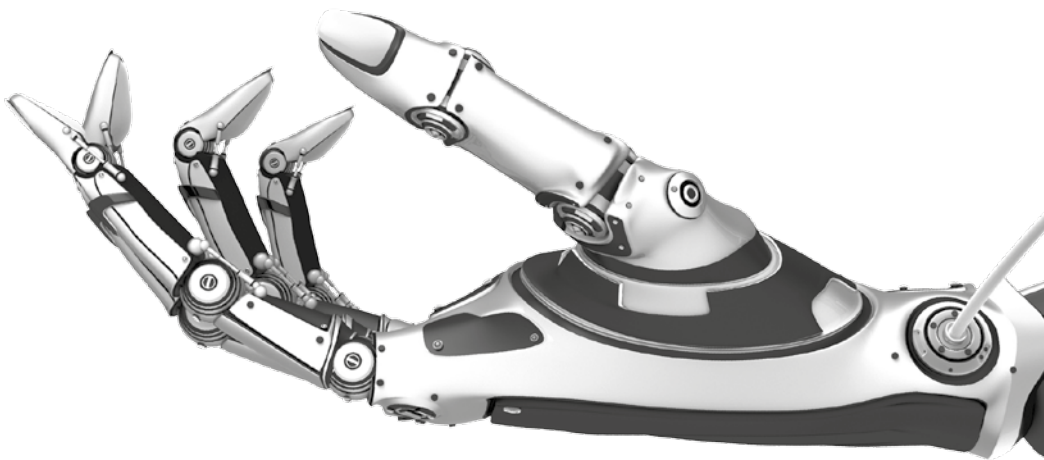


6. REINVENTING VALUE EXCHANGE WITH THE BLOCKCHAIN



I've been hearing for a while bankers repeating the mantra *Bitcoin Bad, Blockchain Good*. This rallying cry is now so strong that if you challenge it—*Is bitcoin really that bad?*—everyone squashes the discussion. I'm now of a mind that the majority squash such discussion because they really don't know what bitcoin is about.

Reid Hoffman—the co-founder of LinkedIn and early investor in PayPal and Facebook—talks about this, and says that he only got interested in bitcoin two years ago after meeting Wences Casares, whose interview features in the second half of this book. Reid says a few interesting things in this space.

“There are three aspects to Bitcoin that are interwoven ... One, it's an asset, like digital gold 2.0. Two, it's a currency in as much as currency is like the digital app that allows you to begin to transact and trade. And, three, it's also a platform where you can build financial and other products on top of it. These attributes all bound together are what convinced me that there's a certainty that there will be at least one global cryptocurrency and that there's a good argument that it's bitcoin, or that bitcoin is one of them, if not THE one.”

He goes on to talk about how other VCs and protagonists are talking about how the bitcoin currency is a good thing. It pleases him, as he's investing for the long-term, and the long-term says that bitcoin is likely to win. So why would someone as intelligent and informed as Reid Hoffman—alongside Marc Andreessen, Richard Branson, Wences Casares and others—be so pro-bitcoin when the banks are not? My answer is that most of the people that say bitcoin is bad, haven't looked under the hood.

And here's why bitcoin is integral to the blockchain: because the blockchain does not work without a native cryptocurrency. Why would you create an alternative to bitcoin when over 90 percent of all cryptocurrency transactions are based upon bitcoins?

THE IMPORTANCE OF CRYPTOCURRENCIES AND THE BLOCKCHAIN TO BANKS

The blockchain is going to change things. What is the blockchain? Basically, it's a general ledger system that records transactions. You have a recorded and accessible electronic record of every exchange made by everyone. This can be used for any contractual exchange electronically. For example, you could record a lettings deal and the rental agreement along with the dates and frequency of payments due, which will then be taken automatically until the contract is terminated.

Today, most of these transactions are recorded on paper through government agencies, legal networks and financial systems. The reason for this is that there is no way to record such transactions electronically, as the digital services are insecure and untrusted. The blockchain has changed all of this by creating an internet general ledger that is secure and trustworthy. That is because the blockchain provides a method of recording value exchange that can never be transacted twice without the permission of the contracting parties. This is based upon a public record of the transaction, combined with a secure, private key that is held by the contracting parties. Therefore, when I transfer value through the blockchain, the person



First Blockchain marriage will take place at Disney World Bitcoin Conference

by William Suberg @ 2014-09-23 04:33 PM

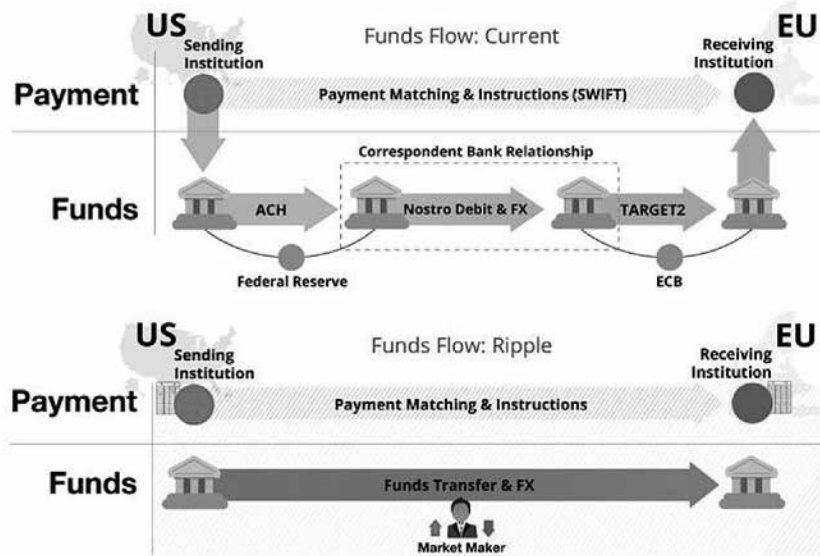
| Latest Transactions | | |
|--|------------|-----------------|
| cd766096834d59b8fe007d0c6... | < 1 minute | 0.61084846 BTC |
| 5d4f7bc134cdf51f709f68ec5... | < 1 minute | 9.44814786 BTC |
| 8ff3ebc2913af520ed522ddad... | < 1 minute | 0.16250487 BTC |
| 8c99c5b51dd2b2638bd4ce6df... | < 1 minute | 0.10994126 BTC |
| 175ae25847e6eefdc2f85795a... | < 1 minute | 0.10945704 BTC |
| cb686521f1... (eXch.cc instant exchange ⚡) | < 1 minute | 40.36657527 BTC |
| 143cb0026db89bb3de6347eda... | < 1 minute | 0.7295 BTC |
| 7cb246e794a3417a7dbcc15e0... | < 1 minute | 0.4053 BTC |
| d6c38b01a8f89f70a3b9cd24e... | < 1 minute | 2.30218103 BTC |
| cd8333a64ecd6f2a35ef5c517... | < 1 minute | 0.0100893 BTC |

receiving the contract holds a private key that cannot be broken until they give up that key to the next contracting party.

