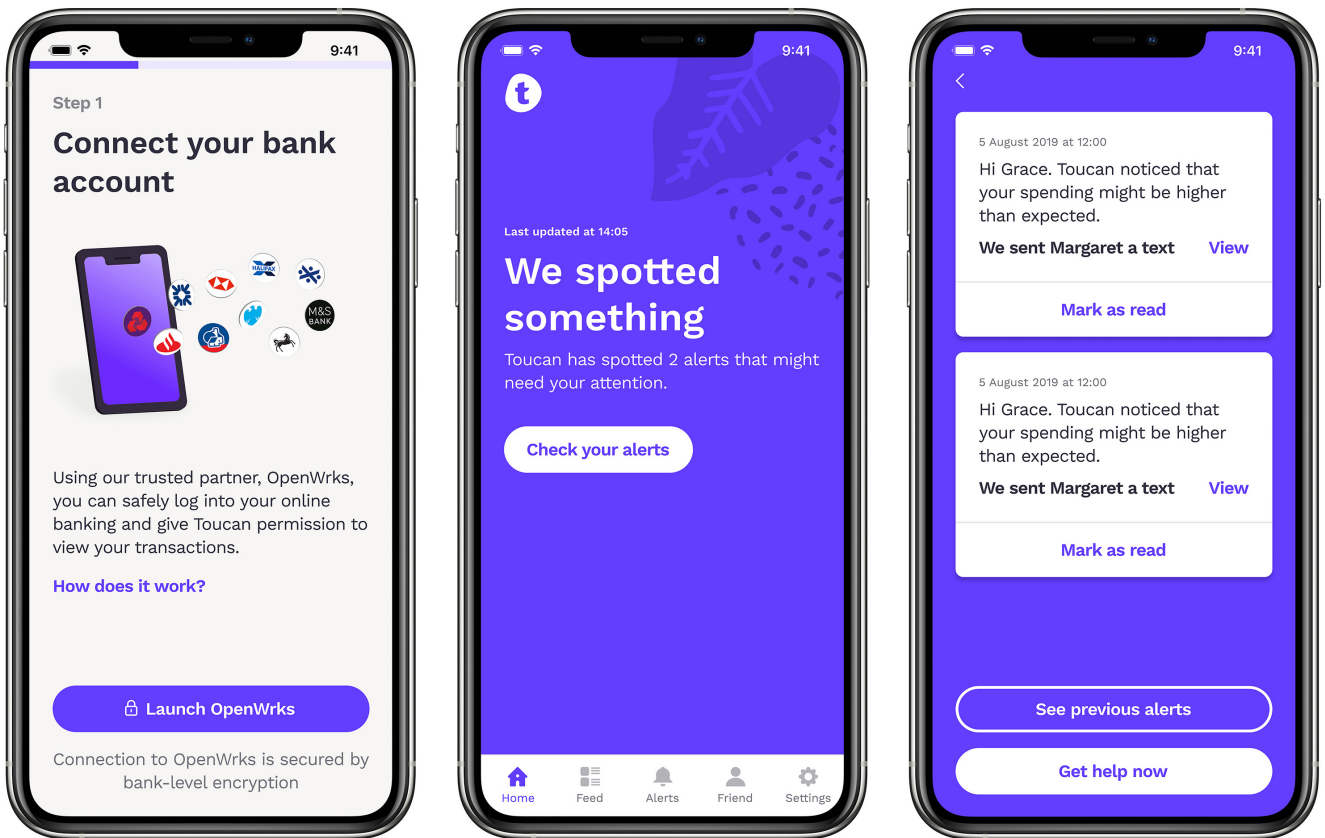
We're committed to building out these tools to put in place a range of safe, flexible options for third party access. We believe that more flexibility enables greater independence for people living with impairments, allowing them to keep their privacy and dignity as much as possible.

	Light touch				Full access	
Web/mobile app	Timely alerts sent to a third party that contain no financial information	Timely alerts sent to a third party containing selective financial information	Read-only access to selective transaction and account data	Read-only access to all transaction and account data	Restricted access to selected accounts to pay bills or move money	Full access to all accounts to pay bills or move money
Carer card			Debit card and PIN for the third party with restricted capabilities		Debit card and PIN for the third party with full access	

Our first product is an app

In three months we were able to design and build our first version of the Toucan product, a mobile app for Apple and Android that enables third party money alerts.

The app allows users to connect to their live current account data, set up alerts that signal unusual spending activity, and then nominate a trusted third party who can receive those alerts through text message.



Above: Screenshots from the Toucan app

An expert team

Our team are veterans of financial services and technology, having worked at Monzo, Zopa, Funding Options and more. We are now on a mission to help all banks support customers in vulnerable circumstances with safe, flexible third party access tools.

