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Financial IT

Innovations in Technology

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Senior Director, Fraud Executive Advisor and Industry Relations, Nice Actimize

FACING DOWN PAYMENTS FRAUD

Connecting the dots: the digital transformation of risk analytics and decision-making

Paul Thomas,
Managing Director
of Provenir

The IT impact on the evolving financial trading landscape

Darren Watkins,
Managing Director
of VIRTUS Data Centres

The easing of sanctions against Iran

Farhad Alavi,
Managing Partner
of Akrivis Law Group, PLLC

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Financial IT

LOOKING THROUGH THE RIGHT LENSES

Financial IT and FinTech are huge topics, on which there are many and varied opinions.

What are the key concepts that really define the bigger picture?

As its name implies, Financial IT describes that space where financial services and technology intersect. We are the voice of the technology providers. Sometimes those companies are FinTechs – non-financial organizations that seek to provide services traditionally offered by financial institutions. More often, the companies are financial IT providers, who offer solutions to financial institutions. The divisions between FinTechs, financial IT providers and institutions are often blurred.

Andrew Hutchings,
Editor-In-Chief

Given the different opinions of the various companies and organizations that use Financial IT as a forum in which to express an opinion, we take a balanced view. In this edition, our publisher Chris Principe has taken an optimistic stance in his Letter, as is his prerogative. He examines what could happen over time when two disruptions combine. Accordingly, in this Editor's Letter, l lean towards caution – which is based on a number of concepts that run through many of the varied articles in this edition.

One of these concepts is that disruption can take a heavy toll on organizations and, within particular countries, entire financial services sectors if the key players cannot or do not react quickly enough to change that comes from outside. Thanks in large part to the erosion of correspondent banking relationships through the Caribbean region, unemployment in the financial sector of the Bahamas has risen to 30%. Official statistics suggest that many of the jobs were lost in the six months to May 2015. In his review of the potential impact of Blockchain, Gary Wright notes that this new technology could threaten jobs in companies that are unable to adapt.

Of course, new (and generally more) regulation is of itself both a challenge and an opportunity. As Lee Taylor explains in her discussion of corporate liquidity management, the challenge includes the need for highly complex solutions. The opportunity for financial IT companies lies in the development of those solutions. To the extent that regulators are clamping down on FinTechs themselves, there will likely be long-term benefits.

Another concept is that the short-term impact (over the next two years or so, say) of disruption is often grossly over-estimated, while the converse is true of change over the long term (the next decade). This is partly because of mis-understanding of disruption by the policy-makers, which may result in delays to key decisions – or wrong decisions being made. However, the magnitude of disruption is such that business in much of the global financial sector will be conducted in a very different way in 2026 to the way in which it is carried out today. In this edition, Farhad Alavi describes the challenges that still face businesses which wish to do business with Iran – notwithstanding that there has been some easing in sanctions against that country.

A fourth concept is that perceptions about FinTechs will be affected by interventions from regulators. FinTechs that overstate the benefits that they offer, or which otherwise fail to deliver what is expected of them, may find themselves in a storm of adverse publicity. Some of this publicity may attach – fairly or unfairly – to other FinTechs. However, as traditional financial institutions have found since the global financial crisis of 2008/09, regulatory intervention has generally boosted trust – which has been a positive trend. As Darren Watkins explains in his discussion of trading, regulatory pressure has resulted in a shift from High Frequency Trading (HFT) to Smart Order Routing (SOR).

Finally, discussions of FinTechs and, in particular, financial IT are often dominated by the fact that incumbent institutions have sunk billions of dollars in legacy infrastructure. Nevertheless, those institutions which adopt flexible and cloud-based solutions can benefit from reaching new clients. And if those clients have previously lacked access to financial services, then all benefit, as Paul Thomas notes in his overview of digitization of data.

In our previous edition, we looked at Sibos 2015 and concluded that Blockchain will remain a hot topic in 2016 – a year which FinTechs and financial IT providers should make less challenging than it would otherwise be. In the coming weeks, we will be present at TradeTech Europe, Money 20/20 and The Talent Show. Accordingly, this edition of Financial IT covers a broader-than-usual range of topics.

Disruption Fascination

Never mind the disruption that has happened. Think about the disruption that is about to come.

Chris Principe,
Publisher

I am fascinated by disruption. The magnitude of disruption that is occurring in energy, cars, Internet of Things and financial fronts is just amazing in its breadth and speed. On the energy front, U.S. growth has resumed due largely to the technical innovations of fracking and horizontal drilling. On the car front, Tesla, according to Forbes, has irreversibly distorted the auto industry. Homeowners with rooftop solar power and PPA financing (Power Purchase Agreements) are disrupting the very concept of an electric utility. Uber, Paypal, Alibaba, Facebook, and many more examples that come easily to mind have been gamechangers in their respective areas.

Even more exciting is the disruption that is yet to come. Consider the financial sector in its broadest and most global context. For too long, the sector has been dominated by and beholden to the banks, whose corporate loan books are mainly reserved for their top large corporate clients. The banks forget (or just do not want to know) that it is small and medium-sized enterprises (SMEs) that provide and consume the good and services for/from their top clients. This is a major reason why the large clients become and stay big. However, what is true in nature is true in finance: without plankton, the whale dies.

FinTechs have been the catalyst for several disruptions. In terms of corporate loans crowdfunding players (Syndicate Room, Crowdcube, Kickstarter, etc.) come to mind. However, they do not address the needs of the SMEs.

Many banks are clinging on to the past, even as new propositions are being bought to the market by FinTechs. The peer to peer (P2P) platforms like Funding Circle, Faircent, Orchard and Assetz Capital are fast becoming the choice for some SME borrowers.

Indeed, I would put forward that FaaS can be the identifier for Finance as a Service, which covers this group of FinTech e-platforms. FaaS is being brought to the market like a rainstorm in a desert. An SME borrower can be approved in a day and start receiving funding against their receivables within days. There are many FaaS alternatives to choose from – including PrimeRevenue, Tungsten, Taulia and Platform Black.

Meanwhile, crypto-currencies have very interesting potential to succeed in trade and to be a viable alternative to hard currencies for local and cross-border settlements. Bitcoin is the best known. However, others such as OneCoin, Peercoin and Litecoin are attracting interest. Several banks have started issuing their own crypto-coins, of which the most notable is Citicoin.

I think that what we have seen from the crypto-currencies is nothing compared with what is yet to come. Imagine a world of cross-border payments without fees and currency exchanges without spreads. This is what crypto-currencies make possible. They could provide a huge stimulus to global trade by allowing everyone equal chance and equal access at a similar cost structure.

There is no reason why a FinTech couldn't provide funding to an SME, against its receivables, in a crypto-currency, and across borders. Now that really would be some disruption...

Financial IT

THE EASING OF SANCTIONS AGAINST IRAN

What, really, are the implications for U.S. businesses?

The January 16, 2016 implementation of the Joint Comprehensive Plan of Action (JCPOA) between Iran and the "P5+1" states (the United States, United Kingdom, France, Russia, China, and Germany) concerning the Iranian nuclear program has naturally been the subject of substantial interest for many U.S. businesses. Many of these companies are naturally keen on entering Iran, which some have labelled as the world's last untapped emerging market.

The press has fairly extensively covered the fact that the sanctions relief afforded Iran will largely not apply to U.S. businesses. This is true, particularly given the extensive sanctions administered by the U.S. Department of the Treasury's Office of Foreign Assets Control (OFAC) as well as export control regulations managed by the U.S. Department of Commerce's Bureau of Industry and Security (BIS). However, what is also true is that there may be some, albeit modest relaxation applicable to U.S. businesses, and additional relief may be forthcoming if U.S.-Iran ties progress on a positive trend. More importantly, the universe of business already permitted with Iran may become substantially easier to actually execute.

There are effectively four areas to consider here:

1. The JCPOA created an OFAC licensing regime by the United States for companies that seek to do business with Iran's commercial aviation sector.
2. Certain Iranian imports, such as carpets and many food products (including caviar) were liberalized. Foreign entities owned or controlled by U.S. persons (such as overseas subsidiaries) will be able to do business with Iran under certain circumstances, and subject to some limitations.
3. Dealing with Iran in already permitted spaces will become substantially easier through the relaxation of restrictions on third country logistics providers like banks and shippers.
4. Certain other activities of low sensitivity may be gradually liberalized by the United States.

U.S. Sanctions Today

The United States currently maintains a very robust sanctions infrastructure in place against Iran. These regulations have effectively become a patchwork of very limiting restrictions, and the undoing of much of these sanctions has been very complicated, much akin to untying a very complicated knot.

Currently, U.S. persons (defined broadly to include companies organized under the laws of U.S. jurisdictions, U.S. citizens and Permanent Residents wherever they reside, and individuals physically in the United States) are barred from trading most goods, services, and technologies between the United States and Iran. This can include activities that may seem innocuous to some – from selling day to day consumer items like tires and laundry detergent to Iran, to outsourcing activities like computer programming or medical services to Iran.

Over the past roughly 20 years, the United States has moved beyond limiting U.S. persons to threatening legal responses against third country companies that dealt with Iran in more sensitive areas, such as the country's oil and petrochemical industries, its automotive and shipbuilding sectors, and even the sale of refined petroleum. Effectively, the United States gave large swaths of international businesses an implicit choice – if you deal with Iran then expect to shut yourselves out of our market and banking system. Given the United States' economic prominence, the choice was obvious for most global companies. At the same time, the United States began aggressively adding Iranian and related parties to the OFAC's Specially Designated Nationals (SDN) list, an effective blacklist that in many cases prohibits any dealings with U.S. persons whatsoever. What resulted is not just that companies operating in sanctioned areas stopped dealing with Iran, but that many activities that remained legally authorized became very difficult to execute – numerous companies became so afraid of violating the sanctions laws that they effectively walled themselves from Iran entirely. For example, while the sale of most food products has been legal for years, it was often challenging to find a lawful way to ship to Iran or get paid from Iran.

Nonetheless, some activities are permitted, and the range of these activities has expanded since before the JCPOA was announced in July 2015. These include, subject to some limitations, the export of food products, agricultural commodities, medical supplies and equipment, pharmaceuticals, and many information technology (IT) products, such as computers, peripherals and mobile devices. Many of these exports are generally authorized provided you are within the parameters of the regulations, and OFAC maintains a favorable licensing policy towards the sale of many items that are not generally authorized, such as certain pharmaceuticals and medical devices.

New Spaces

What the JCPOA has primarily accomplished is removing sanctions limiting non-U.S. persons from dealing with

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Iran. In other words, many activities by third country actors that previously could have entangled such companies under U.S. law are no longer subject to penalties or limitations. Then of course, there are the authorizations for importing certain Iranian products, as well as the licensing regime for certain civilian aircraft, parts, and related products and services, and very importantly "General License H," which allows foreign entities owned or controlled by U.S. persons to engage in certain business dealings with Iran. Lastly, many entities in Iran and overseas that were designated on the SDN list for alleged activities in support of Iran's nuclear program were removed from the SDN list.

Logistics

One hallmark of the JCPOA is the waiver of sanctions on many activities with Iran that are currently very limited and have created a domino effect limiting even more activity with Iran. These include banking, insurance, and shipping. With the removal of very strict restrictions on a number of Iranian financial institutions, and the reentry of Iran to the international banking system (including the SWIFT messaging system for financial transfers), more foreign, non-U.S. companies will enter the logistics space with Iran. This in turn will make business much easier for U.S. companies seeking to engage, and will likely expand the volume of trade in areas that are already permitted. Therefore, there may be a spike in U.S. exports that have been lawful for years as such sales will likely become much easier to effectuate.

Future Sanctions Relief?

There has been speculation as to what other areas could be subject to relaxation under U.S. law for U.S. persons. Much of this naturally depends on the trajectory of U.S.-Iran bilateral relations. It remains to be seen whether or not U.S.-Iran negotiations over the JCPOA represented a one-off event. If negotiations continue, there could be more room for relaxation of other sanctions.

Treading Cautiously

Given the very stringent U.S. sanctions regulations that remain in place and the nature of the Iran's business landscape, it will be critical that companies seeking to do business in that country keep abreast of changes in the law and ensure compliance with the U.S. sanctions regime. Understanding of the sanctions framework should come from the advice of experienced counsel, not from the sensationalism that may prevail in the media. Simply staying within the permitted areas is not sufficient – exceptions and licensable activities under U.S. sanctions laws are generally subject to very heavy caveats. As such, given the restrictions on dealing with many parties and the many prohibited end-uses, it is critical for businesses to constantly protect themselves. This can be done by a number of measures – including performing due diligence and having proper contractual provisions, not to mention developing solid internal compliance programs aimed at avoiding oversights.