By way of example, if I recorded my marriage vows on the blockchain, as one couple did in 2014 in America, my wife and I would now have a key to that marriage contract. We share that key, and the government and legal system recognises the marriage's viability because it is on the blockchain as public record. The marriage can only be legally terminated when our divorce is recorded on the blockchain and we give up our private key recognising the validity of the marriage.

This technology enables digital value to be exchanged and recorded in a global open system that ensures, once the transaction takes place, it cannot be revoked. That is the key.

In other words, the blockchain protocol is something that can be used as a proof of record for any digital value exchange for anything. That is why banks are interested in this, as it could become a global record of value exchange in the banking system. It is why firms such as Ripple are becoming interesting, as they can displace some of the old infrastructure built for the last-century value exchange called SWIFT. SWIFT was built in the 1970s to provide an electronic system to replace telex machines in banking. Ripple is now creating a counterparty banking system that replaces this and other infrastructures in between banks and corporate clients, with a real-time, shared ledger system that can be trusted. It is not based upon bitcoin, but



the Bitcoin technologies of the blockchain shared ledgers. It also has its own currency, called XRP, although it can transact anywhere, anytime.

Therefore, the bitcoin currency is not the important factor. The important factor is the cryptographically secure blockchain protocol, as this gives the protocol the ability to record and transfer value without needing trusted third parties, such as banks. That technology may just transform everything, including banking.

THE UBER OF THE VALUEWEB IS THE BLOCKCHAIN

FinTech start-ups are attacking narrow finance and trying to replace core bank functions like credit and payments with new capabilities. The TransferWise and Lending Club business models should worry banks. But where is the Uber of banking? This a question regularly asked in the innovators' world of finance, as Uber is the ultimate new technology Unicorn.

The key to answering this question is thinking about the business model of Uber, Airbnb, Facebook and company. All of these firms are engaged in what I call infomediaation: taking a marketplace of people

who have something and, through software and servers, connecting them with the people who need something. The software and server becomes the intermediary for information which, in the world of the ValueWeb, is shortened to an infomediary.

If you take the business model chart of banking that I outlined earlier, then Uber, Airbnb, Facebook, Amazon and others are all focused upon being operationally excellent processing houses. They have no product or services themselves: Uber owns no taxis, Airbnb have no beds and Facebook publishes nothing. They just have a great ability to connect people in real-time.

In other words, all of these great new companies are infomediating the content—cars, beds, photos and updates, products, information—with the context—the app in my hand or the page that I'm browsing. If I therefore redraw my chart for the new world of infomediaation with the infomediaries we admire it would look like this:



Here's the question for financial firms: where is the infomediator for the ValueWeb? What is the processing machine for value exchange, and what is the role of banks and incumbent financial institutions around that machine?

It's a great question as, historically, the processing engine for the financial system has been SWIFT, VISA, MasterCard, FedWire, CHIPS, BACS and others. Now these are not going to disappear fast, if at all, but there is a new marketplace structure appearing. Originally, I would have said it was PayPal,

as they've removed the friction of paying digitally, but it's not PayPal. PayPal are good but ... they haven't changed anything. Then I realised that the reason we're so excited about the Internet of Value is that the blockchain is our new processing engine.

Banks have recently become far more vocal and articulate about the blockchain technology. In January 2015, USAA, NYSE and BBVA invested in these technologies (\$75m in Coinbase). These two quotes of the announcement caught my eye:

“At its core, Bitcoin is a decentralized protocol that enables exchange of value among parties around the world, giving it the potential to alter the financial services landscape.”

—Jay Reinemann,
BBVA Ventures executive director

The Bitcoin blockchain “is an opportunity for Wall Street to streamline some operations that are pretty antiquated.”

—Duncan Niederauer,
former CEO of NYSE Euronext

Many other banks have woken up to the blockchain's potential:

“Money at its core is simply a ledger for keeping track of debts and Bitcoin is truly the best iteration of a universal ledger we've ever seen.”

—John Reed,
former Chairman and CEO of Citibank

“Blockchain is a really disruptive development and banks have a lot of fear concerning this technology because, in the pure theory of blockchain, a lot of processes within a traditional bank would be obsolete.”

—Thomas F Dapp,
Research Analyst, Deutsche Bank

In fact, there have been increasingly dynamic efforts to use the blockchain in financial value exchange, which gathered significant pace in 2015:

Fidor Bank were the first to experiment with virtual currencies and the blockchain. They partnered with Kraken (in October 2013) to create a digital currency exchange in Europe, working with bitcoin Deutschland GmbH in Germany. This was followed by a partnership with Ripple Labs to use its payment protocol to provide customers with money transfer services in multiple currencies at a lower cost (May 2014). In February 2015, they partnered with bitcoin.de, a P2P bitcoin trading platform.

LHV Bank are working on a new project with blockchain technology (June 2014) and developed Cuber Wallet, an app based on “Colored Coins” blockchain technology (June 2015). They also partnered with Coinbase (September 2014) and CoinFloor (July 2015).

CBW Bank and **Cross River Bank** announced partnerships with Ripple Labs to work on building a risk management system, and to provide low-cost, cross-border payments transaction (September 2014).

USAA, Nasdaq, BBVA invested in Coinbase (January 2015).

Goldman Sachs participated as a lead investor in \$50 million funding for Bitcoin start-up Circle Internet Financial Ltd. (April 2015).

UBS created a research lab in London focused on blockchain technology (April 2015).

BNY Mellon have created their own currency called “BK Coins” as a corporate recognition program which can be redeemed for gifts and other rewards (April 2015).

DBS Bank ran a blockchain hackathon in Singapore in partnership with StartupBootcamp FinTech and CoinRepublic (May 2015).

Nasdaq launched an enterprise-wide blockchain technology initiative (May 2015).

CBA partnered with Ripple Labs to implement a blockchain ledger system for payment settlements between its subsidiaries (May 2015).

ANZ Bank partnered with Ripple to explore potential use cases of blockchain (June 2015).

Westpac partnered with Ripple and tested a proof-of-concept with its staff for making low-value, cross-border payments (June 2015).

Barclays Bank announced that they were working with a range of start-up companies, including Safello, to explore how blockchain technologies could be harnessed in the financial services sector (June 2015).

Santander announced 20–25 use cases that would save £12 billion (\$19 billion) in bank infrastructure costs by switching to the blockchain (June 2015).

BNP Paribas experimented at making transactions faster by using blockchain (July 2015).

Société Générale ran a training program to give employees’ bitcoin, blockchain and cryptocurrency expertise (July 2015).