Since the team came together in March 2019, Toucan has designed, built and tested our

app with members of the public, working with leading research charity the Money and Mental Health Policy Institute, supported by Nationwide Building Society's Open Banking for Good programme.

We're excited to start building out our product in 2020, supported by Nesta as a finalist in their Open Up Challenge 2020, where we are one of three teams awarded £100k for our commitment to financial inclusion.



The Toucan team (left-right): Lilian Tula, Bailey Kursar, Emily Trant and Evelina Vrabie

Working with Toucan

We're ready to partner with banks and corporates in order to pilot Toucan. Talk to us about how we can help you support your customers in vulnerable circumstances.

General enquiries

info@usetoucan.com

Bailey Kursar - CEO

bailey@usetoucan.com

Appendix

Research methodology

Contributed by Belén Barros Pena, PhD researcher at Northumbria University School of Design.

This qualitative pilot study trialled the Toucan mobile application for 90 days from July to October 2019 with 14 participants who self-identified as living with a mental health condition. During the 90-day trial period, participants installed and used the Toucan application on their personal smartphones, while engaging in a light-touch diary study through mobile messaging. Participants were also provided with a custom-printed paper diary that invited them to reflect on their financial lives and the role the newly-installed Toucan application played in them. The beginning and end of the study were marked by semi-structured interviews, which were carried out remotely via telephone or video call. The opening interview focused on installing and setting up the Toucan application. The closing interview enquired about participants' use of the application and the relationship with their Toucan trusted third party.

As compensation for taking part in the study, participants were offered a £50 Amazon voucher upon completion of the 90-day trial period, and a £50 Amazon voucher upon completion of the closing interview. A further £50 Amazon voucher was offered to Toucan third parties willing to volunteer for a closing interview.

The study received approval from the ethics committee in the Faculty of Arts, Design and Social Sciences of Northumbria University.

Collaboration between Toucan and Northumbria University

The study was planned and run as a collaboration between Toucan and the CoCreate research group at Northumbria University. CoCreate is a design research group based at Northumbria School of Design that explores societal challenges and cultural experiences through participatory and design-led research, with an emphasis on interaction design, social design and creative practice.

The collaboration was funded through a Postgraduate Research grant from the Arts and Humanities Research Council via the National Productivity Investment Fund.

Participant profiles

14 people were recruited from a sample of 5,000 UK research volunteers administered by the Money and Mental Health Policy Institute (MMHPI). As part of a survey ran in April 2019, the MMHPI identified 226 people from their research sample who expressed interest in testing the Toucan mobile application. These 226 volunteers were contacted again in May 2019 to share more details about the pilot and to reconfirm their willingness to trial the application between July and October 2019. 25 people consented for their information to be shared, out of which 15 agreed to enrol in the study. One participant did not complete the app set up and so was discounted for the purposes of the study.

Participants - 11 females and three males between the ages of 27 and 60 - were not required to disclose any information about their mental health condition or employment status as part of the research protocol. The twelve who chose to share such details with the research team mentioned the following mental health diagnoses: eight with Depression, four with either Emotionally Unstable Personality Disorder or Borderline Personality Disorder, three with Bipolar Disorder, two with Post Traumatic Stress Disorder and one with Schizophrenia. Six participants were in employment, and five reported social welfare benefits as their main source of income.

Toucan app use

All 14 participants installed and configured the Toucan application during the opening interview, seven on the Android operating system and seven on the iOS operating system.

13 third parties were set up during the study period. 11 participants set up their third party during the opening interview, with three choosing to skip the third party configuration step. Of the three participants who skipped

the third party configuration step during the interview, two set up a third party at a later stage, and one decided not to set up a third party. This was due to the unavailability of their chosen collaborator, a professional Support Worker who was willing to receive alerts but was not able to receive them through a personal phone number.

Seven participants chose their spouse or partner as their third party, five picked a family member (two daughters, two sisters and one mother), and one opted for a close friend. One participant changed their third party during the study, swapping between their spouse and mother several times before settling on the latter.

10 of the 13 third parties received at least one Toucan alert during the study period. A total of 643 Toucan alerts were sent during the 90 days of the study: 430 alerts were sent to participants, and 213 were sent to their third parties. The table below provides details of the Toucan alerts triggered during the study period:

Alert type	To participant	To third party	Total
Balance alert	82	31	113
Spending alert	300	160	460
Withdrawal alert	48	22	70

Diary study

The diary study lasted 90 days, and started immediately after each participant had installed and configured the Toucan application. The duration was chosen to match the 90 day customer consent validity established by the Open Banking Standard, therefore avoiding the need for participants to re-consent to the Open Banking connection between Toucan and their bank accounts during the study period. Participants started the diary study between the 8th and the 25th of July 2019, and completed it between the 6th and the 23rd of October 2019.