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FACING DOWN PAYMENTS FRAUD

Data analytics play a key role

This year's payments and financial services industry events are facing down a range of critical protection issues emanating from new directives and transaction protection issues. With the rise of online and mobile banking fraud and cyber-attacks, banks more than ever are concerned about fraudsters who exploit vulnerabilities created within the evolving digital ecosystem.

First up for discussion is the recently updated Payments Services Directive (PSD2), adopted by the European Parliament last October, which requires traditional banks to open their doors to new technologies so that Third Party Payments (TPPs) providers can offer alternative financial services. With PSD2, regulators are enforcing innovation and competition in the payments world.

While financial institutions are certainly keeping an eye on the competitive landscape, for now they're possibly even more focused on the demanding details of the technical standards they will have to meet. PSD2 doesn't just enforce competition in payments: it demands safety in providing such innovative services. As such, the regulations require financial services providers and third-party providers alike to apply "strong customer authentication" using a two-factor strategy for every single digital transaction. That means financial insitutions must combine two methods of authentication, choosing from three different categories of tools that confirm, "something you know" (password), "something you have" (token), and "something you are" (biometrics).

Post Apple Pay Thinking

Aligned to this, is how financial institutions are applying the lessons learned from the launch of Apple Pay to other payment scenarios. Will PSD2 bring the same fraud disaster as Apple Pay provisioning? PSD2 requires banks to open an API to customer accounts and data and will result in scenarios similar to those that occurred when card-based mobile wallets launched globally. The launch of Apple Pay was a "pure delight" to fraudsters and the industry saw the highest basis points of fraud in many decades. We must remember that at the end of every fraud, is a consumer whose customer experience, along with the perceived safety of their money, impacts their overall satisfaction with their financial institution.

PSD2 tries to address fraud with strong authentication regulations that take a bit of a "silver bullet" approach to the subject of cyber-crime and fraud. So, with this well-documented fraud history in mind, do we work as a "safe payments" community to create an informed data exchange, solution analytics and multilayered approach to PSD2 that allows changes to the cyber-fraud threats to pivot with the changes in the environment? That does seem to be one solid approach to the problems faced.

The truth is that good cyber-fraud strategy is possible, but not as an afterthought or as a one-time effort. Strict regulation of strong authentication only sends the strategy down a" tail chasing" route and does not allow for new ways of protection and innovation on the cyber-fraud risk side of the house. Not only are we looking at events like money movement, enrollment, log-in and every kind of payment device you can imagine, but along with the ongoing evolution of the product, third-party providers should address their customer demands with strategies and solutions

Mary Ann Miller
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that include payment safety and security elements.

Data analytics – second nature to financial IT providers

Moving past regulation to the importance of data and analytics in a sound and balanced fraud strategy –recent discussions have centered on which approach really works best. Of course, these topics are certainly second nature to the financial IT community, but there are many varied points of view on how to implement them. Open channels of data exchange in a common context would be ideal to an informed analytics and scoring strategy for cyber-fraud risk with PSD2. Not only open channels and common context, but open platforms on both the bank and financial IT provider's side would permit the exploitation of the value of data to protect the end-to-end transaction.

The "open" ability to create models for specific attributes provides the capability for creative cyber-fraud analytics development that ultimately will support rapid product launches with a competitive advantage. This open analytics approach also can enable passive or managed authentication for PSD2, which can be cost effective and in the end would certainly get applauded by consumers.

A core objective of any analytics solution is to deliver sustainable business performance and insights into markets, customers and in-house internal processes. At NICE Actimize, we do this by providing decisions and scores that can be acted on, with data and outcomes rich in information that can be used to uncover fraud as it is happening in real time. We also offer rich analytics models to enhance customer experience by avoiding unnecessarily blocking users from legitimate transactions.

These rich analytics are the key way to stop account takeover. Very often fraudsters may commit account takeover by changing a phone number through a call to the contact center. Then they may wait a few days before they initiate money movement. Our analytics aggregate scores which show when things have gotten truly serious enough to block.

In light of the recent data breaches, fraudsters have shown that they have no problem gathering reams of personal data which they use to pass authentication hurdles by changing passwords and other account information to take over and access funds. The good news is that today's fraud solutions employ behavior analytics that very quickly spot unusual patterns that indicate account manipulation and takeover. Additionally, open analytics technology can allow financial institutions to easily design their own fraud detection or risk models and stay ahead of emerging fraud threats.

Apple Pay was a perfect example of the need for open analytics. When the wallet first went live, fraud became rampant within a matter of days. That fraud was linked to the provisioning of cards onto the mobile wallet – something that wasn't foreseen. We had our customers put our open analytics approach to work, building fraud detection models that specifically sought out unusual behavior linked to the provisioning of cards onto Apple Pay. These users experienced no fraud losses while many in the industry were bleeding.

These trends and discussions on fraud and payments bring us to a crossroads – as we demonstrated with the Apple Pay story, delivering a good customer experience is an important element to what we all consider success. The same kind of "creative juices" that are used for product innovation for financial IT payment solutions should also be brought to bear on the customer side of the equation. This is a weak solution that allows an open season for cyber-fraudsters is no good, but neither is a solution that presents security barriers for customers. We think there are ways to the desired results on both sides – cool tech can and must live with a great customer experience.

Finally, precision analytics work together with strong support services at both the financial institution and technology vendor side, as a contributing factor to a desired end result. At the end of the day, our objective is to protect customers by connecting the dots between fraud and cybercrime data for a holistic view of threats. We have a unique opportunity to get the right balance that provides a winning solution for both the financial institutions and the customers they serve.

Mary Ann Miller

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Mary Ann Miller, Senior Director, Fraud Executive Advisor and Industry Relations, NICE Actimize, is a global authority on enterprise fraud and risk management. Leveraging more than 20 years of experience and extensive knowledge in decision analytics, operational excellence, and customer centricity, Ms. Miller consults with financial institutions worldwide to establish business and technology strategies pertinent to the cultural climate and individualized business needs. In her previous directorships and executive roles in fraud strategy at USAA, eBay/PayPal, and Lloyds Banking Group, Ms. Miller provided a strategic business perspective on establishing financial crime analytics across the enterprise. She has also guided cross-functional teams in complex fraud implementations designed to minimize criminal activities.

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Gary Wright,
CEO of B.I.S.S. Research

BLOCKCHAIN: THE GOOD, THE BAD AND THE UGLY

What is the true value and importance of Blockchain technology for financial markets?

If you have been reading in the global media over the last few years, all the Blockchain stories, I think you can be forgiven for thinking that this is a major new technology, bringing a revolution in business and processes. But, is that true? What is the actual importance of Blockchain and why is it capturing so much attention from Fintech firms and investing entrepreneurs?

Far from being new, Blockchain technology underpins Bitcoin and as such has already achieved proven status. Whatever may be your personal feeling about Bitcoin – and this does divide opinion, -the fact is that Blockchain successfully enabled a new digital currency force to enter the world of commerce. Upto then, most people would have thought that this would have been impossible. Bitcoin succeeded and may be with us for some considerable time, but future versions of Blockchain hold even more potential for the longer term.

Dr Hermann Rapp, Senior Lecturer and Head of Technology and Research at Block Asset Technologies states "From a technical point of view, Blockchain technologies are based on decades of long research and development, in several disciplines; in particular encryption, distributed databases and networking." So, Blockchain not really such a new technology after all.

The financial markets are in the process of major reform. This is partly as a result of the financial crisis starting in 2007/08. It is also partly through the demands of society via political agendas to introduce a more secure and protective financial system that does not detrimentally impact the tax payer when crisis events hit.

Over the hundreds of years that the financial markets been in existence, an array of events have broken people's confidence in the financial system: this has caused the reaction of, increased regulations and in some cases, new market structures. The historical record is there for all to read. The current feverish drafting of new rules and laws and attempts to introduce new systems are a normal reaction to these events, whether localised or international, no matter what size the crisis might be. The difference today is that there is technology available, which can offer dramatic changes in processes and market structures. Blockchain is one such technology.

Disruptor or merely a potential disruptor?

Today, Blockchain is seen as a disruptive technology, but I think it would still be put in the in-tray labelled 'potential disruptor'. Dr Rapp further comments "The financial crisis and the FinTech revolution since 2007 have led to readiness for new thinking. Distributed technologies are now looked at as a critical factor, which could help to achieve significant operational benefits in terms of speed, security, and cost savings."

Blockchain, for those who are unaware, is a decentralised electronic ledger that offers many possible and different introductions into the transaction process within financial services firms, but also as part of the market infrastructure. However, it is its potential application in the market infrastructure arena that is causing a few furrowed brows, by both financial services firms and their infrastructure providers: Why?

Blockchain's decentralising design could replace infrastructure providers that are constructed both technically and commercially around central control and central transaction processing. Anything that effectively replaces this role, can be deemed a threat. However, threats can become opportunities: hence we see some considerable investment in technology and some early attempts to incorporate Blockchain – NASDAQ proxy voting services, comes to mind.

"Expectations are high and venture capital backed initiatives are exploring the Blockchain space", comments Dr Rapp, "However, it is still early days. After a first phase of learning and education it is now a time of experimenting and feasibility studies. There remain unresolved issues regarding the integration of central and distributed technologies. The Blockchain protocol is evolving, and there are several benchmarking exercises ongoing to find the best performing platforms and infrastructure. There is no 'one size fits all' and different design options are being explored, with regards to public/private

Blockchains adaptation to specific business cases and security architectures."

Blockchain also threatens the agency roles of firms and suppliers, as the technology can be introduced on a peer-to peer-basis. It looks as though finally this might result in the realisation of Sir Tim Berners-Lee's original Internet concept. Peer-to-peer cuts out the middle man!

Blockchain could feasibly reshape legacy systems and processes built around the historical construction of the markets. There are an almost never ending supply of use cases, where Blockchain could be introduced, but less regarding the business case and implementation to attract transaction volume.

Talking the talk does not automatically lead to walking the walk.

It is a realistic view that markets don't change because of technology, but because demand is created and users are willing to introduce volume. It is important that trust of the customer is gained for any new change to be adopted. So introducing new technology like Blockchain, no matter how great it might be it, can flounder on the rocks, through lack of uptake. Many are talking the talk. That does not necessarily mean that all will walk the walk.

So, apart from the need for business cases and user attraction, Blockchain requires that data quality is as high as possible, and uses standard definitions which are recognisable globally throughout the industry. Unfortunately, the quality of data in today's financial markets is variable, suffering still from many silo infrastructures. Whatever the type of data and wherever it is gained from, financial services firms have struggled for decades to introduce the required solutions to improve quality.

Data vendors could be called both part of the solution, but equally part of the problem.

What is required in today's markets is a more streamlined and manageable data capability, which increases the depth and breadth of data, as well as the quality. There are numerous international industry groups that have been working tirelessly on these problems, but without much speed or urgency, based on the lack of changes in the data industry. ISO15022 might be the last successful change that positively impacted the international markets, with ISO20022 still to gain the same level of use and impact.

The development and implementation of Ontologies could provide the tool to allow data to be managed more efficiently, with only previously dreamt of dexterity, by operational people in financial markets. The ability to identify and extract the requisite data, from a large pool consisting of seemingly the same data, is what will open up opportunities to build better customer services and also reduce the costs and risks. The outcome would also provide better reporting capabilities for regulatory compliance and increased control by senior managers.

Blockchain provides the technology that could not only deliver data, but also introduce greater levels of security and transparency, which would reduce the dependency of banks and other financial services firms to buy data many times over.

The question of implementation of Blockchain

In this scenario Blockchain can be seen as an enabler of change, although implementation may be a major problem, as the in situ data vendors will look to protect their business and the banks will need to invest in changing their legacy system infrastructures and review their commercial contracts with the data vendors. This will be an expensive, difficult and a thorny issue and demands that senior management understand their existing data problems, (most would run a mile once data is in the conversation). They must realise the opportunity, then invest in change, on something they think works well. This is where Blockchain has significant value and potential, but where at the moment change and implementation, significant usage and volume, looks less feasible in the short term under the current structure.

Issuers too could use Blockchain to deliver data directly to their shareholders and bypass the existing market data supply chain. This would change the polarity with Issuers and Registrars currently found impotently a hostage to the market systems and legal structure, enabling them to service investors directly.

Blockchain might be used as a hybrid technology construction, with existing relational databases and legacy systems in the market. At this stage all things are possible and we can't rule anything out. This is why use cases are currently proliferating the industry. This provides a lot of entertainment. However, there remains the heady task of working out what the future construction of the markets and its systems will be. What I think we can take for granted is the change process has begun and we will see a relatively fast evolution that to some might look more like revolution.

