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Citation: Feltwell, Tom, Elsdon, Chris, Vines, John and Lawson, Shaun (2019) Monzo + IFTTT: Everyday Automation through Programmable Money. In: AutomationXP'19 - Everyday Automation Experience: Non-Expert Users Encountering Ubiquitous Automated Systems, 5th May 2019, Glasgow, UK.

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Monzo + IFTTT: Everyday Automation through Programmable Money

Tom Feltwell

Northumbria University
Newcastle upon Tyne, UK
tom.feltwell@northumbria.ac.uk

John Vines

Northumbria University
Newcastle upon Tyne, UK
john.vines@northumbria.ac.uk

Chris Elsdon

Northumbria University
Newcastle upon Tyne, UK
chris.elsden@northumbria.ac.uk

Shaun Lawson

Northumbria University
Newcastle upon Tyne, UK
shaun.lawson@northumbria.ac.uk

ABSTRACT

We summarise recent work performed by the authors, where we conducted a qualitative study of the recent integration of a UK-based, digital-first mobile banking app - Monzo - with the web automation service IFTTT. Through analysis of 113 unique IFTTT ‘recipes’ shared by Monzo users, we illustrate the potentially diverse functions of these recipes. Beyond achieving more convenient and efficient financial management, we note many playful and expressive applications of conditionality and automation that far extend traditional functions of banking applications and infrastructure. We highlight the different aspects of automation created by these non-expert users to achieve, often novel, financial automation.

KEYWORDS

Money, Automation, FinTech, IFTTT

ACM Reference Format:

Tom Feltwell, Chris Elsdon, John Vines, and Shaun Lawson. 2019. Monzo + IFTTT: Everyday Automation through Programmable Money. In *AutomationXP’19, May 05, 2019, Glasgow, UK*. ACM, New York, NY, USA, 5 pages.

AutomationXP’19, May 05, 2019, Glasgow, UK
2019.

If This Then That (IFTTT): a web service that provides a "free way to get all your apps and devices talking to each other", utilizing end-user programming in the form of Triggers and Actions. Users can create "recipes", that take a specific Trigger and a specific Action, and combine them to make an automated process. An example of this: *If <I receive a delivery SMS from Domino's Pizza> Then <Switch on my Philips Hue lights>*. Users can select between pre-made recipes, or create their own to suit their needs, leading to a remarkable, even nonsensical, diversity of potential recipes.

Monzo: a UK based, digital-only bank. Users interact solely through a mobile phone app, which includes many technological features such as spending push notifications, and highly granular spending analytics. Users can create "pots" of money, separated from the main balance, and given a user-defined name. Pots cannot function separately from the main Monzo account, and are merely a way of separating money under a specific name. When a transaction is made, money is always withdrawn from the main account.

Sidebar 1: IFTTT and Monzo description

INTRODUCTION & BACKGROUND

Our work looks at everyday automation in the context of consumer banking and financial management. Throughout history, money has taken many different forms, across many cultures: from material objects, to credits and debits, through to current digital virtual and cryptocurrencies ([4, 5]). In the shift towards today's more cashless societies, for instance through demonetisation, new payment infrastructures and mobile money (e.g. [1]), everyday financial transactions are becoming increasingly digital. As a consequence, a growing range of consumer-focused digital financial services are emerging that bring money and data together in new and often innovative ways. This includes applications that provide money management and advice, and those that save digital 'spare change'. Such services exemplify the ability for individuals and organizations to manage and program their money, their financial data, and their banking services in new and often autonomous, yet infinitely reconfigurable, ways. Afterall, for most people money is a pervasive daily concern, and often a sensitive topic, giving rise to many unique and personal behaviours. It affects all groups of people, and includes non-expert users, and especially those who are vulnerable or in precarious circumstances.