During the 90 day diary study period, participants were sent two questions per week, on Thursdays and Sundays, through mobile messaging. The Thursday question asked participants whether they had discussed any money-related subjects with their third party during the past week. The Sunday question asked participants to rate from one to five how positive they felt about money, with one being 'not at all positive' and five being 'very positive'.

Although participants were encouraged to choose an end-to-end encrypted mobile messaging application (WhatsApp) to receive and reply to the diary study questions, three of them preferred to communicate via SMS. One participant requested to be excluded from the mobile messaging altogether. Two participants stopped responding to the mobile messages during the diary study period, with 11 of them replying regularly until the completion of the 90 days.

A total of 285 mobile messaging communications relevant to the study were received from 13 participants:

- **122** answers to the Thursday question about money conversations.
- **141** money positivity ratings.
- **22** additional comments: 10 about matters related to the Toucan application (e.g. bug reports, design feedback, use queries); 11 qualifying or explaining the money positivity ratings; and one providing feedback on the experience of taking part in the study.

Participants also received a custom-printed paper diary that included prompts about mood, personal finances, the role of the financial third party and the Toucan application. The diary also provided non-directed space where participants could write about any subject they wanted to bring up. Six participants used the diary to document their experiences during the trial and returned them to the researchers. One participant also kept a personal diary during the study, and handed it over to the researchers as additional material. Finally, the participant who requested to be excluded from the mobile messaging activity was provided with a set of stamped blank postcards, four of which were written on and posted back to the researchers.

Interviews

The beginning and end of the study period were marked by semi-structured interviews. A total of 31 interviews were carried out: 14 opening interviews and 17 closing interviews. Overall, 22 people were interviewed as part of the study: 13 out of the 14 participants agreed to take part in a closing interview, together

with eight third parties. Four third parties joined the interview of the participant they had supported, and four opted for being interviewed separately. 28 of the 31 interviews were carried out remotely, with one opening interview conducted face to face and two interviews conducted via email. 11 remote interviews were done via FaceTime, three via Google Hangouts, one through WhatsApp, three over Skype and 10 through phone calls.

Four interview discussion guides were prepared: for the opening interviews, the participants' closing interviews, the third party's closing interviews, and the joint (participant and third party) closing interviews. The opening interview was structured around the Toucan application installation and configuration process. It included questions about information and communications technology use, financial and banking habits, the alert options provided by Toucan and the chosen third party. The closing interviews discussed the study period in terms of wellbeing, mental health and personal finances, the design of the Toucan application, the experience of receiving alerts, the experience of sharing alerts with third parties, and the impact of Toucan use on personal financial habits.

Data analysis

Upon completion of the closing interviews, participants' data was collected and processed as follows:

- Mobile messages were exported and compiled for analysis.

- Money positivity ratings were plotted into line graphs.
- Diaries were scanned and transcribed.
- Alert data was extracted from the Toucan application database.
- Interview audio recordings were transcribed verbatim.

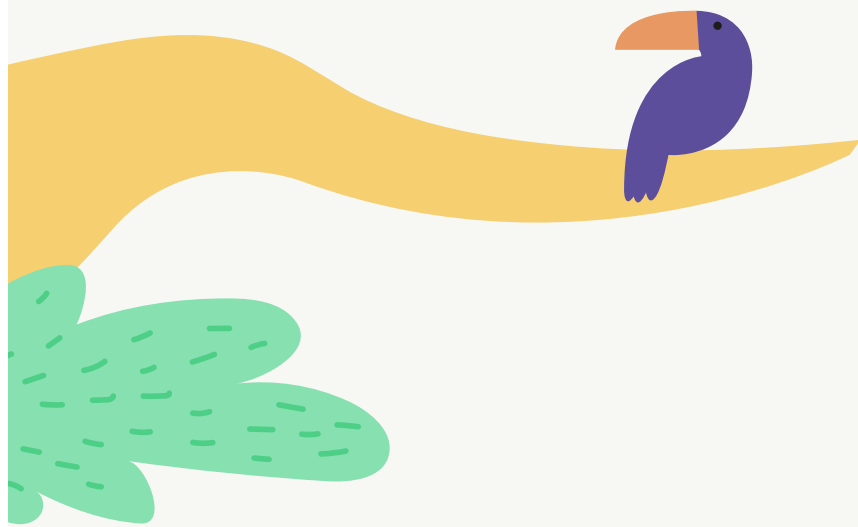
No financial data from participants was used for analysis purposes.

After a close reading of the collected data, and for the purposes of this report, the research team compiled a list of questions to guide the analysis:

- What were the effects of sharing financial notifications with a trusted person?
- How did trusted persons perform their third party role and through which practices?
- How did financial notifications impact money conversations?
- What was the effect of financial notifications on personal financial habits?
- What were the challenges of delivering effective third-party financial notifications?