Citibank set up three separate systems within Citi that deploy blockchain-based distributed technologies. They developed an equivalent to bitcoin called “Citicoïn”, which is being used internally to understand the digital currency trading system better (July 2015).

Deutsche Bank released a white paper stating that “it is entirely conceivable that banks could, for instance, set up a new digital booking and clearing system amongst themselves, enabling them to offer client transactions featuring the benefits of the blockchain, such as speed, efficiency, internationality and cost savings” (July 2015).

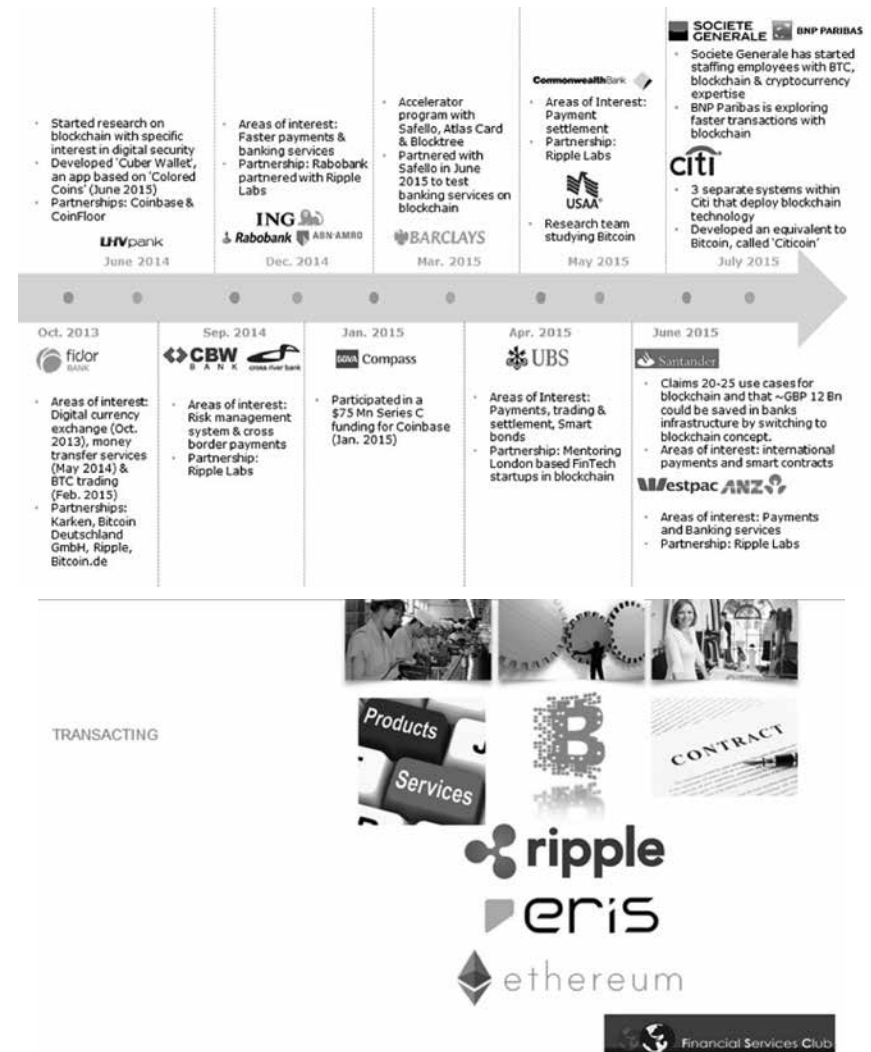
The Bank of England announced that central banks are looking at ways to implement “hybrid systems” involving distributed ledger technology of the type currently used to record bitcoin transactions (July 2015).

US Ripple users are now able to make deposits to their Ripple accounts from banks Wells Fargo, Bank of America, Capital One, Capital One 360, USAA, TD Bank, US Bank, PNC or Chase since August 2015.

The blockchain allows the financial system to deliver the processing engine for value exchange: *I want to exchange value—connect me with the right value tokens and value stores to exchange.*

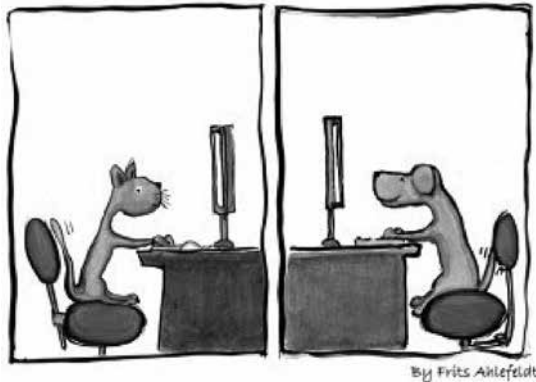
The blockchain is not the engine. It is the technology. It is the Uber of the ValueWeb or, rather, the infomediation tool between those who have value and those who need it.

A timeline of announcements by banks involved with blockchain



DIGITAL IDENTITIES DEMAND A DIGITAL INFRASTRUCTURE

In fact, a key attribute of the blockchain, combined with the mobile authentication just described, is that it could solve the identity issue for trading globally, peer-to-peer for almost free. This is a big issue, as no one



knows you're a dog on the internet, but banks need to know, as they can get fined heavily for getting this wrong.

This is why the banking community spend days talking about KYC—Know Your Client. There is a strong argument that, for a digital age, we need digital identities, and the most likely outcome for this is that the digital identity for you and me, ten years from now, will be on some form of shared ledger system.

This is a way off if you look at the state of KYC now. Today, there are anti-money laundering (AML) rules that demand proof of identity by showing a passport and utility bills to check address and personage in most countries. Northern Europe is the exception, as the Nordic markets have seen governments and banks working together to promote digital identities (as far as I know, the only place apart from some parts of Asia that has done this).

Routing payments through multiple nested accounts via counterparties that are difficult to trust is complex. But surely all of this dialogue about passports and utility bills, declarations and signatories and KYC and AML, is pushing a demand for a new digital infrastructure to clear up this mess? The mess has been built up over the years by our punch card and magnetic tape based infrastructure, restricting the sharing and routing of information. In an age of big data, the fact that we don't have this data is appalling.

Meanwhile, we have a hundred different solutions companies trying to solve the digital identity infrastructure challenge and not a single, coordinated global initiative to solve it effectively.

Sidechains

The blockchain allows you to create a public ledger system that is accessible for all and secure. This is achieved by having a public recording of transactions that are secured by private keys. As a result, any exchange on the blockchain is secured until the private key is passed along. At that point, the ledger records the exchange of the key and the movement of a digital asset, and that asset can be anything from a currency transaction to a securities settlement to a mortgage deed to a marriage contract.

In fact, in order to allow different markets to create different blockchains to record these different styles of transaction, there are now these things called *sidechains*. Sidechains are just spin-offs of a blockchain used to record a specific market transaction, such as house deed sales, and sit alongside the main blockchain.

