

If > Then Money

Proposal

- An If>Then Money Rule is an action that users set up as an internet service that runs automatically on incoming or outgoing bank transfers
- Users choose what events trigger the rule as well what happens when the rule initiates
- For example: you can create a rule to transfer 5% of your salary into a savings account shared with your partner, unless it is December.

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Executive Summary

Financial services are undergoing a technical and social revolution.

The traditional roles of banks is being re-imagined thanks in part to European Union legislation called the Payment Services Directive 2 (PSD2 - (EU) 2015/2366)^[1].

This directive has been designed to increase competition among banks. This is a direct response to the financial crisis of 2006 - 2011 where banks with large numbers of consumer accounts were judged to be “too big to fail”.

For this and other technological and political reasons the EU decided to enable banks to compete more easily for retail and small business customers.

One key part of PSD2 is the initiative to force banks to share a standardised log in system and to allow user account information to be transferred electronically. In theory this should make it easy for customers to get access to their financial data and share it with third parties called Account Information Service Providers (AISP) and Payment Initiation Service Providers (PSIP).

The new requirements will force high street banks across Europe to face a number of possible threats including:

- Destruction of customer loyalty and brand value
- Reduction of customer profitability
- Fewer moments when customers can be approached for cross-selling and upselling
- Fragmented and disrupted customer services
- Increased competition from challenger, internet only banks and more technically savvy competition

If>Then Money is a way for consumers to take advantage of these new regulations. It represents a shift away from banks being all powerful towards consumers taking more control of their finances.

It does this by taking a system quite well known by users of Microsoft Outlook the popular email software.

In short users can set up rules that are triggered by events.

If ... then..

*If money arrives from My Employer Account **then** move 10% to a savings account, 30% to pay off credit card bills and 3% to the holiday fund.*

*If I have less than £75 remaining **then** send an email alert to me at 08:30 and 14:30 on every Friday reminding me to not to go out for dinner*

If the February 20th every year send £200 to Rosa.Blaus@gmail.com by paypay with the message "Happy Birthday"

The If>Then Money service hopes to replace the existing direct debit and standing orders that people have set up on their accounts. It does this via a web interface which allows users to customise their rules and triggers.

There are many opportunities to make money from the service. The way to extract value could be from a subscription model or via advertising and/or selling access to users in certain situations (triggers could be offered that introduce users to new providers of financial services).

Introduction

Payment Services Directive 2 (PSD2) is the new EU directives on open banking. The directive must be implemented by banks across Europe and is also likely to have an impact on how banks operate outside the EU. Among other things PSD2 will allow customers to:

1. Transfer their accounts to a new bank
2. Open new accounts
3. Get access to the information held in their accounts (statements)
4. Make payments directly from their account (reducing the need for credit and debit cards)
5. Allow third parties to retrieve their information
6. Allow third parties to transfer money to and from their accounts (like direct debits or automated transfers)
7. Identify the most competitive services in the marketplace

The directive marks a fundamental change to the way people use banks. Open banking allows customers to share their personal data and make payments via an open application programming interfaces (APIs).

This means that the traditional role of a bank is under threat and PSD2 has the potential to radically shake up the banking sector, by creating more of an open marketplace through which customers can select different products from different providers. In return financial services companies can offer increasingly personalised and tailored services based on the ability to share an individual customer's data. One interesting opportunity is to allow the automation of many banking activities that most people never bother with. Some of these are quite boring but universal - like submitting your annual income tax return or checking that you have the best interest rate on your long term savings account. While others are much more complex and sophisticated - like planning a long term investment strategy for a retirement or receiving income from an inheritance.

Banks are boring. There is little differentiation between high street banks and thanks to government regulation and market pressures they all have very similar customer experiences.

The open API is a reflection of the lack of differentiation between apparently competing banking brands. If there is no substantial difference between Nat West and Santander or between Nordea Bank in Finland and Banco Sabadell in Spain then maybe the

brands are meaningless. Increasingly millennials, who are much less loyal to service providers choose their bank on the basis of how easy their online services are to use. How easy it is to transfer money and how easy it is to open an account.