The report team proceeded to code the data corpus guided by the above questions. In parallel, the academic team involved in the study carried out a thematic analysis following Braun and Clarke.¹¹ The purpose of this analysis is to produce an academic paper in 2020.

11. Using thematic analysis in psychology. *Qualitative Research in Psychology* 3, 2 (2006), 77–101; Virginia Braun and Victoria Clarke, 2006



Let's talk about money

Share the burden of managing money with someone you know and trust

Find out more at usetoucan.com

Codebook - Toucan fieldwork

Code	Subtheme	Theme	References	Files
cash withdrawal use	Moneywork	Money management, technology and mental health	8	8
collaboration in moneywork	Moneywork	Money management, technology and mental health	69	25
managing the household	Moneywork	Money management, technology and mental health	11	4
bank accounts	Moneywork	Money management, technology and mental health	43	18
checking bank account	Moneywork	Money management, technology and mental health	20	10
credit and store cards	Moneywork	Money management, technology and mental health	19	9
earmarking	Moneywork	Money management, technology and mental health	11	7
effort and awareness in money management	Moneywork	Money management, technology and mental health	152	29
expenses	Moneywork	Money management, technology and mental health	38	24
spending	Moneywork	Money management, technology and mental health	40	16
money management tools	Moneywork	Money management, technology and mental health	44	21
reflections on money	Moneywork	Money management, technology and mental health	6	5
worries about credit scores	Moneywork	Money management, technology and mental health	19	11
bearing the brunt of financial responsibilities	Moneywork	Money management, technology and mental health	1	1
ally comfortable with the role	Agreeing collaboration protocol	Moneywork in financial third party access	21	8
ally initial questions about role	Agreeing collaboration protocol	Moneywork in financial third party access	14	6
ally initial thoughts and concerns about Toucan	Agreeing collaboration protocol	Moneywork in financial third party access	34	14
document for allies	Agreeing collaboration protocol	Moneywork in financial third party access	3	1
participant - ally protocol	Agreeing collaboration protocol	Moneywork in financial third party access	132	27
provide support for user and ally	Agreeing collaboration protocol	Moneywork in financial third party access	27	12
Toucan & alert protocol discussions beforehand	Agreeing collaboration protocol	Moneywork in financial third party access	33	20
allowing more than one ally	Choosing an ally	Moneywork in financial third party access	5	4
ally age	Choosing an ally	Moneywork in financial third party access	6	6
ally bank	Choosing an ally	Moneywork in financial third party access	1	1
ally lifestyle and hobbies	Choosing an ally	Moneywork in financial third party access	9	4
ally mental health	Choosing an ally	Moneywork in financial third party access	4	4
ally source of income	Choosing an ally	Moneywork in financial third party access	8	7
asking for help is hard	Choosing an ally	Moneywork in financial third party access	4	3

Codebook - Toucan fieldwork

Code	Subtheme	Theme	References	Files
choosing ally	Choosing an ally	Moneywork in financial third party access	150	41
importance of communicating	Choosing an ally	Moneywork in financial third party access	3	1
importance of support from close social circles	Choosing an ally	Moneywork in financial third party access	11	4
mental health is hard to talk about	Choosing an ally	Moneywork in financial third party access	9	6
money not spoken about	Choosing an ally	Moneywork in financial third party access	45	18
not wanting to cause worry for ally	Choosing an ally	Moneywork in financial third party access	5	2
participant ally	Choosing an ally	Moneywork in financial third party access	28	25
people close to you not noticing when you are struggling	Choosing an ally	Moneywork in financial third party access	2	1
stigma associated with spending, borrowing, debt and money difficulties	Choosing an ally	Moneywork in financial third party access	48	22
stigma surrounding mental health	Choosing an ally	Moneywork in financial third party access	6	4
trained financial advocates or counsellors as allies	Choosing an ally	Moneywork in financial third party access	3	2
types of useful support	Choosing an ally	Moneywork in financial third party access	4	4
alert content feedback	Choosing what to share	Moneywork in financial third party access	72	21
alerts initial setup	Choosing what to share	Moneywork in financial third party access	2	2
alerts not telling ally when to be concerned	Choosing what to share	Moneywork in financial third party access	20	5
ally approval required for Toucan changes	Choosing what to share	Moneywork in financial third party access	13	2
ally can be lied to or manipulated (info imbalance)	Choosing what to share	Moneywork in financial third party access	15	4
ally opinion on alerts	Choosing what to share	Moneywork in financial third party access	2	2
balance alert initial setup	Choosing what to share	Moneywork in financial third party access	12	8
freedom to disclose or not disclose problems	Choosing what to share	Moneywork in financial third party access	7	2
importance of preserving privacy	Choosing what to share	Moneywork in financial third party access	4	3
importance of user control	Choosing what to share	Moneywork in financial third party access	10	6
initial alert configuration on setup	Choosing what to share	Moneywork in financial third party access	2	2
locking alerts	Choosing what to share	Moneywork in financial third party access	4	1
mood tracker sends alerts to a third-party	Choosing what to share	Moneywork in financial third party access	2	1
skips ally setup	Choosing what to share	Moneywork in financial third party access	9	5
spending alert initial setup	Choosing what to share	Moneywork in financial third party access	9	8
Toucan user must remain in control	Choosing what to share	Moneywork in financial third party access	6	3