This is the technology that all the banks are excited about, as it allows the exchange of digital assets to be recorded digitally for near free. The interviews in the second half of this book illustrate the great debate around this technology. The core of this debate is whether blockchain technology needs to reside on the bitcoin currency. For some, such as Jon Matonis, this is a given. Why would you create another currency? For others, such as Jeffrey Robinson, as soon as blockchains are endorsed and operated using dollars, euros or yen, then why would you need bitcoin? You can make your own mind up.

WILL THE BLOCKCHAIN REPLACE SWIFT?

I made a slightly provocative comment, as it turned out, during my keynote speech at a recent conference. It was picked up in a press article, which reported that I “said the coding behind virtual currency bitcoin could also prove to be enormously transformational, potentially even replacing the SWIFT network for inter-bank payments”.

This created a lot of debate, as SWIFT is the backbone of the banking industry worldwide. Built in the 1970s to replace telex machines with electronic transfers, SWIFT is a co-operatively funded network by the global banking system that allows funds to be transferred with confidence. Its very name shows its co-operative nature, SWIFT: the Society for Worldwide Interbank Financial Telecommunication.

SWIFT provides a network that enables financial institutions to send and receive information about financial transactions in a secure, standardised and reliable environment. The majority of banks use the SWIFT network to send money with, as of September 2010, SWIFT linked to over 9,000 financial institutions in 209 countries, who were sending and receiving an average of over 15 million messages per day, compared to just 2.4 million a day in 1995. In a broader context, banks trade something like \$5 trillion a day in currencies alone, and most of that is handled by message exchanges to and from the SWIFT network.

Therefore, to say that a new technology, the blockchain, could eradicate a 50-year-old, bank-owned network overnight is proactive. But then there are many views expressed that show a complete lack of understanding of what bitcoin is, but it is changing. Banks are waking up to bitcoin and, more importantly, the blockchain and its ability to transform banking. Here is a technology that is being developed in the open, that has more compute power than any open source project in history, and that could fundamentally reinvent the banking system ... and yet few bankers understand it, as evidenced by a recent debate with a number of banks.

First, there was the view that Bitcoin is purely for payments. No. Bitcoin, the protocol, and other cryptocurrencies, are for the recording of digital value exchanges that can take any form, from a payment to a marriage vow.

Second, that it cannot threaten something like SWIFT, as SWIFT is more than just payments. Half of SWIFT's activities are in securities settlements, for example. But the blockchain technology can record securities settlements as easily as a marriage contract or payment. This is evidenced by the newly launched investment markets service, Colored Coins, a company that records investment activity on the blockchain.

Third, that the upstart cryptocurrencies could not threaten SWIFT, as SWIFT has the scalability, security, resilience and history that provide trust in the network. Again, wrong: Bitcoin is now using more scalable and capable networking compute power than SETI, the Search for Extra-terrestrial Intelligence, which was the world's previously largest networked system.

Fourth, that the Bitcoin blockchain is of interest, but not the currency. Some people believe this is wrong, too. They state that you cannot have a blockchain in banking without a native currency—and why would you replace bitcoin as the native currency when it's had five years and thousands of man hours of development effort invested? It's an interesting discussion, and one I disagree with personally as you can have a dollarchain or eurochain, rather than a bitcoin blockchain, but only time will tell on this one.

Fifth, that Mt. Gox's collapse has destroyed all trust in bitcoins and its ecosystem. No. Just because a flaky trading system collapsed does not remove the robustness of the Bitcoin protocol.

Sixth, that it is difficult to use. Yes, but that's changing fast, thanks to the Bitcoin ecosystem. Companies such as Circle and Ripple are changing the game and Bitcoin is like the internet before Tim Berners-Lee gave us the World Wide Web. It's changing fast and becoming easier to use.

Finally, that it's not relevant because it's just a cryptocurrency. Wrong. It's a protocol, a commodity, a technology, a smart contracts system, a general ledger, a secure exchange ... a many splendored thing.

Now, I write about Bitcoin all the time, not because I'm promoting it but because it has the potential to reinvent banking, money and regulation as we know it. The blockchain technology is the core technology of the ValueWeb.

WHAT DOES THE VALUEWEB MEAN FOR BANK BRANCHES?

Most observers of the banking industry believe that banks do not need branches. Most bankers say that banks need branches. Who's right? I would bet on the banker, as they're in the business. However, it is clear that we don't need as many branches.

A report by the European Central Bank (ECB) in 2013 found that there has been a significant number of branch closures over the last decade. European banks closed around 20,000 branches across Europe between 2009 and 2013, including 5,500 in 2012 and 7,200 in 2011. That represents the closure of about 8 percent of all of Europe's bank branches since the global financial crisis began in 2008, and the cull is expected to continue for many years to come, thanks to FinTech and digitalisation.

The cuts have been most severe in Spain, unravelling years of expansion by regional savings banks that had given the country the biggest bank branch network in Europe. Its branch numbers were down 17 percent by the end of 2012 from four years earlier but, at just over 38,200 branches, Spain still has more branches per head than any country in Europe—one bank branch for every 1,210 people. France has the greatest number of branches—38,450, or one bank branch for every 1,709 people. France did shrink its bank branch network by 3 percent in the four years to the end of 2012, while 5 percent of UK branches and more than 8 percent of German ones shut down. The number of branch closures is even

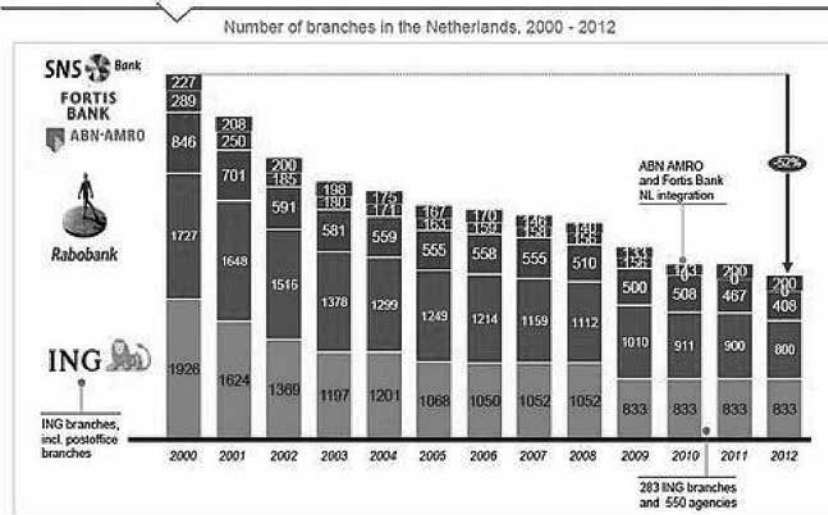
more dramatic in countries that are already heavily digitalised, such as Denmark, where numbers were down by a third and the Netherlands, which had closed a quarter.