So, what are the good, the bad and the ugly?

Blockchain offers a technology conundrum, as the technology works and is available. But, how do you enable interoperability with legacy systems, other Blockchains and current market practice? Interoperability is crucial and these questions will need answering, to build usage and attract transaction volume.

I would suggest that the good aspect of the Blockchain story is the need for market change, based on new enabling technology is with us and old antiquated and expensive systems and processes loaded with risk are on the way out.

The bad aspect is that the current market players are investing in controlling the technology for their own purposes, designed to maintain the market status quo.

The ugly aspect refers to the business blood on the ground and the potential threat to jobs in those organizations that can adapt.

Blockchain is like any other technology implemented throughout the history of the financial markets, going back to the installation of the Atlantic cable and up to the Internet with the world-opening web-based businesses.

In the 1990s not many envisaged the markets as they look today and I have no doubt that in ten years' time, many will say the same thing. The necessity for change is obvious and Blockchain looks like it will be important, but like all technology, it must have users and a clear case for business use. It must enable the supply of services to clients and customers that they want and need. Technologies like Blockchain always offer the same business decision – but "Just because you can, does not mean you will!"

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BEYOND BASEL: ADJUSTING TO A NEW LIQUIDITY ENVIRONMENT

What are the longer-term and indirect implications for banks and corporations of Basel III?

Liquidity management has always been about ensuring the right cash is in the right place at the right time. In that sense, the objectives of liquidity management haven't changed since Alfred P. Sloan, CEO of General Motors, rolled out a liquidity management system to streamline the company's cash operations in 1922.

What would be more difficult for Sloan to recognise, however, is the regulatory regime against which these objectives are being pursued today. The impact of Basel III in particular has significantly changed banks' relationships with their corporate clients. For instance, the regulatory initiative's leverage ratio makes certain types of lending less interesting to banks, and the liquidity coverage ratio obliges banks to distinguish between different types of corporate deposits – short-term operational cash and longer-term non-operational cash. As the latter category must be backed by high-quality liquid assets such as government bonds, banks may adjust the rate of return they offer corporates to reflect this.

The result? On the banking side, the whole relationship with corporate clients is now under scrutiny. From cash flows and cash forecasts to the amount of business 'owned' with the company, all are being fed into the mix to determine the overall 'value' of each relationship. This in turn obliges corporates to re-examine their existing arrangements for managing liquidity and working capital.

Find the silver lining

The first reaction of many banks in the face of stringent new regulations may have been to retrench, or even turn away corporate funds. But now, many can see the opportunities beyond Basel III: these are the opportunities to replace interest lost with new fee income, earned by providing new, value-adding services to corporate clients. Indeed, many banks are actively looking at ways they can monitor client cash on their balance sheets. Rather than simply turning client money away, they're looking to help their corporate clients invest such money into off-balance sheet investments.

In helping corporations manage their cash and liquidity more effectively and proactively, such banks are turning a compliance 'must do' into a new and commercial 'should really do' that will position them well to gain a greater 'wallet share' of corporate business.

Simple in theory, complex in practice

While the principles of liquidity and cash management may not be so very different to those of 1922, their application and execution has reached a whole new level of complexity. Sloan would no doubt raise an eyebrow at: the web of multiple currencies, countries and regulators; the host of new techniques such as pooling and sweeps in all their variant forms; the need to accommodate country-specific permutations and global 24/7 operations; and the many more risk dimensions and far more investment vehicles than he could ever have imagined.

Such complexity means banks' new services must be underpinned by sophisticated cash and liquidity management solutions. And such solutions must be easily customisable to suit specific corporate requirements and strategies and vehicles that are constantly adapting to meet new objectives, evolving regulations and new market dynamics.

But it is the routine task of cashflow forecasting that could greatly assist in helping companies to reorient themselves post-Basel III.

Lee Taylor

Product Council Chair for Liquidity at iGTB

Lee Taylor is a Transaction Banking specialist that has held strategic Treasury positions – including as Cash/Network manager in regional and global roles covering Western/ Eastern Europe, Africa, Gulf, Asia and Latin America – with Coca-Cola Hellenic Bottling Company and Cadbury.

In addition, a 16 year career with Citibank in various senior roles within Cash Management Services, and six years with JP Morgan as a Managing Director, NBFI Sales, TS Head for EMEA, uniquely position Taylor to understand market trends, challenges and opportunities in both the Banking and Corporate Sectors. This experience has supported her service within iGTB as Business Development Head for Europe over the last two years, as well as her latest assignment as Chair of the Liquidity Product Council.

Taylor is a member of The Finance Executive Network Group (FENG), the Corporate Executive Council (CEC) within Intellect and an Associate Member of the Securities & Investment Institute.

They need to know exactly where their cash is so it can be used most efficiently, and have a clear insight into cashflow to facilitate the most attractive investment options.

For example, companies may be tempted towards longer-term deposits to gain higher yields – a demand recognised by banks who have developed longer-term deposit products (such as 30- 60- or 90-day notice accounts). To benefit from these products, however, a company must know definitively that it will not need that cash within the notice period. This is only possible if the company has access to an effective cashflow forecasting solution; one that enables cash to be segmented into defined, flexible liquidity or tenor buckets, so they can predict what their cash positions will be on specific future dates, thereby eliminating nasty surprises and allowing any corrective actions needed to be taken in good time. Integration with additional bank services to streamline these corrective actions and aggregation of data from multiple systems (both from the corporation and the bank) is required.

Clearly such tools must be able to handle a very high level of complexity. Cashflow forecasting in not a new requirement but has always been a challenge for corporations. As its scope expands attention needs to be paid as it can have, major financial, timeliness and delivery implications. It success will be based on very close working relationships between banks and corporates.

Making cash work hard

Liquidity solutions present important opportunities for corporate treasurers to maintain and/or maximise cash flow. For institutions looking to effectively manage short-term cash, there are a range of strong options, including earnings credit rate (ECR), sweeps, savings accounts and term investment vehicles.

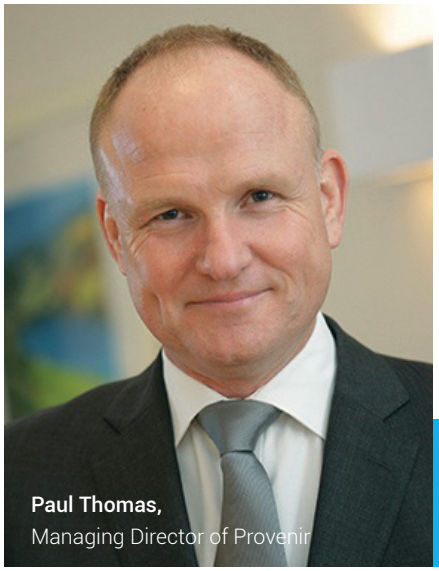
Returns can also be increased by minimizing or offsetting banking fees. To do this, organisations should consider a managed ECR as a component of a balanced compensation program. ECR allows businesses to offset some banking fees by allowing them to maintain a balance on their accounts.

Another option is the utilisation of sweep accounts. Sweep accounts are designed to invest the excess money from an account once all payments have been made, enhancing an institution's earnings potential. Sweep account investment options are available based on an institution's needs, with some designed for companies seeking maximum return on investment, and others focused on providing maximum security.

Working together

Irrespective of the solutions deployed, success – as always – comes down to expertise. This means corporations seeking to strengthen their position in the wake of global economic and regulatory changes should be making greater use of their banks' knowledge and specialist market understanding. As for the banks, they should be working more proactively with their corporate clients on these issues to help to build stronger relationships. By working together to create "beyond Basel" cash and liquidity strategies, banks and corporations alike can look forward to a healthy future.

Financial IT



Paul Thomas,
Managing Director of Provenir

Connecting the dots: the digital transformation of risk analytics and decision-making

How is the digital revolution changing the relationship between financial institutions and clients?

Technology is revolutionizing the world of financial services. Its impact on credit, lending and payments is seen in the way customers interact with providers, and in the way those providers handle risk analytics and decision-making processes.

By digitizing information handling and process management and by linking disparate systems, bank and non-bank financial institutions can improve efficiency and the customer experience. It has to start with acquisition, where the way in which customer details enter an organization's workflow is material. If it's in paper form, information may need to be translated into various formats to be passed from one department to another; data may be re-keyed a number of times for separate systems and action is often confined to one department at a time.

Increasingly, customers interact with providers digitally. The advent of web-based applications sets an expectation of an end-to-end digital process that is quick and efficient. In reality, this isn't always the case. For many institutions, manual, disconnected back-office processes prevail.

To meet customer expectations, satisfy pressures of cost savings and be agile enough to adapt to changing regulation, those disconnected processes are unlikely to prevail much longer. Added to that, traditional providers are also weathering disruption in the market, which is putting them under increasing competitive pressure.

Connecting the dots

It is inefficient for the various stages required in establishing a new lending, credit and even e-commerce relationship to be handled separately by systems that aren't connected. Intelligent integration of business tools helps companies automate, improve efficiency and scalability and reduce risk in their processes.

Traditional providers tasked with meeting regulatory and risk management obligations through a patchwork of legacy systems, siloed business lines and manual processes are turning to end-to-end digital solutions to improve efficiencies and compete. Systems that automate standalone stages in the process need to be connected to deliver this. Cloud-based solutions can serve here; they are scalable and allow for smart integration into data sources and existing systems within the business, such as those used for customer relationship management.

Digitization should be viewed, not as an IT project but as a transformation programme with the primary goal of delivering customer value. It is a far-reaching, challenging exercise that needs to take every platform and process in scope. If it does, it can deliver higher levels of automation, streamlined data handling to aid straight through processing, fewer manual errors, reduced costs and a foundation for continuing innovation.

The latest breed of funding providers, including new types of banks, peer-to-peer and short-term lenders and ecommerce companies, established themselves in the digital age. Unencumbered by legacy systems and processes, they are open to exploring cloud-based options and have engineered their solutions to fit the needs of customers today. That means digital end-to-end, with front-end, simple online and mobile customer interfaces feeding digital back-end systems and processes with automated risk analytics and decision-making.

All of which can result in a faster, more streamlined customer experience and an auditable trace from customer through analytics to decision, and beyond into customer onboarding.

Orchestrating the process

Technology can help companies harness relevant data from the huge quantity generated all the time, feeding it into automated credit risk analytics systems for rapid risk decision-making. Innovations in credit risk analytics can be instrumental in providing an all-round improved customer experience and in reaching the underbanked. This includes small and medium enterprises (SMEs), which have traditionally been difficult to serve.

Financial institutions that adopt flexible, cloud-based solutions can serve the processing needs of multiple market segments, and benefit from flexible updating of rules in workflows to capitalize on market opportunities and comply with changing regulation.

New market entrants and small banks may be nimble in adapting and adding to their portfolio of offerings but institutions with heritage have established customer bases and a wealth of data to draw upon as they execute their strategies. Faced with market disruption, a digital transformation of middle and back office infrastructure and operations can increase productivity, reduce costs and improve customer service.

REVOLUTIONIZING THE DIGITAL EXPERIENCE IN SMALL BUSINESS BANKING

Cesar J. Richardson, VP Sales and Operations (Americas)

Where do SMEs fit in the fintech boom? Not only has this important demographic gone woefully underserved in regular retail banking, but now SMEs seem to be largely overlooked from digital banking initiatives as well.

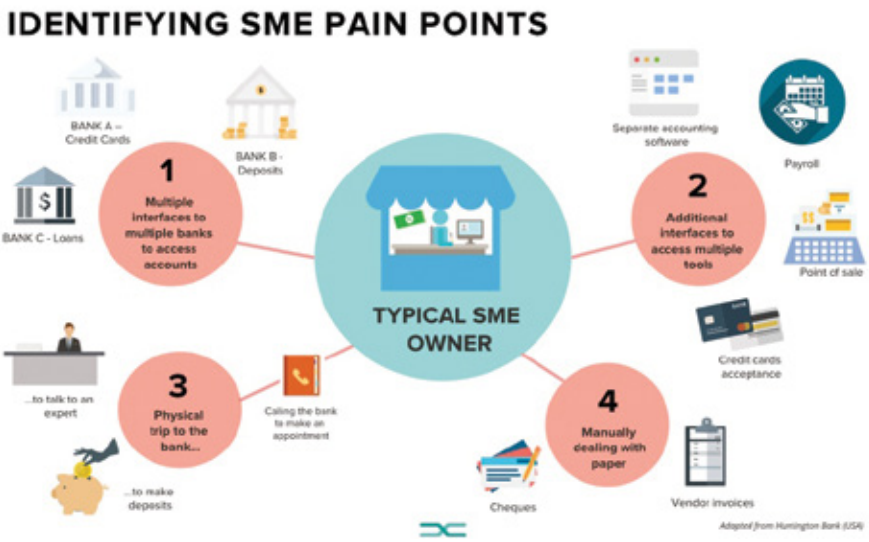
Many banks worry more about data privacy than offering a superior customer experience to their business banking clients, but they've got it backwards: the SME customer is exactly where banks need to start when it comes to reimagining and upgrading the digital experience in small business banking.