Codebook - Toucan fieldwork

Code	Subtheme	Theme	References	Files
what to share with ally	Choosing what to share	Moneywork in financial third party access	16	10
withdrawal alert initial setup	Choosing what to share	Moneywork in financial third party access	13	8
banks and companies attitudes towards mental health	Hostile financial system	Money management, technology and mental health	23	7
benefits ordeal	Hostile financial system	Money management, technology and mental health	36	15
difficulties collaborating when managing finances	Hostile financial system	Money management, technology and mental health	21	9
digital technology impact on money	Hostile financial system	Money management, technology and mental health	18	11
disclosing mental health to banks and companies	Hostile financial system	Money management, technology and mental health	21	13
existing financial apps don't help me	Hostile financial system	Money management, technology and mental health	13	8
feelings on connecting bank account to third party (Open Banking)	Hostile financial system	Money management, technology and mental health	26	9
fraud in participant account	Hostile financial system	Money management, technology and mental health	4	4
mainstream banks vs Monzo	Hostile financial system	Money management, technology and mental health	2	1
timing	Hostile financial system	Money management, technology and mental health	13	8
nefarious role of eBay, Amazon & PayPal	Hostile financial system	Money management, technology and mental health	14	6
open banking authentication process	Hostile financial system	Money management, technology and mental health	90	12
open banking awareness and use	Hostile financial system	Money management, technology and mental health	23	8
OpenWrks design feedback	Hostile financial system	Money management, technology and mental health	26	11
opinions on banks	Hostile financial system	Money management, technology and mental health	26	18
relationship with bank	Hostile financial system	Money management, technology and mental health	22	12
scams more traumatic for older people	Hostile financial system	Money management, technology and mental health	1	1
canceling open banking connection	Hostile financial system	Money management, technology and mental health	9	7
gambling problems	Participant profile	N/A	5	2
health & wellbeing difficulties during the trial	Participant profile	N/A	15	9
humour as coping strategy	Participant profile	N/A	2	2
no major difficulties during the trial (money or mental health)	Participant profile	N/A	17	8
participant age	Participant profile	N/A	11	11
participant bank	Participant profile	N/A	23	14
participant character traits	Participant profile	N/A	9	6
participant diagnosis	Participant profile	N/A	29	20

Codebook - Toucan fieldwork

Code	Subtheme	Theme	References	Files
participant lifestyle and hobbies	Participant profile	N/A	84	20
participant main bank account	Participant profile	N/A	3	2
participant mobile	Participant profile	N/A	23	14
participant physical health	Participant profile	N/A	20	9
participant source of income	Participant profile	N/A	46	25
professional support & social care	Participant profile	N/A	14	5
therapy and treatment	Participant profile	N/A	40	15
bad with money	Relationship with money	Money management, technology and mental health	23	12
connection money - mental health	Relationship with money	Money management, technology and mental health	135	35
connection money - physical health	Relationship with money	Money management, technology and mental health	2	2
connection technology - mental health	Relationship with money	Money management, technology and mental health	9	6
debt advice and support	Relationship with money	Money management, technology and mental health	29	15
digital technology use	Relationship with money	Money management, technology and mental health	75	16
mobile banking app & digital banking use	Relationship with money	Money management, technology and mental health	118	24
money causing anxiety and stress	Relationship with money	Money management, technology and mental health	56	24
attitudes towards debt	Relationship with money	Money management, technology and mental health	18	9
financial hardship	Relationship with money	Money management, technology and mental health	22	13
money mood explained	Relationship with money	Money management, technology and mental health	10	6
participant in debt	Relationship with money	Money management, technology and mental health	51	20
Toucan not available to those who don't bank online or own a smartphone	Relationship with money	Money management, technology and mental health	2	1
attitudes towards digital technology	Relationship with money	Money management, technology and mental health	115	18
connection mental health - physical health	Relationship with money	Money management, technology and mental health	6	4
consequences of losing physicality of money	Relationship with money	Money management, technology and mental health	3	1
mental health symptoms and consequences	Relationship with money	Money management, technology and mental health	89	27
mobile use	Relationship with money	Money management, technology and mental health	69	15
need for financial education	Relationship with money	Money management, technology and mental health	1	1
self-esteem	Relationship with money	Money management, technology and mental health	22	7
Toucan impact on ally	Toucan impact on allies	Impact of Toucan use	25	8