The United States is the one country that has consistently refuted the need to close branches, expanding the branch footprint from around 80,000 in 2000 to over 95,000 in 2012. In fact, the number of bank branches in America doubled between 1980 and 2010, and the industry has only reduced their branch numbers three times in the 77 years since the FDIC started keeping track. However, even there, we are now seeing branch closures. Bank branches in the US fell to 97,337 in 2013, reflecting 867 branch closures in 2012, compared to just 315 closures in 2011. Bank of America has cut the number of its branches to 5,243 in the Q3 2013, a 6 percent decline. Citigroup had reduced its branches aggressively by the end of 2013, to 3,777, from 4,069 in 2012.

A British Bankers' Association (BBA) report released in Spring 2015, called the *Way We Bank Now*, noted that:

- The use of UK bank branches fell by 6 percent in 2014, as customers channelled more transactions over phone and the internet
- The number of branches in the UK fell from 13,349 twenty years ago to just under 9,702 in 2013
- In 2009, UK customers called banks nearly 50 million times to transfer money between their accounts. By the end of 2013, the figure had fallen to just over 16 million
- Between 2008 and 2013, telephone transactions fell 43 percent
- Banking apps were used 10.5 million times a day across the country in March 2015, eclipsing the 9.6 million daily log-ins to internet banking services, and both services are still growing rapidly
- More than 8 million people downloaded banking apps in the past year
- In a typical week, Brits are transferring £2.9 billion through apps
- Bank branches carried out 427 million transactions last year, the equivalent of 1.17 million per day (assuming they are open seven days a week)

Dutch banking landscape: 50% of branches closed over past 10 years



SOURCE: Annual reports and statistics, team analysis

- The shift to online leaves the 6.4 million people in the UK who have never used the internet increasingly out of step with their banks

British banks halved branch numbers between 1990 and 2015, and senior bankers openly agree that a network of 700–800 outlets would be an optimal size for a bank covering all of Britain. None of the big five have so few. At the end of 2014, Lloyds had 2,260 and the Royal Bank of Scotland 1,750. British banks had closed 557 branches between 2008 and 2012, resulting in 11,713 branches remaining at the end of 2012.

Some people would use this information to claim that the bank branch is dying; the bank is no longer relevant; mobile digital is all; and the customers will move to alternative media, even if the bank doesn't. Now I disagree with this view for a whole variety of reasons, but the core comes down to this.

First, even digital firms find the need for a physical presence if, for no other reason, they need to reassure customers they are real, can be trusted and are backed by humans.

Second, a digital-only play narrows the focus to only those customers who want digital-only service. Those customers are often mature, confident and competent with money. It's different to the youth millennial or iGeneration, who are confident and competent with technology, but not with paper money. The latter demographic only want human contact when it comes to big, scary things, like buying their first house or investing in a pension.

Third, and probably the most important factor, is that the digital-only bank has two forms: a digital form based upon apps for the best user experience, where the client is sophisticated in approach; and a mobile form based upon text messaging for the simplest user experience, where the client is basic. These two factors are critical to future bank services. In fact, the mobile-only play for financial inclusion is transformational, as it enables five billion people previously excluded from the financial network to be included. However, where I fundamentally disagree is that banks can exist in a digital form only. The reason I disagree with this is that there are very few digital-only behemoths—Google, Facebook, Amazon, Uber—but all of these have a physical form.

In other words, the provocative view that money is just data and can all be digitalised with no bank involved is an interesting theory, possible in our dreams, but unworkable in reality, as society wants to deal with real people in real places when it comes to real money.

While most banks have been reducing the size of their high street presence since the 1980s, the death of the bank branch has been much overstated. More than a quarter of the UK's bank branches have been refurbished in the past three years, clearly demonstrating the commitment to bricks and mortar.

BBA Report on the Way We Bank Now, 2015

The Chief Executive of the British Banker's Association, Anthony Browne, announced that the traditional bank branch is dead. Writing in *The Sunday Telegraph* in July 2014, Browne stated that the halcyon days of banking are over. It was far more difficult to deal with banks before the digital era, as you were restricted to times and appointments, and were forced to physically visit the branch and your manager.

The way we bank now is far easier and faster. In the pre cash machine age, branches would not even open every day of the week, let alone at weekends. Counters would close at 3.30pm sharp. You could only find out your balance by visiting your branch and getting a cashier to write it down on a slip of paper. Now we can get access to our money 24 hours a day, 365 days a year.

Today millions of us can check our balances, make payments and apply for credit with the help of mobile phone apps whenever and wherever we please. We can talk to our bank whenever we want, by phone, email or social media.

Digital banking has transformed speed of service. In the Seventies even arranging an appointment to discuss a mortgage could take

months. HSBC recently had a home loan application completed online in 24 minutes. Most of our major banks are seeing a 10pc fall in branch transactions each year.

Browne's comments are reinforced by various banking statistics. For example, the UK's Barclays Bank announced a whole set of interesting stats in September 2014:

- Barclays smartphone banking apps accessed 32 times every second
- **£4.7 billion in transactions are processed using smartphone apps every month;** that's over £1,800 every second or £109,000 every minute
- Barclays Mobile Banking now accounts for 75 percent of all digital logins
- An average Barclays customer visits a branch less than twice a month but uses Mobile Banking 26 times a month
- Barclays mobile banking apps have been downloaded more than 9 million times since their launch two years ago, and are being accessed 19 million times each week

This raises another debate about the digital versus non-digital future. As we digitise everything, are we going to lose something? Does the removal of face-to-face eradicate a critical element in banking?

I think it might and, as a result, we will see a two-tier banking system. The tier one banking system will be all digital. All transactions will be remote, and most financial needs will be satisfied by a screen-based process. This is well illustrated by mBank in Poland, who wanted to compete with payday lenders (Wonga has recently entered the Polish market), and so they created a loan feature using their app that could be completed in less than a minute. mBank's loans allow customers to get funds in their accounts within 30 seconds of making the request. How is that achieved?

It is made possible by analysing every mBank customer in real-time and giving them a maximum loan setting. That means that when a customer wants a loan, they are pre-approved. Hence, you load the app and request a loan. The app shows you the maximum loan you are being offered. You

then choose the actual amount you want to borrow and over what period of time, and the app shows you the total monthly payments, including all interest and charges. Once you agree, that's it. The money will be in your account within 30 seconds.