The open APi will bring a whole new level of sophistication to personal and business banking. The will see two broad approaches being adopted by banks:

1. Free services in exchange for data and advertising
2. Subscription services that allow customers to customise and tune their financial services.

One useful way to think about the future of banks is to compare them with the four big internet technology companies:

- Facebook
- Google
- Amazon
- Apple

Broadly, Facebook and Google offer free services to users in return for the ability to sell their personal information to advertisers. Amazon and Apple are basically paid for services and products. That is Amazon take a percentage of sales and Apply sells physical products that allow users to interact online.

PDS2 will allow most customers to continue to enjoy free banking. The banks will make money by “introducing” their customers to businesses that want to sell them products and services (this is the Google/Facebook model). PSD2 will also let banks sell services to customers with more sophisticated banking requirements - for example by offering them more control over their money.

Apple already has a physical retail presence on high streets in big cities around the world. It is likely that some banks adopt the Apple Store business model and offer “walk in” financial services, advice, training and ‘tuning’ for people with particular problems or needs - just as they do for people who have problems with their iPhones. Other banks will adopt the Google and Facebook model of offering free online banking services in return for promoting third party goods and services to their customers. Some customers will prefer to pay for banking services that allow them more control over their money - the Amazon model.

It is possible that the big four internet companies will take advantage of PSD2 to offer banking services. Though this is likely to cause competition regulators to investigate the

potential for them to develop a monopolistic market in financial services.

The way that people use email and messaging also helps us imagine what the future of banking will be like with open APIs.

Email is based on two competing open APIs:

1. Internet Message Access Protocol (IMAP) which allows users to access stored emails on a remote web server from different computers or smart phones (clients)
2. Post Office Protocol 3 (POP3) which allows you to download messages that have been sent to you via a shared server. Once the message has been downloaded the original message on the shared server is deleted.

Both protocols are supported by all modern email clients and web servers.

Most people are happy to take advantage of free email services such as Gmail and Hotmail. Other people, particularly when they rely on email for their work use a more technically sophisticated email client such as Microsoft Outlook [], Opera Mail [], eM[] client or Claws[]. These email clients (readers) allow users to filter and automate much of their interactions via email. They allow plugins to do many more sophisticated things like auto-respond and integrate with calendars and instant messaging systems

The market is highly regulated and there is little to choose between different providers of banking services. the open API element of PSD2 is likely to further dilute the big banking brands.

We see this working in the same way as people use filters and rules to organise emails in Microsoft outlook

Examples

What changes with the open Banking API?

Traditional Banking	Future Banking based on open APIs	Example of user experience	Implications for banks and users
<p>Open a new account with proof of identify and address. This can take up to a week for the paperwork to be sent, printed out, checked, authorised and a new account added to the banking IT system</p> <p>Business accounts can take up to 6 weeks to be established.</p>	<p>Open an account, by self-service in seconds.</p> <p>Image recognition, fingerprint security systems. Physical address linked to phone. Accepting personal credentials from another bank allows subsequent accounts to be opened much more easily</p>	<p>Your banking is tied to your phone, laptop or email address more than it is to your home address. Account number portability means that you can swap bank accounts very easily. Your salary is paid to an account number that you own rather than a number that is owned by the bank. Changes can happen in seconds rather than days or weeks.</p> <p>You can ask your personal automated financial assistant to check the best accounts every week, day or hour and swap when certain criteria are matched.</p> <p>Competition will be fierce and it is likely</p>	<p>Current accounts become much more fluid. The bank becomes an API. The best banks are the ones that have the best API that allows customers the best, most flexible and most responsive access to their data.</p> <p>Account number portability means that consumers can change banks like they change mobile phone operators.</p> <p>Banks need to understand how to recruit and retain the most valuable customers while discouraging customers that cost them money (this is likely to be the vast majority of customers)</p>