Codebook - Toucan fieldwork

Code	Subtheme	Theme	References	Files
Toucan impact on relationship	Toucan impact on allies	Impact of Toucan use	1	1
mobile msgs - speaking with ally about money	Toucan impact on money conversations	Impact of Toucan use	108	13
money conversations	Toucan impact on money conversations	Impact of Toucan use	53	14
money discussed too late (when already in trouble)	Toucan impact on money conversations	Impact of Toucan use	7	4
power of attorney	Toucan impact on money conversations	Impact of Toucan use	3	2
power of attorney and mental health	Toucan impact on money conversations	Impact of Toucan use	2	2
power of attorney impacting professional life	Toucan impact on money conversations	Impact of Toucan use	1	1
Toucan and power of attorney	Toucan impact on money conversations	Impact of Toucan use	4	4
Toucan helping proactive stance in tackling finance problems	Toucan impact on money conversations	Impact of Toucan use	10	8
Toucan impact on money conversations	Toucan impact on money conversations	Impact of Toucan use	94	23
alerts make me think twice about spending	Toucan impact on personal financial practices	Impact of Toucan use	6	1
finding Toucan useful	Toucan impact on personal financial practices	Impact of Toucan use	1	1
how it felt to have an ally	Toucan impact on personal financial practices	Impact of Toucan use	7	4
Toucan impact on money management	Toucan impact on personal financial practices	Impact of Toucan use	106	22
Toucan impact on my life	Toucan impact on personal financial practices	Impact of Toucan use	1	1
design feedback	Trial and application design feedback	N/A	170	33
design feedback ally confirmation	Trial and application design feedback	N/A	5	3
experience of taking part in trial	Trial and application design feedback	N/A	40	20
failure to setup toucan app	Trial and application design feedback	N/A	1	1
feedback on the paper diary	Trial and application design feedback	N/A	1	1
issues setting ally up	Trial and application design feedback	N/A	32	13
issues when updating the app	Trial and application design feedback	N/A	2	1
issues with receiving alerts	Trial and application design feedback	N/A	8	5
need for marketing and communications	Trial and application design feedback	N/A	3	1
participant had to reconnect bank account	Trial and application design feedback	N/A	1	1
participant set up Toucan before interview	Trial and application design feedback	N/A	3	2
reasons to take part in trial	Trial and application design feedback	N/A	21	15
signposting feedback and impact	Trial and application design feedback	N/A	18	7

Codebook - Toucan fieldwork

Code	Subtheme	Theme	References	Files
technical problems receiving alerts	Trial and application design feedback	N/A	2	2
Toucan after the trial	Trial and application design feedback	N/A	8	5
toucan technical issue	Trial and application design feedback	N/A	18	9
Toucan update - add or edit ally	Trial and application design feedback	N/A	3	3
Toucan update - alert information	Trial and application design feedback	N/A	1	1
alert configuration and thresholds	Configuring and using Toucan	Impact of Toucan use	74	27
alert design feedback	Configuring and using Toucan	Impact of Toucan use	60	19
alert effects fading over time	Configuring and using Toucan	Impact of Toucan use	25	9
alert frequency	Configuring and using Toucan	Impact of Toucan use	39	18
alerts as source of stress, frustration, anxiety	Configuring and using Toucan	Impact of Toucan use	29	8
alerts triggered by regular scheduled payments (DDs)	Configuring and using Toucan	Impact of Toucan use	16	8
ally did not receive any alerts during trial	Configuring and using Toucan	Impact of Toucan use	1	1
ally reaction to alerts	Configuring and using Toucan	Impact of Toucan use	26	9
banks providing Toucan features	Configuring and using Toucan	Impact of Toucan use	37	17
behaviours that should trigger alerts	Configuring and using Toucan	Impact of Toucan use	13	8
choosing account to link with Toucan	Configuring and using Toucan	Impact of Toucan use	12	4
design suggestions	Configuring and using Toucan	Impact of Toucan use	56	16
expectations about Toucan	Configuring and using Toucan	Impact of Toucan use	55	15
expecting Configuring and using Toucan	Configuring and using Toucan	Impact of Toucan use	25	12
issues with alert delays	Configuring and using Toucan	Impact of Toucan use	25	9
mental models of Toucan	Configuring and using Toucan	Impact of Toucan use	35	13
new alert suggestions	Configuring and using Toucan	Impact of Toucan use	103	29
no similar services to Toucan exist	Configuring and using Toucan	Impact of Toucan use	1	1
not using the Toucan app much	Configuring and using Toucan	Impact of Toucan use	13	10
participant editing alerts	Configuring and using Toucan	Impact of Toucan use	3	3
participant reaction to alerts	Configuring and using Toucan	Impact of Toucan use	10	2
past situations when Toucan would have been useful	Configuring and using Toucan	Impact of Toucan use	2	2
real-time transaction notifications	Configuring and using Toucan	Impact of Toucan use	13	4