SME banking pain points

The pain points SMEs face when it comes to digital banking are several, but the ones we seem to hear about the most are ***difficulty tracking and forecasting cash-flows*** and ***effectively managing account receivables and payables.*** Many SMEs are also lacking online tools to help them ***better plan their day-to-day activities*** in order to gear their business towards growth. The digital experience for business banking should address all of these pain points in a direct and deliberate way.

Another major pain point we often hear about is the limited and often downright messy nature of SME customer interactions with their bank. The typical small business owner is not satisfied with her bank's business banking platform, if it exists at all. She might periodically check her balance, make payments and interact personally with her bank relationship manager once a quarter or less. The whole chaotic experience might look a little something like this:

When all is said and done, can this really be called a relationship? From a customer engagement perspective, the bank-SME interaction is in dire need of restructuring, both in terms of ***frequency*** and ***quality***.



Boosting interaction frequency

Building a conversation with SME customers means growing the number of meaningful interactions, moving from something that happens on a monthly or even quarterly basis to several interactions a week.

What makes digital interactions more valuable to both the SME and the bank? First of all, it costs a lot less in terms of human resources; second; it's more convenient for both parties and third, it generates extremely valuable data that banks can use to offer better services to SMEs, because they have a much more concrete information about their needs.

Further, enhancing post-sales services through data analytics enables banks to offer SMEs tailored advice on new products and services and helps them to identify emerging risks, as well as take advantage of customized insights related to their business.

This can only be done when the right digital platform and tools are there to create the infrastructure for these interactions to happen.

For instance, turning mobile into an actual platform for conversation rather than a channel allows banks to be present and participate in an ever-growing number of mobile moments their SME customers are bound to have in the daily running of their business.

Better quality of interactions

In addition to frequency, every interaction must also gain quality. This means undergoing a crucial transformation from a ***data*** interaction to an ***insight*** interaction.

An average online banking sessions lasts approximately 600 seconds

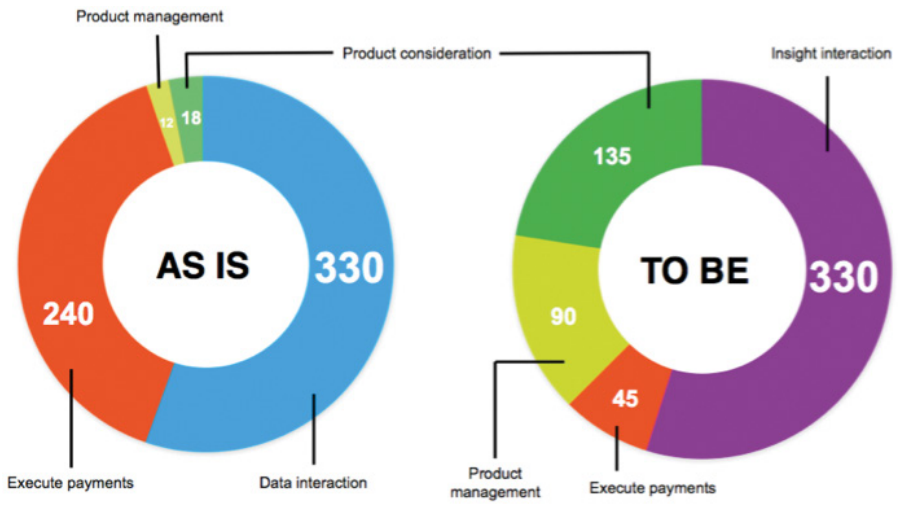


Figure 1. A recent Unicredit study found that the duration of the average online banking session is about 10 minutes. *Source: Efma*

More than executing payments, banks must encourage SMEs to engage for longer time periods, by getting them to actively manage their existing products and to consider new offers based on their current financial situation and specific business needs. These offers must be relevant in the context of each customer's business and help her anticipate future needs.

The first step to this approach involves figuring out how much time users are actually spending on online banking, like Unicredit did (Figure 1).

They found that the average online banking session lasts approximately 600 seconds, or 10 minutes in total. That's a lot of time to convert SME customers from executing payments to actually considering products and interacting with data-driven insights that are relevant to their business.

The digital experience SMEs are seeking

Alleviating the pain points described above means providing SMES with a digital banking experience that is:

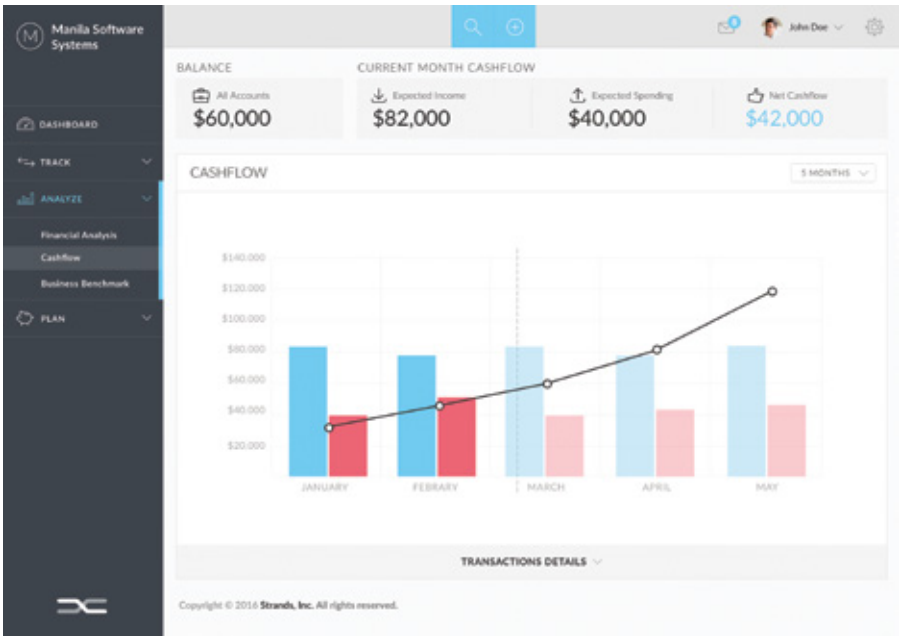
- **HOLISTIC**, meaning they have access to a complete overview of their finances and business needs. This can be accomplished through an aggregation-enabled dashboard, for example, which allows SME users to see both their personal and business accounts in one convenient place.
- **RELEVANT**, by receiving contextually-aware information for his business at exactly the right time and on any device.
- **INSIGHTFUL**, through discovering insights that make SME customers reflect and take important decisions about their business. For example, a bank could offer powerful business simulation functionalities, which the typical SME customer would highly value. Based on the user's actual data, they can play with different scenarios and assess the impact of different actions or decisions on their cash position, without entering into any actual risk.
- **ACTIONABLE**, by obtaining helpful recommendations users can act upon instantly, with the click of a button. Whenever presented with a piece of advice, notification, recommendation or financial event, the user experiences a clear path with the next steps they should follow. A good user experience design, integrated with the transaction systems, makes a huge difference to SME customer engagement with digital banking.

Data: the key to SME customer success

Now that we've seen the requirements for modern business banking that delivers a comprehensive banking experience, tailored specifically to SMEs, it's important to highlight the key to delivering this reality: banks must leverage their customers' transactional data in order to deliver actionable insights through digital channels at the right time and through the right device.

The best way to do this is through FinTech software solutions that include functionalities like e-invoicing, cash flow analytics and smart budgeting, and that simplify the entire process of running a business in order to alleviate the pain points described above.

Harnessing the power of Big Data using analytics and machine learning is essential if banks want to become true business partners to their SME customers. Leveraging data is a gateway for banks to be present in their business customers' day-to-day financial management, and is quickly becoming the future of banking. The banks who are already aware and creating these experiences for their SME customers with business financial management tools are the ones who will win this future.



Financial IT

Giving some love to payments: PRICING WITHIN A HOLISTIC HUB

The payments world has been enamoured of real-time settlement for some years now but if your bank is spending all of its time focused on the execution end of payments, you're doing it wrong. Linda Wade, a longtime senior SEB executive and recent addition to Zafin's team, suggests the really exciting place to look in the payments space is in pricing them, where spread-starved bankers can find respite in a neglected and unlikely place.

Red herring

When China's e-commerce powerhouse, Alibaba, racked up over $5 billion in 90 minutes during a recent holiday—twice U.S. Black Friday and Cyber Monday combined—many pointed at the payments explosion as being symptomatic of a wider trend. Things are moving faster and further, and keeping up with the Alibabas of the world meant prioritizing "real-time" execution capabilities.

But the immediacy challenge is a red herring, according to Wade. "Banks already have the ability to process immediate payments. They're just not doing it. This 'new, real-time payments' idea has been necessary in the markets for some time for multiple payment types, so it's already there."

Where the challenge and opportunity lies is in setting a pricing strategy for payments to maximize profitability, build relationships, and influence customer behaviour—and figuring out a way to execute it.

In Wade's native Sweden where banks have relied for years on Bankgiro, a centralized clearinghouse for payment processing, it's not uncommon for banks to have different internal systems for processing domestic payments, cross-border, high-value, direct debit and so on. The result of that can be a spaghetti diagram of systems and data that don't talk to one another.

"With all these different payment types and products processed in different places, how do we price them? Because for the customer, whether it's a direct debit payment or direct credit or high-value payment or whatever it is, it's just a transfer of funds. They're moving money from A to B and don't care that it's being handled in three different systems," Wade says.

"For banks, I think the hard part is: how do we collect the data that normally wraps around all the payment types to realize our pricing strategy, regardless of how they're being processed?"

Fumbling toward cheque-stasy

In Wade's view, the best solution would allow banks to track payments by type, channel, and frequency, and to roll up the payment volumes into subsidiary and then parent companies. Having good visibility into payments down every branch of the corporate tree will allow banks to create an offer based on actual volumes and not on an estimated one at the time of the agreement.

Take for example a large hypothetical corporate client that receives a discount on payment transactions due to its sheer size and perceived importance to the bank. "Give us one million transactions per year and we'll cut your price."

The problem comes when it's time to audit the profitability of the deal. Can the bank even track the aggregate number of transactions for the overall client to see if it's keeping its end of the bargain? And if so, is the client mostly utilizing manual payment types and so delivering sub-par or even negative margins?

In this example, the bank would first review past transaction behaviour and develop a profitability profile for the client across payment types. With this knowledge, it can either make a more sophisticated offer ("We will cut x cents from manual payments and y cents from high value payments") or at a

Joe Mazzetti,
retired technology senior executive and regular contributor to Relationship Banker.