		<p>that most bank accounts are so similar that people rarely change accounts. Or only do so if they are unhappy or offered an inducement. It will be useful to compare banking with mobile phone operators.</p>	
<p>Automatic payments: Setting up a standing order (a regular payment) or a direct debit initiated by the company you are paying.</p> <p>Direct debits are made in response to a request for payment by a different account. In effect you give another account permission to remove a certain amount of money when they decide.</p> <p>A standing order is a payment made on a regular, chronological basis. Customers can select the day each month that a</p>	<p>Payments can be made and requested automatically.</p> <p>A set of rules can be programmed by a user to perform certain actions in certain situations.</p> <p>The rules are managed by the user and mediated by the open API.</p> <p>Messages on the stat of the rules are sent to the user to keep them up-dated on the availability and success or failure of the rule to complete the action.</p>	<p>A user defines the rules that trigger certain events. For example when spending at a certain retailer reaches a monthly limit an alert message is sent to the user and payments to that retailer are blocked.</p> <p>When a payment is received that could trigger off a sequence of pre-programmed actions. If you receive over a certain amount of money from your employer then a certain percentage is diverted into a ISA, some is allocated to pay outstanding loans and some is saved</p>	<p>To remain competitive the open API defined by the EU PSD2 directive will be the minimum service expected by consumers.</p> <p>Banks will start to offer enhanced API services that go beyond those defined by law.</p> <p>For example chat bots will allow customers to interact with their bank via voice commands.which are responsive and driven by deep learning from tens of thousands of similar accounts.</p> <p>The API will make the visual</p>

<p>payment is made.</p>		<p>in a different, shared account to pay for a holiday with friends.</p> <p>The choice of actions could be mediated by artificial intelligence based on analysis of user psychology (e.g: acceptance of risk, interest in relationships with people or interest in things)</p>	<p>expression of banks much less important to consumers while app developers are the people who really add value to one bank over another.</p> <p>Starling Bank's approach - setting up a market for financial service App developers is a simple but effective approach to working with third party developers.</p> <p>What constitutes banking will change. Insurance, payments, savings, financial relationships with family, friends, community and government will become more fluid and dynamic.</p> <p>However there is a danger that things go wrong and the law of unintended consequences must be remembered at each decision point.</p>
<p>Personal banking and advice is based on relationships.</p>	<p>Trust is key to the user experience.</p>	<p>Sharing data on your finances will allow better</p>	<p>Using data to understand customers</p>

<p>However people are slow, unresponsive and make mistakes.</p> <p>Security and trust are likely to be key drivers among consumers. Do people trust computers and IT systems more than humans.</p>	<p>When it is easy to move bank accounts in a highly competitive environment there are likely to be more banks going bust as the market decides which systems are profitable and which systems will fail.</p> <p>The psychology of trust will remain key but how it is articulated is likely to be via social media, recommendation, case studies, user experience and automatically generated performance reports.</p>	<p>targeted systems to be delivered to you.</p> <p>However there is a balance between sharing and taking advantage of personal data.</p> <p>For example if a bank shared data as facebook shares data what would be the equivalent of fake news or personalised information feeds and recommendations?</p> <p>The big five personality traits are going to be key in delivering services that enhance trust and deliver satisfactory or joyful experiences.</p>	<p>requirements in financial services will be an important way to remain competitive.</p> <p>The tone of voice and personality of the bank expressed via the API will replace the branding of banks.</p> <p>How the API evolves and adapts to demographic fundamentals such as an aging population, less security in employment, more international movement and trade with longer working lives, more varied freelance working and more opportunities in the gig economy and more interest in experiences than ownership of things could be an important way to define one API from another.</p>
<p>Banks as a physical presence</p>	<p>The need for a physical retail experience of financial services is likely to be adopted by some existing banking brands.</p>	<p>As customers get more confident and begin to reassess the value of financial advice and services provided by banks the</p>	<p>If the API makes all banks the same, how do banks and other financial service providers differentiate?</p>

	<p>They are likely to target certain more profitable market segments and blur the lines between financial services and other services such as education, housing, travel and health care.</p>	<p>physical expression of customer experience in a retail bank is likely to change.</p> <p>While some banks will be remodelled as financial education services others will evolve to assist with career development or psychological and social hubs.</p>	<p>If the customer has all the power and AI and automated services take the vast majority of decisions then what is left for the bank?</p>
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Use cases:

- If I spend more than usual over 7 days then I can get an email or a text alert warning me that my spending is not sustainable until payday
- If I have more than £5,000 in a current account it automatically puts £3,000 to an ISA and £2,000 into paying off my credit card.
- If I have less than £20 in my current account on a Friday afternoon then £300 is transferred from my savings account
- The day after payday I transfer £100 to each of my children and enough to pay off 15% my credit card

Potential problems

With the new banking API, it will be possible to perform banking actions that would normally take days to execute in milliseconds, for example opening new bank accounts and moving money and direct debit instructions to the new account. If somebody sets up a rule that transfers GBP into a new EUR account whenever a better exchange rate is available, that might mean opening dozens of new bank accounts a minute.