Codebook - Toucan fieldwork

Code	Subtheme	Theme	References	Files
role of alerts in general	Configuring and using Toucan	Impact of Toucan use	15	8
standard digital banking vs Toucan	Configuring and using Toucan	Impact of Toucan use	7	5
Configuring and using Toucan are comforting	Configuring and using Toucan	Impact of Toucan use	1	1
Toucan as an idea	Configuring and using Toucan	Impact of Toucan use	55	24
Toucan can have other applications	Configuring and using Toucan	Impact of Toucan use	6	3
Toucan for Alzheimer & dementia	Configuring and using Toucan	Impact of Toucan use	5	2
Toucan for autistic teenagers	Configuring and using Toucan	Impact of Toucan use	7	2
Toucan for parents - children	Configuring and using Toucan	Impact of Toucan use	3	2
Toucan for university students	Configuring and using Toucan	Impact of Toucan use	10	1
toucan for vulnerable adults	Configuring and using Toucan	Impact of Toucan use	3	2
Toucan for young people	Configuring and using Toucan	Impact of Toucan use	3	2
Toucan not useful if you are OK financially	Configuring and using Toucan	Impact of Toucan use	11	4
toucan not useful if you are OK mental health wise	Configuring and using Toucan	Impact of Toucan use	2	1
Toucan to prevent scams and fraud	Configuring and using Toucan	Impact of Toucan use	1	1
Toucan useful for any individual	Configuring and using Toucan	Impact of Toucan use	1	1
triggered alert types	Configuring and using Toucan	Impact of Toucan use	17	8
useful alerts	Configuring and using Toucan	Impact of Toucan use	42	14
useful to know alert patterns	Configuring and using Toucan	Impact of Toucan use	7	5
what triggered alerts	Configuring and using Toucan	Impact of Toucan use	5	2
about the word ally	Configuring and using Toucan	Impact of Toucan use	2	1
ally not remembering details of setup process	Configuring and using Toucan	Impact of Toucan use	1	1
making sure Toucan works	Configuring and using Toucan	Impact of Toucan use	12	9
not remembering last alert	Configuring and using Toucan	Impact of Toucan use	1	1
participant does not remember alert types	Configuring and using Toucan	Impact of Toucan use	4	3
Playing with the app	Configuring and using Toucan	Impact of Toucan use	1	1
security of Toucan	Configuring and using Toucan	Impact of Toucan use	7	3
too sick to care about the Toucan app	Configuring and using Toucan	Impact of Toucan use	3	1
Toucan application use	Configuring and using Toucan	Impact of Toucan use	1	1

Codebook - Toucan fieldwork

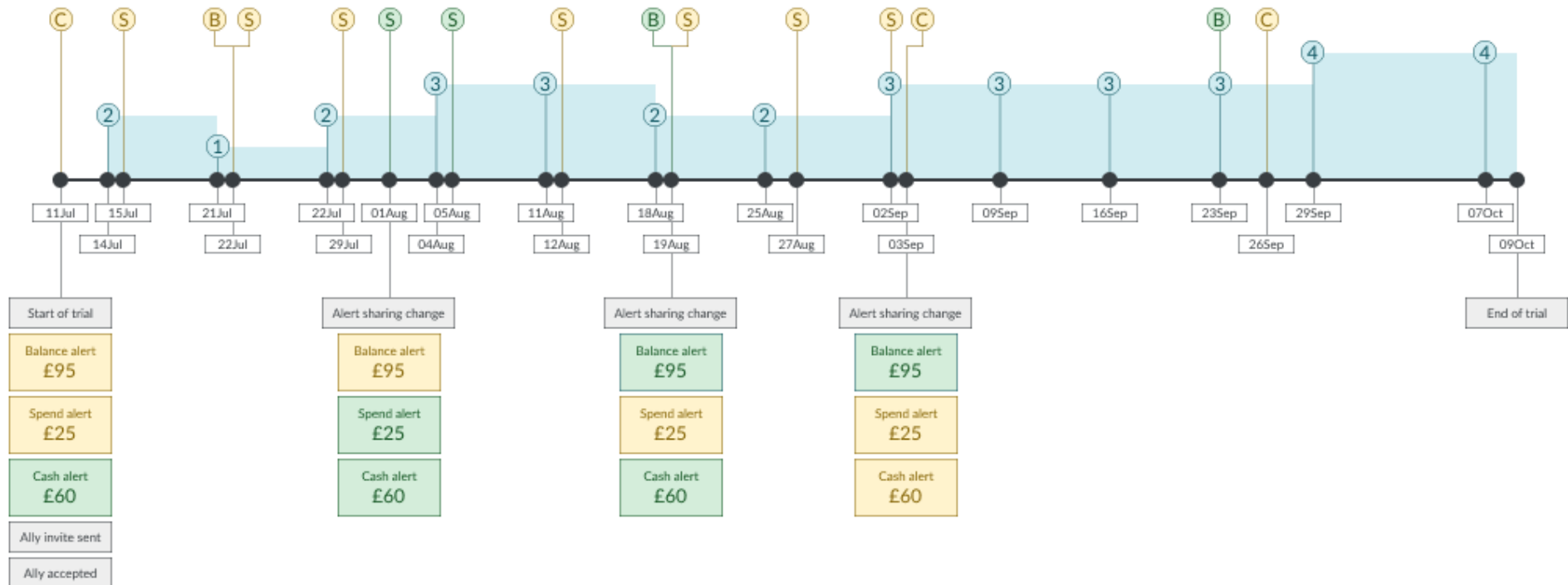
Code	Subtheme	Theme	References	Files
Toucan vs Monzo	Configuring and using Toucan	Impact of Toucan use	1	1