Mike Wallberg,
award-winning journalist and Content Marketing Manager for Zafin

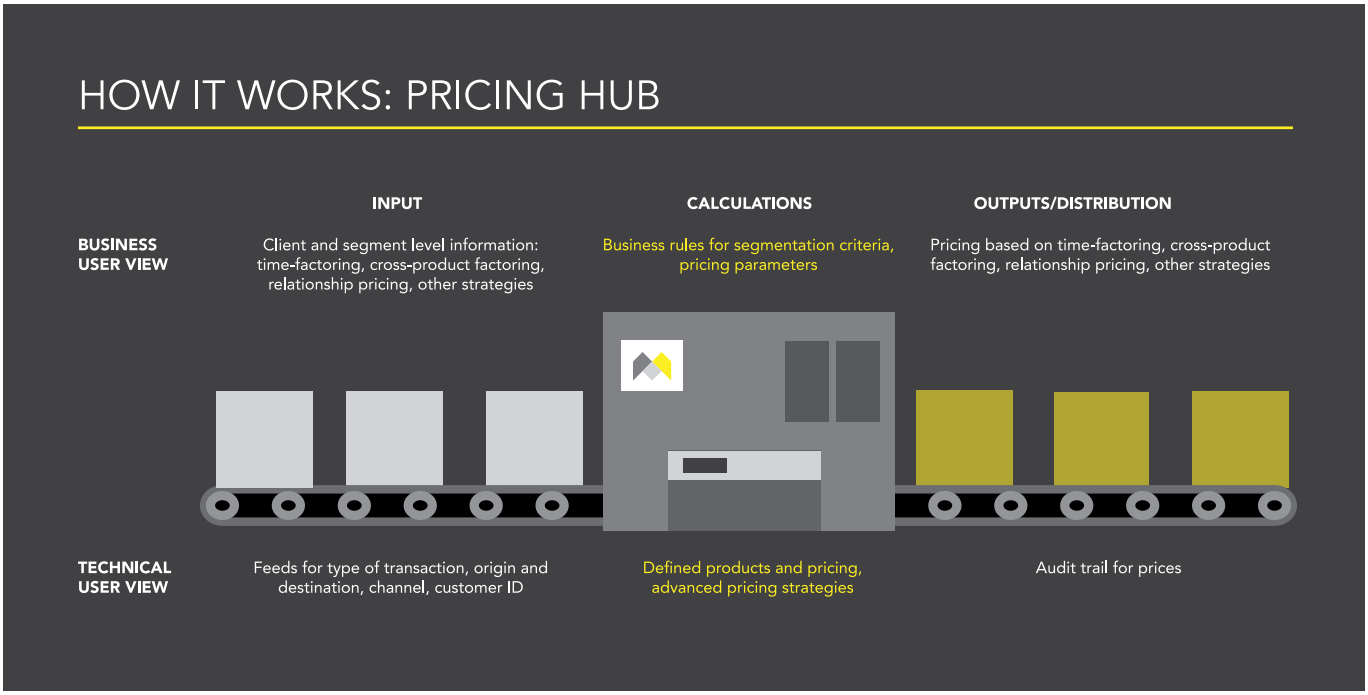


Figure 1. A pricing and billing hub for a typical corporate customer. *Source: Zafin Advisory*

minimum track payment volumes to ensure the client is satisfying the requirement for the blanket special pricing.

Transparency is also key to such a solution. A bank can build credibility with customers by making the billing structure clear up front, and deepen relationships and better achieve its own profitability goals by encouraging clients to reduce dependence on high-cost payment channels. Such transparency can also help satisfy regulatory scrutiny of the bank's pricing and billing practices.

This sounds like a lovely dream but can it be done?

Hub-ba hubba: Building hubs for managing and pricing payments

Some banks are deploying Payment Hubs that consolidate their payment flows to support multiple customer types, channels, and settlement mechanisms. These are generally structured and sold to operations and technology departments on the merits of processing performance, extensibility and cost.

But a payments solution of the sort described above is best achieved by integrating it into a broader Pricing and Billing Hub. With a well-structured platform, banks can deliver pricing for a diversified customer base and product/service mix, not only payment products, with the flexibility to develop real-time customer-centric pricing and the ability to ensure that charges are transparent—and collected.

A successful pricing and billing hub needs a few things to make it hum:

- A deep understanding of customer needs, relationship, and expected payments behaviour;
- Granular data availability on actual behaviour such as: channel, time, volumes, and quality of execution;
- Transparent understanding with customers on pricing and exception policies; and
- Clear communication of charges.

Through its miRevenue platform, Zafin implements pricing and billing hubs that utilize this data to incorporate payments into the ecosystem.

A pricing and billing hub offers many advantages over a simple payments hub:

- Time Factoring: The ability to factor the aggregate of client activity over time into transaction-level charging (e.g., tiered charges based on aggregate payments in a month made within certain regions).
- Cross-Product Factoring: The ability to factor aggregate client activity across products into transaction-level charging (e.g., discount based on average balances held or transaction volumes).
- Relationship Pricing: The ability to price and charge based upon a range of relationship criteria, (e.g., discounts based on aggregate loan portfolio at certain volume levels).
- Advanced Pricing Strategies: The ability to derive advanced algorithms for innovative pricing, (e.g., progressive tiered pricing based value and volume of payments).

Ultimately, a pricing and billing hub offers a bank the opportunity to tailor specific pricing based on customer relationships and behaviour, meet regulatory requirements for transparency and auditability, and the adaptability to deal with customer or industry changes quickly. It further provides a base for building out analytics of customer transaction behaviour to review product customer profitability, identify spending trends by segment, and support fraud prevention efforts.

Immediate payments may be the new operational box to tick, and every bank will need to invest dollars into satisfying regulatory and customer demands for it. But they shouldn't treat the re-fit purely as a compliance-spend exercise. There is much to be gained by pricing payments as any other product—with an eye to building relationships and enhancing profits.

Source: http://zafin.com/relationshipbanker/

Financial IT

William Laraque,
Managing Director, US-International Trade Services

Reality Check

As Bill Gates observed, "We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten." *William Laraque*

The very existence of FinTechs and the financial IT industry tells you that the global financial services industry invests a huge amount of money – in absolute terms, relative to revenues and in comparison with other industry verticals – on technology. One might reasonably expect that all this money would produce outcomes that are rapid, dramatic, and pretty much universally accepted.

However, this is not so! In a world where e-commerce platforms were quickly revolutionizing the trade of everything else, operators of securities markets took years to reach a "T+2" world, wherein securities trades are settled two days after they are executed, rather than the "T+3" system that preceded it.

The faulty crystal ball

Forecasting how new technologies will change industries and economies is fraught with peril. John K. Galbraith claimed the principal function of economic forecasts was redeeming the respectability of astrology. A more recent observation, from Bill Gates, is quoted above.

There are various reasons for this. One is that it is the normal state of things for hype to exceed reality. Talking about revolutions in technology and finance and, of course, where the two intersect, is a cottage industry in itself. The global conference circuit is crowded with technology gurus speaking at length about "Blockchain", "virtual reality", "artificial intelligence" and so on. The circuit is also full of international bankers discussing "arbitrage", "cabotage", "forward foreign exchange option contracts" and much else besides.

Often these phrases do not have a clear and simple definition that is accepted universally. Sometimes there are clear definitions, but the gurus and industry leaders who are discussing the phrases wrongly assume that everyone in their audience knows what those phrases mean. And the audiences can include some very influential people. This leads to a further challenge: the politicians and key decision-makers who are responsible for making key changes either dither or make imperfect choices. Those choices often mean that the outcomes are quite different to those anticipated one-to-two years previously by optimists.

Case study: Blockchain

As is widely known, Blockchain is a distributed ledger under which transaction records are kept for a wide number of participants in a network. It is the technology behind Bitcoin, a digital currency undergoing growing pains and regulatory scrutiny.

The advocates of Blockchain maintain that distributed ledgers are more secure than traditional, centralized ledgers. Instead of breaking into a single central register, a hacker would be required to break into a wide range of sites. Whether such a system could really handle astronomic numbers of trades, such as those that take place in normal exports and imports of goods and services, or in foreign exchange remains to be seen.

If the technical issues of using Blockchain to cope with large scale volumes of trades and payments can be resolved, there is an additional issue. Whereas such open systems favor consumers and their broad

utilization, regulators trying to crack down on money laundering and tax evasion would be disadvantaged. The authorities supervising such a system would presumably demand unprecedented power to pry into the financial lives of the participants. Needless to say, the ability of government to peer into private and financial conversations is very controversial, as is indicated by the Apple iPhone case.

In essence, Blockchain could produce a clash of cultures. On one side would stand governments and the highly regulated global financial sector. On the other would stand the largely unregulated financial IT sector. This clash of cultures mean that Blockchain will likely be far less important in 2018 than its proponents currently suggest. However, it may be very widely used in 2026.

And, a decade hence, Blockchain could be used in constructive ways that, at present, very few people are discussing. For instance, Blockchain could be constructively used to register asset ownership. Efficient registration of land and asset ownership is a characteristic of almost all developed economies. It is also an important aspect of economic development in emerging markets. Use of Blockchain to transform land and asset registries in emerging markets could have a dramatic and positive impact in terms of reducing poverty.

Case study: trade finance

The annual revenues earned by the banking system for just processing payments are $1.7 trillion, and rising. Moreover the volume of global trade flows in merchandise and financing are expected to reach $85 trillion by 2025 according to the 2014 McKinsey Global Trade Institute Report.

The global trade finance system of today was tacked on to a centuries-old banking model. Andrew Haldane, Chief Economist of the Bank of England, describes the international payments system as still looking like a "spaghetti junction." Much of bank spending on technology is devoted to maintaining existing systems in a desperate effort to maintain the relevance of banks in an increasingly digital and customer-centric world. SWIFT's creation of Bank Payment Obligations (BPO), and its embrace of extensible markup language (XML), symbolize this effort.

As yet, though, it is far from clear what will be the financial IT – or FinTech – break through that really disrupts trade finance for the better. At some stage, the trade finance area will be transformed in the same way that taxi services and lodging have been transformed by Uber and Airbnb. Again, that is far more likely to occur in a decade than in the next 18-24 months.

Ultimately, though, the disruption that is bought to trade finance could have a larger benefit for the world economy than disruption in the numerous other areas of the broadly defined global financial sector. Efficient trade finance empowers entrepreneurs. Empowered entrepreneurs drive small and medium-sized enterprises (SMEs) – the key generators of growth and employment.

Financial IT

The IT impact on the evolving financial trading landscape

The shift from high frequency trading (HFT) to... **where?**

From synonymous locations such as 'Wall Street' and 'City of London' – to Wall Street the film and recent Oscar nominee, The Big Short, it's clear that financial trading and its practices have a set place in popular culture. And though we may not all think that "greed is good," the potential to create fortunes in a matter of seconds has meant that the stock market, and particularly high frequency trading (HFT), have long been the subject of great interest. However, the financial trading landscape is changing faster than ever before.

As well as new business practices, regulations and compliance procedures, technological innovation and public perceptions have also rapidly changed financial trading business models and operational procedures. And with these shifting models, IT systems also need to be constantly adapting to fit the specific needs of the wide range of trading methods and practices – from a cost, function, compliance and technical perspective.

HFT and the shift to SOR

HFT is a type of algorithmic trading characterised by high speed, high turnover and high order-to-trade ratios. Specifically, it is the use of sophisticated technological tools and computer algorithms to rapidly trade securities.

Historically, the world of HFT has been shrouded in mystery, with few people outside the industry understanding what it does or how it operates. Most HFT companies work in complete secrecy with names unfamiliar to anyone except the employees themselves or the exchanges on which they trade. At least that was the case until 2014, when Michael Lewis' Flash Boys lifted the lid on what businesses operating at this end of the equities markets have been doing. This not only shed new light on this industry but also sparked FBI investigations and comment from the New York Attorney General in the process.

Since then, HFT has again been under considerable scrutiny, including the announcement from the UK Financial Conduct Authority that algorithmic and high-frequency traders will now be regulated by the watchdog's certification regime.

However, although HFT has been very popular in the past – accounting for over 70% of trade volumes in 2010 – it has since dropped to below 50 per cent after 2012, indicating a shift in the financial trading landscape.

As a result of the financial crisis, large institutional investors have decided to err on the side of caution. They are now relying less on HFT techniques, favouring instead longer term trading strategies driven by Smart Order Routing (SOR) principles. This is because SOR principles are seen as more stable, and thus a safer bet, in what is still a cautious financial landscape.

Optimising for SOR

While high frequency trading focuses on millisecond transactions, and relies on technology to trade huge volumes and move in and out of trading positions in fractions of a second, SOR does not. SOR algorithms do not rely on the micro-second activities of the HFT world and instead use programmatic strategies to take longer term positions in securities markets. This is also the approach more widely used in multi-asset classes.

The implications of this is important for the IT systems used by companies involved in financial trading. Instead of the close proximity to trading exchanges essential to HFT, SOR techniques rely instead on deterministic latency connections, which are more cost effective than those used by HFT, and don't need to be so close to the exchange.

With this in mind and given the distributed nature of the asset classes across the London metro footprint from Slough, through the City and the Docklands, a data centre located within the M25 can just as efficiently offer the low latency connections required to access all the necessary exchanges in a co-location environment.

Darren Watkins

Managing Director of VIRTUS Data Centres

Darren Watkins is managing director at VIRTUS Data Centres. He began his career as a graduate Military Officer in the RAF before moving into the commercial sector. He brings over 20 years of experience in telecommunications and managed services gained at BT, MFS Worldcom, Level3 Communications, Attenda and COLT. He joined the VIRTUS team from euNetworks where he was Head of Sales for the UK, leading market changing deals with a number of large financial institutions and media agencies, and growing the company's expertise in low latency trading.

Additionally, he sits on the board of a one of the industry's most innovative Mobile Media Advertising companies, Odyssey Mobile Interaction and is interested in all new developments in this sector. Darren has an honours degree in Electronic and Electrical Engineering from University of Wales, College Swansea.