That beats payday lenders at their own game—Wonga's secret ingredient is all about the real-time analytics—and shows how banks can leverage their digital assets. But then what we've lost is that human element. The human element is the ability to see the relationship between real risk and real need. The old branch manager relationship was an important one in working out whether the customer was *good for the money*. The old branch relationship is still an important one for complex dialogue too, where corporate clients need to go for in-depth discussions of trade finance needs. And the old branch structure is critical in bringing humanity to the digital experience.

mBank and others would claim this is not so—you can service customers easily through a screen with a Skype connection—but I'm not convinced. That is why there will be a two-tier system. Those customers who are a hundred percent comfortable with screen-to-screen will be dedicated to branchless banks who offer amazingly intuitive, friction-free digital services. Banks such as mBank. Those who are looking for less self-service, more dialogue and greater decision-making based upon circumstances and needs, rather than profile and credit score, will continue to rely upon banks with physical contact through a branch or, more likely, through a representative visiting their office or home. And that is where I see the future: not a branch-based model, but one where there is humanity.

That is where the battleground lies: connecting humans to the net and humanizing the digital relationship. It's not a clear-cut branch or no-branch, all digital versus some digital future, but a multi-layered structure of competition, with some getting it more right than others.

WILL THIS LEAD TO A DIGITAL DIVIDE?

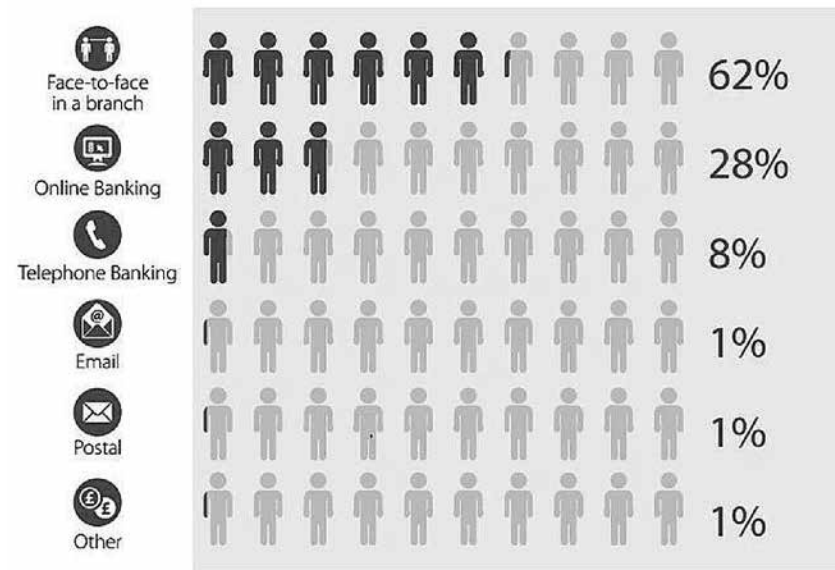
I hate the use of demographics as, when it comes to digital, I prefer psychographics. As a baby boomer, I feel more like a digital native, having

developed my career in the technology industry, but according to my demographic profile, I'm an immigrant. In truth, it doesn't matter so much because there are some clear demographic differences when it comes to use of branch and paper. Older people prefer branches and cheques, whilst the young prefer mobile and apps.

Now this approach seems ageist, but the research supports such a conclusion. For example, the Social Market Foundation performed research into preferences for access amongst UK consumers last year and found:

Face to face service in a branch is still the preferred mode of accessing bank services for 62 percent of people. While we might be comparing prices and ordering goods online, and certainly that is where we are checking real estate listings, eight out of ten people would prefer to go to a branch to seek financial advice; almost seven out of ten to open or upgrade a current account; and it's only when we ask about simpler

Chart 1: Preferred channel to access bank services



Source: Social Market Foundation/ComRes, Future of branch banking survey, January 24-26 2014

payments transactions, that other channels—primarily online banking—become a common preference ... the affluent (AB social class) and the young (25–34 year olds) have a weaker preference for the branch than others, with more than half of these groups preferring other channels. This trend in their attitudes is significant because the affluent, by way of their higher deposits, contribute the most to banks' net interest income; and the young acquire the highest number of financial products and services in these years, contributing the most to banks' fee-based income.

In other words, the financially competent and confident and the digital natives dislike branches, which means the financially less well-off and digital immigrants are the branch users. The charts below shows the preference for using online banking, which declines the older or less well-off you are.

| | A/B (n=359) | C1 (n=221) | C2 (n=161) | D/E (n=267) |
|------------------|----------------|---------------|---------------|----------------|
| Account Opening | 26% | 20% | 11% | 11% |
| Transactions | 58% | 50% | 36% | 25% |
| Managing Savings | 46% | 39% | 29% | 19% |

Source: SMF/ComRes, Future of Branch Banking survey, January 2014

| | 18–24 (n=117) | 25–34 (n=156) | 35–44 (n=179) | 45–54 (n=182) | 55–64 (n=173) | 65+ (n=201) |
|------------------|------------------|------------------|------------------|------------------|------------------|----------------|
| Account Opening | 15% | 28% | 20% | 20% | 13% | 8% |
| Transactions | 54% | 61% | 54% | 45% | 32% | 19% |
| Managing Savings | 37% | 51% | 45% | 35% | 28% | 13% |

Now the point I'm making is actually not about age and demographics. It's a completely different, but important, point: as an industry, we are too accommodating of too many choices for too many people.

Each time we introduce a new access service to the bank—mobile and apps—we don't close down an old one—the branch—because some of the

people use some of the services some of the time. As long as some of the people use some of the service, we keep it available.

It is similar to the idea the Payments Council had a few years ago to get rid of cheques. There was a huge outcry because the elderly use cheques, so the action was revoked. How many old people use cheques? There's not a great deal of up-to-date information on this. For example, in a paper prepared for the UK government in 2013, only two paragraphs talk about the demographics of cheque usage:

Women are more likely to carry a cheque book than men (47 percent of women said they always carry a cheque book when they go shopping compared to only 19 percent of men). Cheques are most popular with people aged 50 and over ... A survey on payments to retailers undertaken by the Payments Council (formerly known as APACS) in 2005 found that 46 percent of cheque use was by users aged 55 and over, despite this age group accounting for only 34 percent of the adult population.

However, this point reinforces the branch access issue: we are purely continuing these outmoded services from the last century because a small group of citizens want to use it.

Meanwhile, we introduce new services that are absorbed rapidly by digital natives and immigrants, and find ourselves stretched. The British Bankers' Association (BBA) report *The Way We Bank Now* shows how rapidly things are changing. Key statistics from June 2014 include:

- Apps offered by banks have been downloaded **more than 14 million times**. Some of these services have already achieved well over one billion uses in just a few years.
- Mobile phone banking is popular, but many customers still prefer internet banking for larger transactions. Nearly **£1 billion a day** is being transferred using the internet.
- Internet and mobile banking is now used for transactions worth **£6.4 billion a week**—up from £5.8 billion last year.

- Banking apps for mobiles and tablets have now been downloaded more than **14.7 million times**—a 2.3 million at a rate of around 15,000 per day in 2014.
- Internet banking services typically receive **7 million log-ins a day**.