Conflicting rules

The system needs to make sure that the rules do not conflict. Every new rule that is made should be checked against the previous rules to make sure that it is not going to cause an infinite loop to happen, for example, where money is being transferred to and from two different accounts.

If bank account A has less than £100, transfer £50 from account B.

If account B has less than £50, transfer £50 from account A.

If the total amount in A and B goes under £150, the system would enter an infinite loop, transferring money back and forth between the two accounts.

T&Cs of accounts

Many different types of account have rules that dictate how and if rewards or penalties are applied. For example, a savings account might only pay interest on amounts lower than £1000. A user could set up a rule to ensure that the account never contains an amount higher than this, but the rules might change. One solution is for the system to constantly check if the conditions on the account have changed, and change the rule automatically if needed. Otherwise the system could notify the user of the change so that they can change the rule manually.

Availability

The system depends on the PSD2 open banking API to work. However this means that it would be easy for other services to replicate the system. Being user-friendly is the key to success.

The system needs to be easy to use for anybody with a bank account and a smartphone, even if they aren't banking experts. The parts of society with most capital probably aren't the same parts that are most comfortable with technology, and trusting a 'robot' to manage their money and accounts.

Advice vs independence

The decision on whether the system should stop users from putting illogical rules into place. E.g. rules that would cause them to go into overdraft. The system should probably be limited to sending alerts if it thinks something might be illogical, but not prevent users from putting any rule they want into the system.

Automation vs manual confirmation

Especially when transferring money to a third party, should users be notified of large amounts leaving their accounts. This could be an option when setting up a rule - if the rule is going to be executed, then optionally the user could be notified and have to manually confirm that they want it to be carried out.

Solution:

If>Then Money is an app that connects to users' bank accounts. Users can set up logical rules for how they want the app to manage their money and accounts. The rules all follow the same basic structure:

If X then Y

Transfer accounts to a new bank

The system is able to transfer accounts to a new bank immediately. This includes any rules set up for that account, direct debits, periodic transfers, etc. It should be able to identify which types of accounts are being transferred (current, savings, credit), and transfer them to the same type of account in the new bank automatically.

Open new accounts

The system can open new accounts in the same or a different bank. For example, if a rule is set up that if the balance in your Cash ISA is over £2000, open a Stocks and Shares ISA account and transfer £1000 over.

Get access to the information held in their accounts

The system can read balances and send notifications if particular conditions are met, for example if the balance goes under or over a certain amount, an email or a push notification to the user's phone can be sent. If spending is higher than usual for 7 days, notify the user that the current level of spending is not sustainable until payday

Identify the most competitive services in the marketplace

Rules can be set up that transfer savings to the account with the best available interest rate, or to exchange between different currencies when a particular rate is found.

Automatic transfers

Example:

If my current account has less than £70 in it on Friday, transfer £100 from my savings account

If my son's account has less than £50, transfer £100 to his account

Bibliography/links

[1] https://ec.europa.eu/info/law/payment-services-psd-2-directive-eu-2015-2366_en.

Financial Conduct Authority. PSD2 compliance:

<https://www.fca.org.uk/publications/policy-statements/ps17-19-implementation-revised-payment-services-directive>

How to set up rules on Microsoft Outlook:

YouTube: <https://youtu.be/aNjWfjSPcqq>

Microsoft Documentation:

Rules in Outlook 2016

<https://support.office.com/en-ie/article/inbox-rules-in-outlook-edea3d17-00c9-434b-b9b7-26ee8d9f5622>

List of UK challenger banks:

- Aldermore
- Atom Bank
- Metro Bank
- Monese
- Monzo
- Starling Bank
- Tandem
- Tide