P5

Alert type	To participant	To ally
Spend	9	2
Balance	3	2
Cash	3	0
Total	15	4

LEGEND

- Alert set up - not shared with ally
- Alert set up - shared with ally
- Alert triggered - not received by ally
- Alert triggered - received by ally
- Money positivity rating (1-5)
- B** Balance alert
- C** Cash withdrawal alert
- S** Daily spending alert

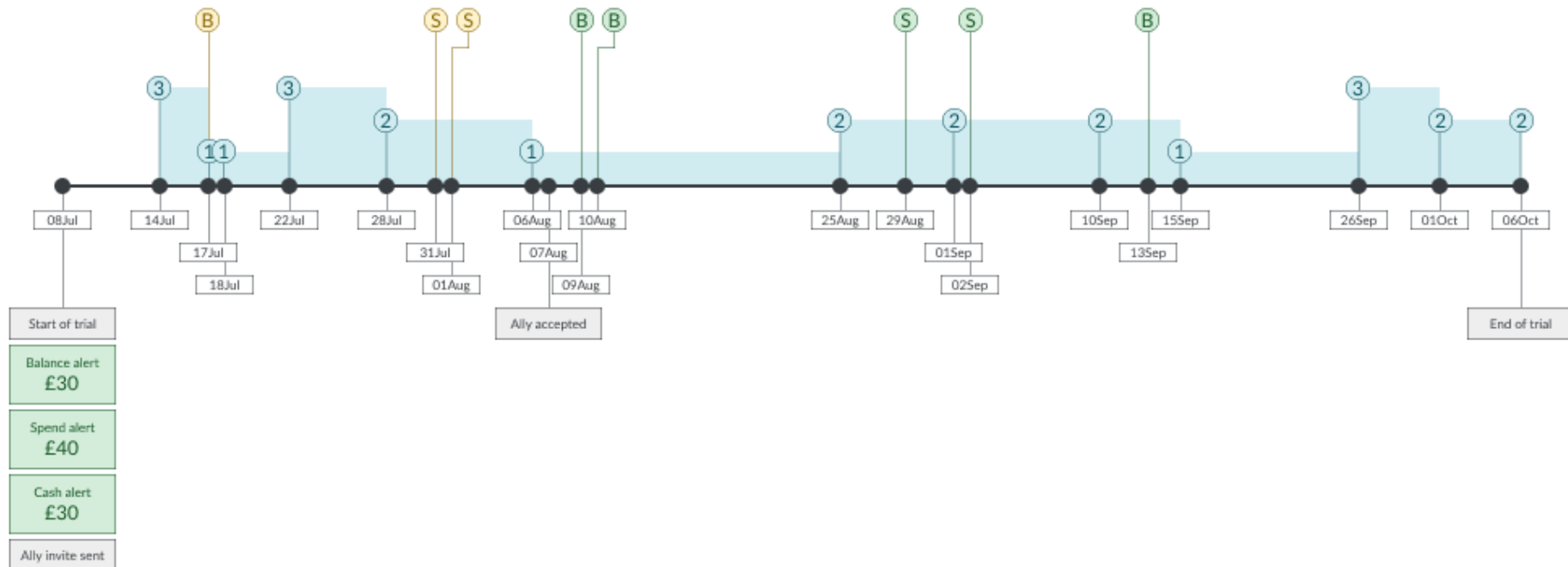


P10

Alert type	To participant	To ally
Spend	4	2
Balance	4	3
Cash	0	0
Total	8	5

LEGEND

- Alert set up - not shared with ally
- Alert set up - shared with ally
- Alert triggered - not received by ally
- Alert triggered - received by ally
- Money positivity rating (1-5)
- B** Balance alert
- C** Cash withdrawal alert
- S** Daily spending alert



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