The demographics here are the flipside of the data gathered for branches and cheques. For example, Barclays Pingit launched in 2012 and, after three months, offered some interesting findings:

- 29 percent of users are 18-25 years old
- 37 percent are 26-35
- 26 percent are 35-50
- 7 percent are over 50

The United States shows similar numbers, with Pew Research producing a report on online banking users in August 2013. Their findings show that under 49 year olds are far higher users of online banking than those 50 and over.

| Percent who use desktop-based online banking | |
|--|------------|
| 18-29 | 67 percent |
| 30-49 | 65 percent |
| 50-64 | 55 percent |
| 65+ | 47 percent |
| All internet users | 61 percent |

Similarly, higher educated and higher income customers are more likely to be online than lower educated, lower income ones.

| Education | |
|------------------------|------------|
| No high school diploma | 30 percent |
| High school grad | 47 percent |
| Some college | 66 percent |
| College+ | 75 percent |

| Household Income | |
|-----------------------------|------------|
| Less than \$30,000 per year | 48 percent |
| \$30,000 to \$49,999 | 57 percent |
| \$50,000 to \$74,999 | 71 percent |
| \$75,000+ | 75 percent |

So what we really have is banks offering services and trying to be all things to all people. Banks try to please all of the people all of the time, and it just doesn't wash. There's a cost overhead that the digital natives and immigrants are paying to cross-subsidise the costs of the branch and paper users. Will we see a digital divide open in banking? Will the digital crowd migrate to cost-efficient, pure digital plays, leaving the oldies and poor using the physical networks?

What is more likely to happen is that the old will have to get their kids and grandchildren to do their banking for them, whilst the poor will use mobile financial services for inclusion in the network. However, during this transition, there will be some blood on the floor, with the most likely change being the pure-play digital companies gaining the most affluent and savvy customers, leaving the incumbent banks with an even bigger dilemma on their hands.

Close down too many branches, too quickly, and they get called foul; don't close branches fast enough and they can't compete.

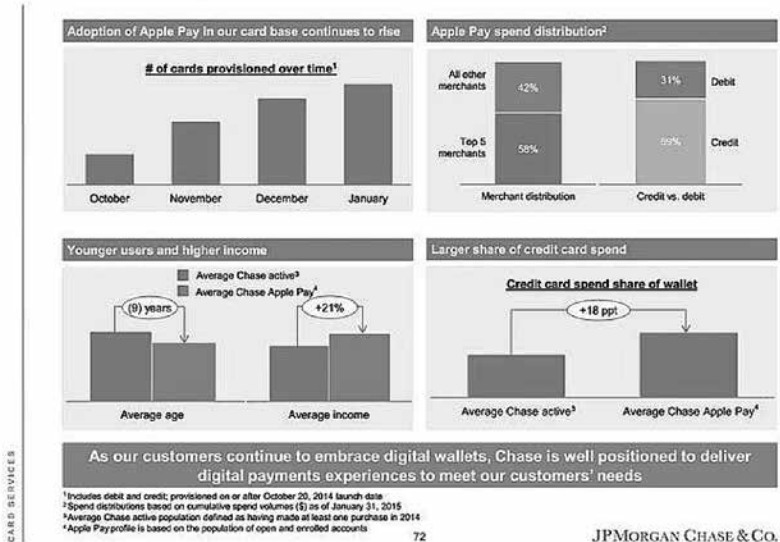
THE ROLE OF THE BANK BRANCH IN THE DIGITAL AGE

At J.P. Morgan's 2015 investor day, they announced three things that grabbed the FinTech headlines. First, that Apple Pay has been activated by over a million cardholders since its launch in the US in October 2014:

- Card activation is on a steady increase since October, with 1 million cards activated since Apple Pay's launch
- 69 percent of the cards registered to Apple Pay are credit cards

- 58 percent of the activity is concentrated in the top five merchants (Chase does not list the merchants)
- The users, not surprisingly, are younger and more affluent

Early adopters of Apple Pay™ are attractive customers and engaged with Chase



The second announcement was a closure of branches as customers moved to digital:

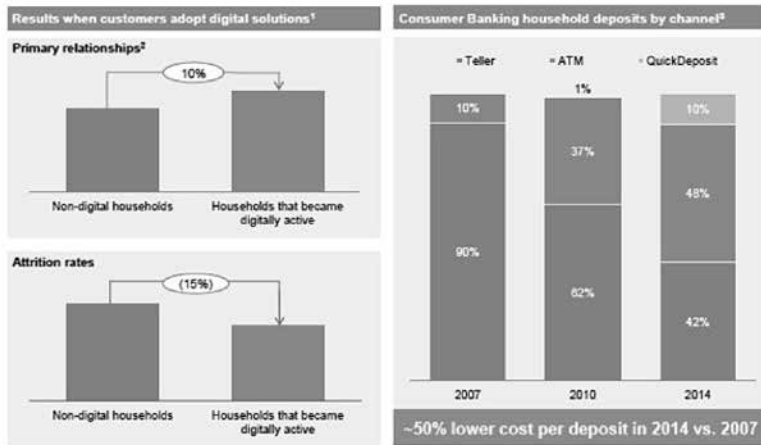
J.P. Morgan Chase & Co. plans to cut roughly 300 branches by the end of 2016 ... J.P. Morgan's anticipated branch cuts amount to roughly 5 percent of its overall footprint. It's a shift from 2012 and 2013 when the bank added 106 and 28 net branches respectively. In 2014, J.P. Morgan cut 28 banks from its footprint. Between 2013 and 2014, the bank cut roughly 6,500 or 11 percent of its branch employees.

The third thing noted came from Javelin's analysis of the investor call:

Many of the headlines in the wake of J.P. Morgan's investor day fixate on the news that the banking giant plans to close

Rapid adoption of mobile & digital capabilities

Digital usage results in more engaged customers and lower cost



¹ Based on a sample of households that became digitally active in January 2014 and subsequent trends through November 2014 when compared to a control group of non-digital households; digitally active refers to having a mobile or online login during the time period
² Primary relationship based on internal Chase definition
³ Based on fourth quarter data

JPMORGAN CHASE & CO.

hundreds of bank branches. On the face of it, that is factual. But this is akin to focusing on layoffs without accounting for hiring in other parts of a company that can drive future growth and employment. The reality is Chase's news is an example of getting leaner, not lopping ... to be sure, Chase does forecast reducing its 5,602 branches, but only by about 300 over the next two years ... citing year-over-year numbers, Chase reported hefty increases in mobile app users (20 percent), mobile QuickDeposit transactions (25 percent), mobile QuickPay transactions (80 percent), mobile bill payments (30 percent), and ATM deposits (10 percent). And here's an important milestone for Chase's branches and ATMs: 2014 marked the first year its customers made more deposits through digital channels than at teller windows (ATMs 48 percent, mobile deposit 10 percent, and tellers 42 percent) ... Chase concludes that digital usage leads to more

engaged, more satisfied consumers who are less likely to switch banks. They do more transactions, and they conduct them in cost-effective, self-service digital channels. And when they do head to a branch, there will still be plenty of them—with an increasing focus on face-to-face interactions that matter both to the customer and Chase's bottom line.