Furthermore, a data centre located within the M25 can do this at a fraction of the cost of the 'finance eco-systems' which data centre operators promote at a premium cost. Here, though, we are talking purely about financial institutions, who are now no longer the sole operators on the trading landscape.

The democratisation trading and the self-service models

The growth of the self-service trading model of online and mobile platforms has given a much larger part of the population direct access to the financial markets. It has moved trading from a predominantly B2B model, to one for the mass market.

Similar to SOR, mobile trading does not require the same proximity to the exchanges as HFT. With humans doing the inputs, we're trading in seconds, not micro-seconds. Proximity and latency matters less as it doesn't cause performance issues. The fact that trades have to be user generated and could be coming from anywhere with mobile phone connection means that the IT priorities for these service and app providers are very different from those of HFT systems.

With requests able to come in from anyone with a smartphone and end-user access, data centres need to be have a high density of carriers within their facilities. With this new market, geographical priorities becomes more focused on having a location where there is a good connection to all phone carriers, instead of proximity to the trading exchanges.

The needs of self-service trading platforms can – and indeed will have to – be met in more cost efficient ways than traditional HFT models. When moving to a model that serves the mass market, businesses will have to minimise operational costs in order to make products as accessible as possible, and it's also more important that their storage and IT systems are able to rapidly scale to accommodate for changing needs.

Choosing the most cost-effective IT for trading systems

There's little use denying that HFT systems located at exchange locations offer the ultimate performance at a premium, but it is unnecessary for trading firms and self-service platforms to operate all of their strategies and back office functions from a premium priced location when they do not all require it. This is an unnecessary cost, which could be better spent elsewhere.

In fact, not only can significant cost savings be made by adopting a distributed IT deployment, but this also comes with the additional benefit of increased resilience as a result of using multiple sites.

With the rapid changes in technology at every level of the IT stack, there is value in challenging the traditional 'all eggs in one basket' deployment models of the past. Many of these deployments were implemented because of the belief that it was simpler to keep everything together – a sales and marketing message supported by some data centre operators to their own benefit.

The future of IT for financial traders

As scrutiny increases on financial trading within the UK and globally, traders across all asset classes are becoming more accountable for their operations.

As trading floors disappear in favour of electronic and mobile trading platforms, IT infrastructure is continuing to be the backbone of the financial trading industry. It is crucial that managers are able to cut through the hype and make informed decisions on which applications will sit in which location and why.

If data no longer needs to be stored in a premium-priced location, there are better, more efficient and cost effective solutions that, outside the HFT model, do not impede performance. At the end of the day, financial trading is about making money, and increasing profits also means reducing costs where it makes sense.

Financial IT

Interview with Patricia Regnault Fouqueray of Linedata

The trading community in 2016-17

What are the themes and trends that will matter over the coming year?

Financial IT: In a nutshell, what are the most important changes that the trading community will have to deal with over the coming year or so?

Patricia: According to the results of Linedata's 2016 Global Asset Management Survey, key challenges in the asset management industry continue to focus on managing regulatory change and maintaining operational efficiencies/ cutting costs.

However, there are some indications that the emphasis is now less about reacting to new regulations and more about taking a long-term strategic approach. This encompasses digitalisation which is a vital component for firms looking to differentiate themselves through exceptional customer experience and improved efficiencies. Investment trends reflect this shift as we continue to witness an increase in asset managers making long-term investments in technology.

Financial IT: What other trends are you seeing?

Patricia: As the market for trading software grows and develops, it is igniting debate between users of active and passive instruments. Whichever side an asset manager takes, that organisation cannot ignore technology in its planning. This is something that we have been discussing at the TradeTech conferences again and again – and which will continue to be a key theme.

Blockchain is another topic currently being discussed in the investment industry. Many market players currently don't know how to take advantage of the opportunity. This is the case across all professions right now, not just traders. The challenge doesn't come from managing crypto currencies, per se. For example, at Linedata we include them in our systems. The stumbling point is the technology underneath, which can be both very powerful and challenging at the same time. For the moment, virtually everyone in the global financial services industry is looking for ways to leverage opportunities from Blockchain.

Financial IT: Where does cyber security fit into the picture?

Patricia: This is a topic that we consider as crucial and one that will probably be covered at TradeTech. It's a big threat, and one which has been identified as a potentially disruptive force in the asset management industry over the next five years according to our recent survey. However, when you look at IT spend priorities it doesn't feature high up on the list.

The reason for this is likely to be that asset managers consider cyber security as an issue requiring new corporate governance processes as well as investment in technology. Technology is a part of the picture but you also need to educate people. It's about putting the right controls in place, making sure people don't open emails they don't trust and having a

certain level of understanding about the threat.

Financial IT: User experience is something that a lot of people are talking about. What are your views?

Patricia: Optimal user experience is something that asset managers are looking for. To meet that need, you have to match the best talent with the best technology on offer. Recruiting and retaining the right people is the hardest part of that – and not just for us at Linedata but across the industry.

Optimal user experience is not a simple concept. It could include, for instance, the application of artificial intelligence to help asset managers make the right decisions. Increasingly it also involves the availability of trading software and platforms on smartphones and other mobile devices. Transparency is also important in terms of having the ability to explain to the end client why a trade has been made. Optimal user experience can also require new algorithms to boost the efficiency of trading teams.

Financial IT: Where are the big opportunities for 2016-17?

Patricia: We think that the biggest opportunity is the change in the mindset of asset managers. They tend to see Fintech players as competition when they should be looking to partner with them to leverage their solutions.

This is a message that really needs to be taken to the trading community. Technology will enable traditional asset managers to increase the value that they bring in their interaction with clients.

Financial IT: Tell us about your strategy, and the Linedata 2018 Roadmap

Patricia: The Linedata 2018 roadmap is so named because this year will mark our 20th anniversary. It describes our strategy, which is clear and simple. We are a specialised provider of solutions focused on three areas; lending and leasing, asset management and fund services. This is what we have been in the past and what we will be in the future.

Leadership takes a global perspective with a key focus on investment in R&D. We have increased our R&D spending by 50% and look to increase it further – especially in relation to solutions for the asset management space. We will pursue our acquisitions strategy. We will enrich our existing offerings. We will deliver next generation solutions. Although we can't provide further details at this stage.

And, of course, we recognise that the clients' requirements have changed over time. In the past, they were looking for best of breed applications. Now they are looking for platforms and solutions that are truly global, agile and consolidated. Clients want additional modules that they can add over time to the solutions that they have already purchased.

Our success over time is due to our culture. We always look to boost client satisfaction over time. We want them to be able to stay ahead of the competition.

Financial IT: How are you going in the asset management area?

Patricia: Business has been going well in the asset management area since the beginning of 2015. We have had substantial new client growth. And those clients are varied, from large multinational asset managers to hedge fund start-ups, and spanning across different geographies, including Asia and Europe.

It has also been a good year or so for the delivery of new products and solutions to our clients.

We think that we have done a good job in improving fixed income coverage. We have more and more clients who want us to cover not only pure equities, but also the entire range of products and asset classes. Our solutions have moved from a single asset class approach to a multi-asset class approach.

Looking forward, we expect to enhance the asset management solutions for both institutional and alternative markets with new partners and advanced trading and portfolio modules as well as in depth data management for compliance purposes,

Financial IT: How do you see the opportunities and challenges for Linedata in different parts of the world?

Patricia: We have had many commercial successes with our products and our business development, but a key challenge in Europe is to communicate this and to be more assertive in conveying our message. We are probably too private in this regard. We see Asia as an area for growth. Our solutions and products are global in scope and meet the needs of asset managers in Asia as well as in Europe.

Patricia Regnault-Fouqueray

European Head of Asset Management at Linedata

Patricia Regnault is the European Head of Asset Management for Linedata. Prior to this role she is responsible for the company's client management programs including but not limited to client satisfaction, measurement & engagement tools. Patricia provides strategic relationship leadership for all client engagement activities working closely with regional operational heads. Patricia also drives the group strategy and leadership for all global marketing & communication activities, from branding through the capture of trends and various thought leadership initiatives at Linedata.

Prior to her tenure with Linedata Patricia was with GL Trade in various capacities among which included Market Data, Product Management, BU management (GL Multimedia) to Head of Marketing and Communications. She also was a Managing Director at GL Multimedia. She holds a Bachelor of Arts in Management from Temple University – Fox School of Business and Management.

Financial IT

BelPay PSD2 Access-to-AccountAPI

API platform as a competitive business solution

The European Parliament has recently adopted the revised Directive on Payment Services (PSD2), which aims to disrupt payment services in Europe – by radically increasing competition in the payments industry and providing better value to the consumers. With PSD2, all the payment transaction participants could communicate to each other using an open Application Program Interface (API), based on the highly secure technical standards yet to be defined by the European Banking Authority (EBA).

API platform has become a mainstream business solution that enables co-creation, enhancing, sharing, reusing and monetizing customer value among the multiple cooperating parties that form on the fly a virtual transactional syndicate. For a wide range of customer devices, API platforms could support complex transactional interactions among corporate legacy systems (including SOA and EDI), third-party proprietary services and in cloud SaaS on demand distributed resources.

API value proposition is in its potential for exponential traffic growth and a wider distribution network that are supported by the lower innovation costs and by rapid time to market, due to its agile delivery model and seamless involvement of the outside developers. Transaction costs and profits are typically distributed between the syndicate members, who provide distinct value components for each individual transaction.

The underlining API microeconomic model is highly dynamic as, unlike in the far more slowly operated old 'formal partnership/service level agreements' procurement paradigm, virtual syndicate members might compete with each other for some of such transaction components. The new model has introduced numerous regulatory, governance, legal, compliance, risk management and indemnity dependencies that are typically unresolved before API technology has already been introduced into payment practices.

For the established banks, PSD2 implementation could mean the need for large IT, risk and trust management investments, emergence of unrelenting third party competitors and reduced revenue streams. Alternatively, as conventional revenue sources decline, PSD2 API introduces an unparalleled opening for the banks to create new profit opportunities through innovation – by instituting novel value add services and attracting premium clients.

PSD2 Open API platform – advantages and challenges

PSD2 January 2018 introduction deadline means that all banks will have to provide undeniable real-time access to customer accounts (XS2A) to the approved third parties located across Europe, by using specially developed APIs. For numerous proprietary banking core legacy systems, PSD2 imposes the need for external interaction, and introduces stringent security and authentication requirements. Hence, implementing XS2A could be technically challenging and expensive.

Some banks and banking associations have already started building open API platforms and explore the potential for their monetizing, so that third party software developers would have controlled access on the bank's terms. By using an open API platform, the banks could somewhat reduce their XS2A development expenses. Still, all bank core systems have somewhat different architecture and implementation, language profiles and security/privacy requirements, including their unique authentication, authorization, AML/fraud detection and financial messaging blocks. Open API solution might not exactly fit your bank's complex core banking system and might be difficult to manage.

However, the main setback with this approach is that it is unlikely to provide a bank with the substantive competitive advantage over all others participants. It is possible that the financial industry will end up with a multitude of diverse API implementations, covering different banks, countries, vertical applications, third party intermediaries and business clients. Thus, one of the Italian digital banks has already developed more than 700 APIs (!) for PSD2 connections.

More important, PSD2 might mean loss of the bank's best customers to the new aggressive FIs that could rapidly introduce more profitable premium financial services on the top of the mandatory access to the customer accounts. Some banking experts argue that it is difficult to derive a profitable business

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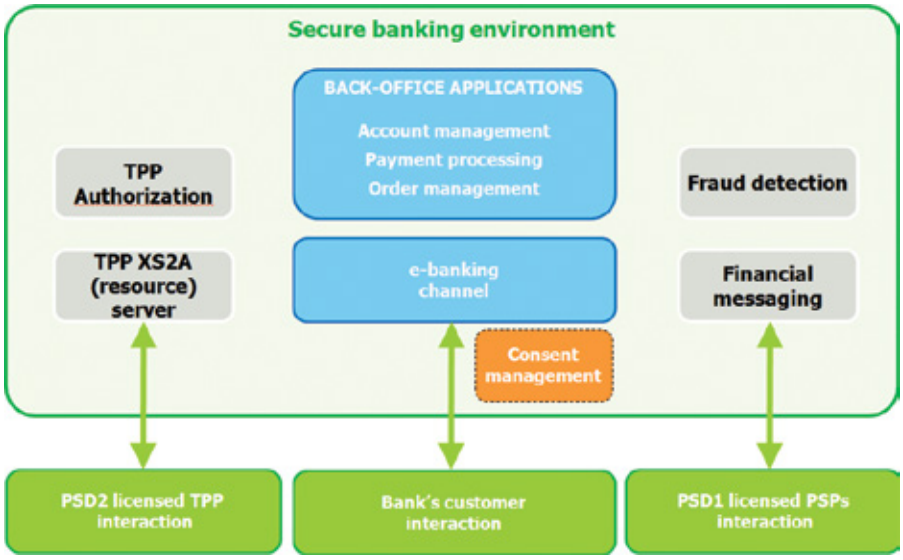

Figure 1.1 BELPAY XS2A API PLATFORM interfacing with the bank's core payment services.

case just for two PSD2 basic account calls – Account Information Services (AIS) and Payment Initiation Services (PIS).