Motivated by these developments, we have set out to investigate a subset of new financial services through a specific case study – the conditional automation of a mobile banking application. In 2018 the UK digital bank Monzo announced an integration with the web automation service IFTTT [6], which allows Monzo customers to connect their bank account with a range of other web accounts and services and create automated rules or 'recipes'. Such recipes can be bi-directional and use data from one's Monzo account (e.g. spending data) as a trigger for other actions (e.g. play a song on Spotify); or use data from other services (e.g. a weather application) to trigger actions within one's own Monzo account (e.g. to move money to a savings pot). IFTTT is part of a wider growth in automation technologies that specifically aim to remove the burdens of potentially repetitive and time-consuming activities. With services already existing that promise automation of record keeping and processing of regular payments, automated reporting of spending habits and progress towards saving goals. Such applications claim to bring AI to consumer financial services, benefitting from increasing volumes of financial and transactional data. Although less sophisticated, the diversity possible with IFTTT and its core functions of conditionality and automation, open up a space for us to consider how end-users can actually make sense of and interact with algorithmic logic in financial services.

METHODS

We generated a corpus of examples of 'recipes' directly from Monzo, through their highly-active community forums and via a curated list on Twitter. Over the course of four weeks we developed a corpus of unique Monzo and IFTTT recipes, detailing how the trigger and action aspects were arranged. Our corpus totalled 113 unique recipes. We performed a two-part thematic analysis, the

primary codes consisting of the purpose of each recipe. From the primary codes, we could then analyze what users hoped to achieve through automation; with the secondary codes we could analyze how particular platforms, triggers and actions gave effect to these aims. This corpus is available as a supplementary material accompanying our full paper.

Table 1: Monzo + IFTTT Trigger Actions

Triggers
Any card purchase (above amount)
Any card purchase at specific merchant
Any new attachment added (e.g. image of receipt)
Any new blog post from Monzo
Actions
Move money into pot
Move money out of pot

RESULTS

In exploring user-created recipes, our results demonstrate the ways in which users cognise, and appropriate the automation offered between their own technology and apps, and their bank account. Below we briefly describe the broader aims and purposes of different recipes, allowing us to identify the future design considerations and promising areas for future work (see Sidebar 2 and Sidebar 3).

Recipe Functions

There were four broad functions to the recipes in our corpus. The first three themes are broadly extensions of traditional banking services, whilst the final theme in particular relied upon novel integrations of banking data.

Automatic Saving. Many recipes sought to encourage saving money. In the context of Monzo, saving is achieved by withdrawing money from one’s current account, or main balance, and moving it into a specific pot. Saving could be towards a specific purpose (e.g. a holiday fund), or general savings (e.g. a ‘Rainy day’ fund). Many of these were on an automatic or scheduled basis, whilst others were connected to sporadic or random real-world events – e.g. “*If the [International Space Station] passes over my house, add 10p to a pot*” – which might make saving more playful, or accumulate in an unpredictable way.

Managing Spending. Recipes related to spending primarily sought to enforce rules around spending money, or to improve users’ awareness of how money was spent. Many had established spending pots as a means of budgeting for specific regular expenses, such as groceries, lunch, or coffee, with recipes to shuttle money in and out of these, as well as drip-feeding money on a recurring basis into one’s main account. Other examples were forms of rewards or treats: “*If Daily calorie burn goal achieved, then move £5 out of my Coin Jar pot as a reward.*” Finally, some users created recipes to augment their spending, often taking data from Monzo as a trigger, and presenting this through another medium or platform, such as tweeting the amount just spent, or instructing their Spotify account to play ‘Shirley Bassey - Big Spender’.

Account Management. A series of more pragmatic recipes focused on easing or extending account management with Monzo, particularly the maintenance and allocation of pots to regular payments or

Across our corpus, automation is envisaged to provide **efficiency** in supporting better account management, instantaneous calculations or reporting, replicating actions (e.g. splitting money between several pots), or actions and intentions that can be set up once and forgotten. Further, automation can be a means of **enforcing intentions and providing consequence**. Setting up a rule with an automated action for certain triggers preserves an intention, and without relying on further decision or human intervention that intention can be enacted. This is especially resonant in efforts to save or to budget better, or to change habits through the experience of consequences (or a punishment) for certain behaviors. Also evident, in the diversity of applications that might act upon Monzo data, is that automation supports **proliferation** of that data, i.e. being able to simultaneously push data and actions across multiple platforms and channels. As part of this proliferation, automation would also support the **changing of modalities** of data, be that for convenience, to raise attention or create an experience, for example transforming a significant purchase into the visceral experience of hearing the song 'Big Spender'.