This reminded me of TSB's announcement that they had achieved significant numbers of account switchers. TSB is a 700-strong branch-based UK bank, spun out of Lloyds under European competition rules that forced the IPO of the new/old bank. They made it clear that they're getting good customer acquisition—half a million new accounts in 2014—but that this is because they have the right mix of customer access, particularly including branches.

In their first year results, they also released a report, *Why branches matter in a digital age*. In the introduction, Paul Pester, former CEO of digital bank Virgin Money, makes clear why branches matter:

Some argue that because technology and innovation is revolutionising the way in which customers interact with their bank and money that's the only way to compete, and that emerging digital-only providers—be they from the banking industry or elsewhere—will make branches redundant. The steady flow of bank branch closures by the major established banks over recent years has given that theory an air of credibility.

TSB thinks differently.

TSB believes the future of banking lies in branches and technology—enabling customers to bank where they want, how they want and when they want. Yes, customers are adopting mobile and digital banking at a pace we've never seen before. But the importance of having a branch in a convenient location is as important as ever for consumers.

The report also points to research that substantiates this point:

Although online banking is growing, branches remain important to customers. New data from ComRes shows that 69 percent of people believe that it is important to have bank branch close to where they live.

In fact, most banks claim that account openings are most influenced by having access to a local branch. That may change but, today, that is still the case.

Finally, there are some other factors in play. For example, Atom Bank—the UK's first digital-only bank—make clear that the customers who are most satisfied are those who don't come into branches ... but they are also the most financially confident and competent. If you are confident with money, you want to control it yourself. You don't want someone talking to you about it and, in this case, the most satisfied customers are those who you never see.

However, most first account openings will be with people who are not confident with money. They are young, have never had a mortgage or deposit account, are probably getting their first salary cheques paid and, in many cases, struggle with debt. For these young market account targets, as well as those nervous with money, the branch plays a critical role.

That's borne out by research from many banks, and these are not the targets for digital-only banks. In other words, the targets are people who are account switchers, over 30 and confident with money. For the rest, they want serious banking in real bank stores.

Why would a digital bank have branches? Meet CheBanca!

I visited Roberto Ferrari at CheBanca! in Italy in summer 2015 (see the interview with Roberto in the second half of the book). For those who don't know CheBanca!, it is a digital bank launched in 2008 by Mediobanca. Mediobanca provides merchant bank services in Italy and had never had a retail bank before. Therefore, it made sense in the post-meltdown digital age to implement a FinTech bank fit for Italy, and CheBanca! claims to be that

bank. Being a digital-first bank does not mean being a digital-only bank, and Roberto took great pride in showing me his branch.

A digital bank with a branch? Yep. CheBanca! has launched almost 50 branches so far, with more to follow. This has proven critical in gaining trust and deposits, with the main aim of achieving three things that digital-only banks struggle to realise:

1. Trust
2. Brand
3. Service

These three things are harder to achieve when you are unseen, unproven and unknown. However, Roberto and his team gave me some interesting statistics that may back up this claim.

First and foremost, asset holdings in areas with a branch are 2.5 times greater than those areas that are unbranched. This reinforces item #1: Trust. When you can see where the money goes in and out, this builds more trust than the unseen bank.

Second, CheBanca! is gaining 4,000 new customers per month with 45 percent from branches and 37 percent from remote contact (the bulk, 30 percent of that 37 percent, is generated by the internet). The remaining balance of 18 percent is generated by third-party, physical channels. That means a whopping 63 percent today is coming from direct physical contact, and demonstrates the increased trust in the branch services, as well as the strength of the branch in building a brand.

Third, customer behaviours demonstrate that, for service, they prefer digital, with 37 percent of customers handling all of their transactions just through digital access. Then there are a second group of customers, 26 percent of the total, who deal with CheBanca! purely through remote servicing via the web and call centre. A third group that represent around 28



percent of all customers use all the access points (web, call centre, branch). Finally, only 9 percent deal with just the branch and nowhere else.

However, consider the first two groups—would they trust a pure digital firm with zero branches? And the latter two—for over a third of customers (37 percent), the branch is still important, even in a digital-first bank.

Interestingly, the figures continue to bear this out when you examine how customers interact with the bank versus performing transactions. A huge 89 percent of all contact is via digital access, three times the volume of contact that takes place in a branch. Just 9 percent of customers visit a branch every month, versus 7 percent contacting the call centre and 42 percent interacting via digital channels.

So there are a few things about a digital first bank branch that are different. For example, once you get inside, it looks a bit empty.

All you can see is a concierge with an iPad, a machine that looks like a teller (but isn't) and something at the back that might be a *Star Trek* transporter room (and is).

Looking in the other direction across the branch (which is L-shaped), you see a few teller stations. These are stations to chat with people about account opening, service and advice, and the typical staff member here is a customer agent without a specialised banking background.



Finally, at the back of the L-shape are a few rooms with frosted windows. These are the serious advice stations. Here, customers have to make appointments to see wealth managers, mortgage advisors or similar. However, you don't need to wait if you simply need advice, as you can go to the transporter room. The transporter room is this weird funky station at the back.

Once you sit at the station, it's got all sorts of cool features, like biometric recognition using digital signature and shared screens with video operators.



This particular branch serves around 259 customers a month at these videostations, and it has proven successful at broadening and deepening customer relationships using those old bank metrics of cross-sell and up-sell. According to the bank, the service videostation has a 15 percent cross-and up-selling success rate.

Finally, if you just want to deposit a check or cash, you use the funky self-service machine. CheBanca! boasts over half a million customers overall, since the bank opened for business in 2008, and is now rolling out its digital branch formats. Today, there are four branches based on the

new format. By the end of September 2015 there will be eight in a selected sample of medium and large towns. Equally, the bank intends to roll-out the videostation experience via Skype from September 2015.

All in all, there's lots of things I liked about the digital branch concept. I know folks will throw rocks, and say that digital customers don't need branches, but today's statistics and customers don't support that view.

The only thing I didn't like is having retailers for customer service and talking about up-sell and cross-sell. I'm sure that CheBanca! and Roberto will do their utmost to treat this with care, as they want to be the coolest bank in Italy and, based upon this experience, they probably are. As he points out, CheBanca! has been awarded the Best Bank for Customer Satisfaction in Italy for the past three years and has a Net Promoter Score (NPS) of 47. He claims that "sales is a result of true customer satisfaction".

7.

THE DIGITAL BANK FOR THE VALUEWEB