Even though XS2A regulations and technical standards have not yet been finalized, there is not much time to lose in preparation to this event. It is necessary to start piloting your new API services today, and also explore essential integration of profitable services from other vendors.

BELPAY XS2A API PLATFORM

BelPay has recently developed an advanced PSD2 API platform that supports introduction of new services, allowing your bank to remain competitive in the new business environment. BELPAY XS2A API PLATFORM is highly advanced, flexible, easy to manage and inexpensive to maintain. It satisfies enhanced security and authentication requirements of the evolving PSD regulatory framework.

BELPAY XS2A API PLATFORM interfacing with the bank's core payment services is presented in Figure 1. BelPay API could be customized for individualized connections to each bank's core system. The platform supports unified Internet banking interface SEPA/ISO20022, as well as messaging for payment initiation, cash and account management. Common and interaction features include XBRL call reports according to FDIC taxonomies.

BelPay API solution by our security partners includes strong 2-factor authentication (typically PKI+biometrics or PIN), customer authorizations, dynamic links to details of each payment transaction, and transaction non-repudiation due to the use of digital signatures.

To ensure that access via the third party has indeed been authorized by the bank's customer, BELPAY XS2A API uses tokenization or secure delegated access method in accordance with the IETF OAuth 2.0 authorization framework, which has been particularly favored by the European Payment Council that represents the European banking industry. Bank's API issues a token to the third party, who presents it back to the bank after the token has been authorized by the customer. The customer can authorize this token for one or several transactions, or to revoke it at any time. To ensure privacy, the bank does not share customer profile with the third party.

BelPay API could also support alternative authentication approaches for the banks that prefer them, such as OBeP redirect or overlay. Each authentication method has its own advantages, compromises, as well as ease of use and cost factors.

BelPay API exception management includes the following key elements:

- Authorization: Do the people entering transactions into the system possess the authority to make transactions at that level?
- Data completeness: Have all of the necessary data elements required for a specific transaction been entered into the system?
- Table integrity: Have any unauthorized changes been made to the tables in the system?
- Edit checks: Are the system's preventative controls functioning as intended?
- Transaction verification: Are the transactions that the system is performing correct?
- Data input integrity: Was data entered in a way that conforms to business rules?

BelPay API platform could provide your bank with substantial competitive advantages and high profit potential. It could be further customized for working with your bank's core system and supporting development of new revenue streams. The API could also be modified for the EBICS protocol by BelPay business partners who specialize in EBICS transactions.

The authors are thankful to Daniel Szmukler from the Euro Banking Association/EBA CLEARING and to David McGaw for the fruitful discussions regarding the evolving business models of the PSD2 implementation.

BelPay – Improving profitability and reducing risk

BelPay is a Brussels based and well-established innovation consulting service that supports banks in maximizing their revenues, by helping them to improve the performance of their payment systems, or to structurie new services. Our team includes world-class banking and treasury experts in the technology, operations, security, compliance and regulatory issues that are critical for creating and running a bank.

BelPay offers comprehensive and cost-effective transactional banking, treasury, supply chain finance, liquidity management and payment solutions to the commonly experienced corporate administrative challenges in support of international trade. Through extensive technical and financial research, we are able to implement the latest and most advanced means of optimizing and monetizing your payment operations and managing cross-border transactions.

We have detailed knowledge of the current payment innovations and of critical back-office core banking systems, and deep experience in the development of underlying banking technologies. Our advanced implementation methodology is based on our proprietary financial optimization framework. It helps to define profitable and sustainable business and technology architecture by modeling the microeconomics of transactional business lines and support processes.

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Financial IT

Sally Yearwood,
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THE CARIBBEAN BANKING CRISIS

Could salvation come from financial IT providers?

Unemployment in the Bahamas' financial services sector has risen to 30%. The main reason for this is the decline in correspondent banking relationships as anti-money laundering and counter-terrorism financing (AML/CFT) and customer due diligence and know your customer (CDD/KYC) rules have been enforced with greater rigour.

Where the banks of the Bahamas go, so too do the banks of the rest of the Caribbean region. The key issue may be that these are small markets with small margins for those providing correspondent banking services. Or there may be serious questions about gaps in compliance, a lack of confidence in regulatory oversight. Alternatively, there may be perceptions about the region as a haven for the illicit movement of money. In any event there is a continuing erosion of relationships with external financial services partners.

The implications are far-reaching for these small, open economies which are so dependent on free movement of goods, services and money. With the majority of Caribbean nations dependent on international business centers, tourism, and, critically, the movement of remittances from their Diaspora populations, there is palpable fear about what the future holds.

For every problem, there is (usually) a solution

The solution for the Caribbean banking industry may well be grounded in what is happening to the banking industry as a whole. Arguably, the new frontier in financial services is the financial IT revolution currently underway that is changing how we bank, pay for goods and services, and move money from point to point. The question for the institutions in some of the most vulnerable economies, such as those in the Caribbean, is whether they will embrace change and emerge stronger, or whether they will maintain the current situation and ultimately risk being sidelined by obsolescence.

There is, perhaps, a valuable comparison for the Caribbean to be found by looking at the lessons of the 1990s and the opening up to new technology and service providers in the telecommunications space. At the time, the regional telecommunications landscape was peppered with bloated and inefficient monopoly operations dominated by authorities who were resistant to change. There were some jurisdictions where a large percentage of the population had limited or no access to functioning telephones. Then came the entry into the market of providers offering new cellular technology, which quickly ushered in a more diverse, connected and competitive landscape. This, in turn resulted in a certain democratization of communications access, and also led to regulatory reform that facilitated change resulting in new economic avenues for growth within the formal and informal sectors of Caribbean economies.

As went the telecommunications incumbents of 20-25 years ago, so may go the banks of today. Taken from this perspective, the regional financial services stakeholders (governments and banks) should consider that the answer to the current threat to the banking system may well be found in the rapid adoption of new technology and the rationalization of the regulatory system that encourages the same. While there are legitimate concerns about the level of investment needed to make the transition possible, the reality for the Caribbean banks is that, to survive and prosper, there may be no option but to seek the implementation of systems and technologies that not only protect their interests but also those of their key partners. Solutions need to be implemented to address concerns about fraud, weak oversight and compliance across the board, at the institutional, national, and regional levels.

Ultimately for small economies, the creation of shared platforms for compliance - which can reduce the cost and time it takes to perform the necessary checks for AML/CFT, and CDD/KYC - can distribute the cost of investment and ongoing compliance. Furthermore, many of the world's largest traditional financial institutions are investing heavily in Blockchain technology and solutions-based APIs, which is a strong signal that future relationships will depend on buying into these new systems.

In short, the Caribbean banks can harness the disruption from new technology to deal with the challenges posed by the disruption that has resulted in the erosion of correspondent banking relationships.

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Financial IT

Mike King,
CEO, Bankwide

One of the risks of FinTech: OVER-EXCITEMENT

The Dwolla case highlights the dangers of over-promotion of a solution's features and benefits

In early March 2016, United States Federal Regulators at the Consumer Financial Protection Bureau (CFPB) took action against Dwolla, a real-time payments processor, for misrepresenting its data security practices. The enforcement action was certainly written to make an example of the processor, and ensured that others in the same space will get in line quickly.

In a globally connected world, having an enforcement action filed against your company can create real damage to your reputation. The document is fully available for anyone to read and contains some scathing remarks - the kind you don't want potential customers or clients reading during a Google search.

Dwolla stated on its website that they employed "reasonable and appropriate measures to protect data" stating that their systems were safe and secure. Their claim, "Dwolla empowers anyone with an Internet connection to safely send money to friends and businesses". They also made the claim that Dwolla based transactions were safer than credit cards and less of a liability for both consumers and merchants. Perhaps a company using the word "liability" in their marketing material should have had a better understanding of its meaning.

Dwolla claimed that its data-security practices exceeded or surpassed industry standards. It claimed that they set a new precedent for the industry, safety and security that was on par with a bank. Dwolla said that they encrypted data using the same standards required by the Federal Government.

Where I come from, when you make statements like these, you had better be prepared to back them up. You can't simply post something to your website and not expect anyone to ever check your claims.

In its consumer communications, Dwolla made the several representations regarding their security and encryption stating that "All information is securely encrypted and stored, that 100% of the information is encrypted, that it is encrypted in transit and at rest".

Another tip from a professional is this: don't just copy the Federal Financial Institutions Council (FFIEC) requirements to your emails - you had better live by them too.

As an information security officer, you know that the regulators are looking for any good bone to chew on. They want something that they can write into a report and call you to task on. You want them to dig for it, and leave hungry. Dwolla laid out a cold store of meat.

The CFPB pulled absolutely no punches, none. Notable comments from that regulator included:

- "In fact, [Dwolla] failed to employ reasonable and appropriate measures to protect data obtained from consumers from unauthorized access."
- "In fact, [Dwolla]'s data-security practices did not "surpass" or "exceed" industry standards."
- "In fact, [Dwolla] did not encrypt all sensitive consumer information in its possession at rest."

The list went on, and on. The list of violations is pretty worrying to anyone familiar with information security, even at a basic level.

For a point of reference, Dwolla started its business in 2009. It didn't conduct penetration tests until 2012 and it didn't conduct any mandatory employee data-security training until mid-2014. When tested, 62% of their staff clicked a phishing URL, and 25% went on to create a username and password for the phishing site. You simply cannot train staff five years later to deal with threats faced on day one.

To use another metaphor, the hits kept coming. Dwolla failed to encrypt first and last names, addresses, PIN numbers, bank account information and proof of ID images like drivers licenses, Social Security cards and more. And, just to cap it off, it often had consumers send information, in clear text, readable to anyone via email (to expedite processing).

In 2012, Dwolla had started looking into security, but not into development. They decided to hire a software development manager, but one that had absolutely no data-security training. They created software that didn't conform to their own security statements. They also failed to test the security of the apps prior to release to the general public. They didn't bother with risk assessments or penetration testing before allowing consumers to transact data on their platform.

Needless to say, the CFPB found its sacrificial lamb. Dwolla was hit with so many paragraphs, sub-paragraphs and bullet points it's enough to make your head spin. Dwolla was required to hire senior staff to oversee security and additional staff to oversee the new overseers. Dwolla was required to become fully compliant within 180 days. In essence, Dwolla had six months to undo seven years of sub-standard practices.

However, the story does have a happy ending. Dwolla is demonstrably moving rapidly towards industry best practice in information security. And security officers everywhere can now point to this enforcement action when explaining to their CEO or Board showing that the investment in an ounce of prevention still costs much less than the expenditure on a pound of cure.

Financial IT

Nathan Wolaver,
Global Head of Data Management Solutions, Broadridge

Clearing the path to a managed data service

In a financial industry that keeps growing more complex and challenging, holistic solutions for managing high-quality reference data have become a competitive advantage for leading firms. For most investment banks, the current infrastructure is fragmented and expensive to run and maintain, and data management requirements have far outgrown the effective capacity of existing infrastructure. By outsourcing reference data operations, firms can conserve resources, meet regulatory demands, leverage expertise, access best-practices, increase scalability, and create an enduring cost advantage.

In fact, forward-thinking firms no longer view a managed data service as a potential solution, but rather as the new table stakes for competing in a changing industry. Even so, there are perceived obstacles that can delay initiatives or hinder decision-making. If a firm is paralyzed with indecision, or tries to respond to change with incremental internal projects that fail to produce desired results, it can be hard to overcome inertia. To make a positive impact, banks may first need to "clear the path" – i.e., address the perceived obstacles.

Although the obstacles vary with the size and culture of each firm, they often are variations on five themes. In each case, practical, simple answers can help put the obstacles in perspective, articulate a way to overcome them, and clear a path forward.

Obstacle #1: Cost-savings are projected, but don't materialize. Internal projects are always over-budget.