Sidebar 2: Aspects of automation within our analysis

bills. Recipes also sought to make record keeping easier and more consistent through automation, such as by storing details in a spreadsheet, or uploading receipt images to cloud storage.

Creating Novel Financial Applications. There were a large number of recipes that went beyond managing finances. There were primarily expressive and playful or attempts to promote personal behavior change. Many of these examples pushed the boundaries of what a banking service like Monzo is intended for, and achieved distinctly novel interactions. Many users created automatic rules and connected other apps as an opportunity to support behavior change, using a "taxation" model, such as: *"If I spend money at Domino's Pizza, McDonalds [sic], KFC or the local pub, then move £5 to my penalty pot."* Other recipes established some kind of self-chastisement, through communicating a misdemeanor to oneself, for example through social media. Some recipes took data from Monzo (such as buying a coffee) as a trigger or record for other behavior change efforts (e.g. to trigger a notification to drink more water). The financial data in such an example is not concerned with managing money, it is simply a reliable means to identify a behavior.

Non-Monzo data was also used as a trigger in these recipes, for both penalties and rewards based on one's behavior, for example, meeting or missing a step target or swearing on social media. By setting up a penalty pot or a 'treat jar', funds could be effectively withheld from, or made available to, users. There were other playful recipes, such as: *"If Trump tweets the words 'war' or 'Rocket Man' then empty all pots into my main account and alert me that I should spend it all before the end of the world."* The resulting financial implications here (emptying one's pots) are arguably secondary to alerting or acknowledging their triggers. What distinguishes many of the recipes in this theme is that they are not primarily about banking. Instead, data about financial transactions, or the movement of small amounts of money itself are used to change or reflect upon other aspects of everyday life.

DISCUSSION

We have summarised the main discussion points in Sidebar 2, and Sidebar 3 and a full discussion of these results can be found in [2]. Our results have demonstrated the powerful financial automation that is afforded through the Monzo + IFTTT integration, and furthermore, it shows a lot of other novel, and very human, ways of leveraging these automation tools. As previous studies have shown, IFTTT provides a user-friendly, non-programming interface, and our results reinforce this suitability in the domain of financial automation. Questions remain as to how non-expert users will understand the implications of their own automation on the sensitive, and critical, topic of their own finances. Clearly, as money has an emotional and social connection to our lives, the simple, user-programmable aspects have allowed users to express themselves through deeply personal financial automation, for both serious and entertaining purposes. This opens a further question, with respect to the way users experience these personal financial automations. Whilst we are able to infer the meaning behind the

Programmable money across services:

Money and transactions are just another form of data. Data can cascade through different services. Devices and triggers can have implications for your money, through behaviour.

Programmable money as expression: Creating rewards and penalties is a counterpoint to existing financial tech. research, which focuses on security and regulation. Money remains an emotive and deeply social connection to our lives.

Programmable money as control: Heightens personal control of money. How might users be empowered to understand the richness of their own data?

Programmable money and autonomy: Concerns around control and agency, through the design of systems, and who might have access to such data and systems.

Sidebar 3: Four design considerations for programmable money

triggers and actions, we do not understand how they experience their rules in use. This is particularly interesting given, for example, recipes to chastise or reward user behaviour, highlighting the critical human component of this type of financial automation, as explored by [3].

CONCLUSION

This paper has summarised a study of Monzo's integration with the trigger-action platform IFTTT, published at CHI 2019 [2]. We analyzed over 100 unique recipes developed by Monzo and IFTTT users on public forums to understand their effect and purpose, and how they are achieved through different kinds of service integration and automation. Our findings follow in the footsteps of prior work on money and finance and HCI that recognize the emotional, personal and social aspects of money. The recipes in our corpus clearly show the opportunity for automation in financial technology to deliver more nuanced and contextualized forms of digital money that better fit existing everyday social practices. We think these issues are relevant for the workshop, and we would like to share our findings, and discuss the implications for future research in this area with a group of like-minded individuals.

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