Solution: Focus on driving and documenting all types of cost-saving. Broadridge has estimated that banks on average are spending between $75 million and $125 million annually to acquire, clean, normalize and distribute reference data across the enterprise. In addition, inaccurate data is the source of about 75 percent of costly operational problems in investment banks. Therefore, the issue is not a lack of cost-saving opportunity, but rather the ability to drive all types of cost-savings to the bottom line, in ways that can be clearly documented.

Taking a granular view of errors and exceptions, with detailed statistical analysis, can help to achieve cost control and document savings. Meeting expanding regulatory requirements more efficiently and confidently will result in a huge savings of both time and "worry cost" for top managers.

Obstacle #2: A lack of data quality standards and methods for monitoring and enforcing them.

Solution: Understand the capabilities a managed data service can provide, including quality-of-service metrics and service level agreements (SLAs). The core of a managed data service is its ability to define the state of data quality and then achieve measureable improvements in that quality over time. Working as the bank's partner, a qualified service provider will deliver the experience and technology to support granular service-level agreements (SLAs), which can help to achieve this goal.

SLAs should provide financial penalties for breakdowns in service. They also can include a mature governance model and meaningful penalties for failure to perform up to standards. An emerging industry benchmark is to create customizable SLAs geared to each firm's business model and profit drivers. For example, a firm's trading desk may require reporting commitments every five minutes to meet timely processing requirements, while its asset management unit may only need an end-of-day SLA.

Obstacle #3: The transition process is disruptive. It's difficult to navigate shifts in trust and responsibility, from inside the organization to outside.

Solution: Simplify the transition process by breaking it down into a series of pre-scheduled projects or steps. The transition to a managed data service is qualitatively different than buying software or choosing technology vendors. It should be viewed as a transformational project for the enterprise, with long-term benefits. The

transition process must consider the maturity level of the firm, its regulatory challenges, and its ability to navigate transformations by completing each project or step successfully, on-budget and on-schedule.

Obstacle #4: Outsourcing a critical component of operations means a loss of control.

Solution: Carefully define the competitive advantages you hope to achieve. Consider objectives such as time to market, data quality, data inventory, improved customer service, or other areas.

Many firms are embracing the maturity of the mutualization concept, also known as the utility model. This concept aims to delivers efficiencies in areas that are not defined as competitive differentiators for each firm. It provides scale-ability and the uniformity regulators are demanding, and it can be customized to the needs of each firm. But, keep in mind that mutualization is a complex undertaking. Implementing the concept requires flexibility as well as managers' control over data-intensive operations across the enterprise, with sensitivity for each unit's special needs. Few firms currently have the expertise or infrastructure to meet these customization challenges through internal resources alone.

Obstacle #5: The first-movers face the highest adoption and transition risks.

Solution: Understand that the industry is moving toward this model at a rapid pace, and the greater risk is being left behind. Early-movers will have a better understanding of how to leverage competitive advantages, cost-savings, and regulatory compliance solutions. In many banks, these goals can be best achieved by working with experienced partners who offers the depth of resources and top-level commitment to deliver risk-mitigation strategies. Without such relationships, firms will continue to demand that managers constantly produce more results working with ever more scarce resources. That's a career path that's destined to lead to frustration, and perhaps ultimately failure.

In Summary

All investment banks face the same risks in adapting to change. Yet, the high cost of maintaining aging infrastructure and using it to meet new business and regulatory demands will only continue. These challenges mandate timely and decisive action. As such, the adoption of a managed data service can help to achieve high-level strategic objectives, such as controlling the growth in operations headcount and increasing shareholder value.

Across the industry, firms that have launched piecemeal internal technology initiatives have consistently achieved limited success. A better way forward is to clear the path through mutualization of common costs and industry best-practices on a state-of-the-art platform.

Financial IT

Michael Ingemann
Director of CFO Services - International, Teradata

FIVE WAYS PROFITABILITY INSIGHT IS RAISING THE BOTTOM LINE

Every enterprise needs a Financial Planning and Analysis (FP&A) function – and every CFO knows this. However, many feel that FP&A is a low-return cost centre, according to a recent CEB study. With enterprises gaining higher volumes and more types of data, such as unstructured or text data, and marketing and operations staff taking full advantage of this, many FP&A groups have been busy investing in their analytic capabilities. The issue, then, is that these groups, as well as CFOs, aren't seeing the evidence they need to determine if FP&A is providing any substantial return on investment.

For more forward-thinking finance teams, it's clear that investing in financial analytics is directly tied to growth in the bottom line, through actionable profitability insight. Integrated finance analytics allows the CFO and their department to focus on their vital roles of evaluating and improving enterprise performance, and building a foundation in integrated finances can provide enterprises with a single, objective view and allows them to abandon any costly and time-consuming local, siloed data marts.

The experience of finance and IT departments at several leading companies illustrate five ways that integrated financial analytics enable the type of multi-dimensional profitability insight that can help FP&A earn a clear ROI on analytic investments and deliver clear benefits across the business.

Operational Performance

By allowing for the modelling of both financial and operational driver data in the same database, a multi-dimensional profitability solution enables benefits including operational excellence, resource optimisation, real-time response to operational events, data-quality visibility, improved exception management and cost avoidance. For example, a major shipping company realised nearly $1 million USD in annual infrastructure cost savings and an annual reduction of 7,000 man-days' worth of manual costing labour thanks to insight into costs at the individual shipment level.

Cost optimisation

The profitability insight enabled by an integrated financial analytics approach helps control costs, manage vendors, monitor and react to trends, and manage organisational cost performance, just like it did for a leading distribution enterprise that now aggregates 75 million records in eight minutes instead of the eight hours it previously took to aggregate 50 million records. In addition, the company improved its pricing decisions and optimised supplier contracts, driving an $80 million USD annualised increase in gross profit.

Revenue management

An integrated finance foundation helps ensure compliance with the recording of tariffs and duties, helps optimise the invoicing of products and services, and improves the monitoring of revenue trends and management of revenue composition. A top mobile communications provider leveraged its finance foundation to improve revenue recognition accuracy, reduce daily and monthly billing processing time and gain new insights into profitability.

Yield & Product

The integration, aggregation and modelling of data across functional or divisional silos helps control pricing and product composition, manage capacity versus demand and actual intake, optimise customer order and product portfolio, and improve yield. A top-three auto manufacturer gained insight into vehicle- and SKU-level profitability and reduced costs by purchasing fewer parts from fewer suppliers.

Profitability

An integrated finance foundation offers insight into customer and product profitability, helps mitigate low-yielding customers and products, improves revenue and cost forecast accuracy, reveals profitability trends compared to the market, and helps answer not only 'what' but also 'why.' That's how a worldwide technology provider identified which clients were responsible for nearly $200 million USD in net loss. Subsequent changes in customer service resulted in a major profit improvement.

If your finance department has invested in FP&A-related analytical capabilities and is not yet reaping these types of benefits, sit down with your IT liaisons and take a good look at your financial systems architecture. Is it loaded with complexity and redundant data movement? Is all of your relevant data – whether legacy system, ERP or industry-specific sources – available from a single, integrated location that speeds analytic access and helps deliver decisive insights? If not, start building a plan to enable these characteristics. It's the best way to position FP&A, and finance at large, to be a game-changing hero and not just another cost centre.

DEALS

Optevia Becomes Part of IBM

18 March, 2016 *#CRM*

IBM has acquired Optevia, a privately owned Software as a service, (SaaS), systems integrator specializing in Microsoft Dynamics CRM solutions for public sector organizations. Optevia will join IBM Global Business Services and help meet the increasing client demand for CRM SaaS solutions within the public sector. The acquisition of Optevia, will help IBM establish itself as a premier SaaS and digital consultant and accelerate leadership in CRM solutions.

SS&C adds Citi's Alternative Investor Services Business to its portfolio

14 March, 2016 *#Fund Administration*

SS&C Technologies Holdings, Inc. has completed the acquisition of Citi's Alternative Investor Services Business, a provider of hedge fund and private equity fund administration services. SS&C acquired the business unit from Citi for approximately $321 million. Citi's Alternative Investor Services Business is a top 10 fund administrator and through the acquisition SS&C will add more than 1,400 staff across 13 offices, 265 customers, and approximately $395 billion in assets under administration.

Polaris Consulting & Services joins Virtusa Family

03 March, 2016 *#Banking*

Virtusa Consulting Services Private Limited, an Indian subsidiary of Virtusa Corporation, has acquired all of the outstanding shares of Polaris Consulting & Services, Ltd., held by Mr. Arun Jain, founder and chairman of Polaris, Orbitech Private Limited, and certain other minority stockholders, representing an aggregate of approximately 51.7% of the fully diluted outstanding shares of Polaris for an average of $3.12 per share (INR 213.883 per share), for an aggregate purchase consideration of $165.89 million (INR 11,364 million).

Loan Market Tech from J.P.Morgan becomes part of Markit

10 February, 2016 *#Trading*

Markit has acquired systems integration software developed by J.P. Morgan. Markit will make the software available to sellside and buyside institutions seeking to integrate with major systems used in the syndicated loan market, including agent servicing platforms and Markit's trade settlement services. Facilitating systems integration is an important step toward straight through processing of loan transactions and is expected to help the industry become more efficient in settling trades.

FD Trumpets Acquisition of QuantumKDB

12 January, 2016 *#Trading*

First Derivatives plc, a provider of software and consulting services, has acquired the entire issued share capital of QuantumKDB (UK) Limited for total consideration of up to £2.2 million. The acquisition provides the Group with complementary consultancy expertise to support the growth of its Kx business and is expected to be earnings enhancing in the first full year following acquisition. Quantum was founded in 2011 by its CEO Kieran Lucid and provides Kx consulting in the UK, US and Hong Kong.

Fiserv Buys ACI Worldwide's Community Financial Services for $200 million in Cash

21 January, 2016 *#Digital banking*

ACI Worldwide is to exit the community bank and credit union market, selling its Community Financial Services business to Fiserv for $200 million in cash. The transaction includes employees and customer contracts as well as technology assets and intellectual property. Under the deal with Fiserv, ACI Worldwide will be transferring a suite of digital banking and electronic payments products including Architect Banking, SSB Internet Banking, WebFederal Internet Banking and Advantage Internet Banking solutions; Advantage Consolidated Bank Bill Pay; and ACI Defense Services.

MANDATES

Fiserv Selected by Vibrant Credit Union

22 March, 2016
Provider: *Fiserv*
Client: *Vibrant Credit Union*
Mandate value: *Undisclosed*

Vibrant Credit Union, based in Moline, Illinois, has completed its conversion to the DNA® account processing platform and added several integrated solutions from Fiserv. Vibrant selected DNA to gain the advantages of an open, member-centered, core platform built on contemporary technology. The new platform enables Vibrant to deliver differentiated products and services and helps to create a distinct experience for its 41,000 members. Along with DNA, Vibrant implemented a number of integrated solutions from Fiserv including the CRM and Business Intelligence suite.

Milestone Group's pControl Fund Oversight Selected by Henderson Global Investors

15 March, 2016
Provider: *Milestone Group*
Client: *Henderson Global Investors*
Mandate value: *Undisclosed*

Henderson Global Investors (HGI) has gone live with Milestone Group's pControl Fund Oversight across its extensive range of mutual funds and investment trusts. The Fund Oversight solution has enabled HGI to automate the collection of fund valuation data and the subsequent execution of their independent, daily NAV price validations and controls. Recent growth has left Henderson managing an increasing number of complex fund structures across multiple administrators, each requiring different controls.

FIS' Digital Business Solution Selected by Dallas Capital Bank

29 February, 2016
Provider: *FIS*
Client: *Dallas Capital Bank*
Mandate value: *Undisclosed*

Dallas Capital Bank – a local, independent bank serving the needs of businesses, entrepreneurs and professionals across North Texas – is just one of many community institutions to team with FIS™ for digital and mobile banking. By adding mobile and digital banking and payments to its customer service arsenal, the bank is empowering its customers and giving them full access to their finances wherever and whenever they want. FIS' digital business solution stood out for the ease with which it can be tailored to support businesses of any size, from micro-business to large, commercial customers.

Bank Pocztowy Will Benefit from Wolters Kluwer's Risk Management Solution

16 March, 2016
Provider: *Wolters Kluwer*
Client: *Bank Pocztowy*
Mandate value: *Undisclosed*

Bank Pocztowy S.A. has opted to use Wolters Kluwer's risk management software solution. The Polish retail bank will use OneSumX for risk management in the following areas – Asset and Liability Management (ALM), Market Risk, Liquidity Risk, and Credit Risk, for the Basel III capital charges calculation. The firm will also use Wolters Kluwer to provide Funds Transfer Pricing (FTP) analysis and Stress Testing on top of all functionalities. OneSumX provides an ecosystem of complementary and comprehensive solutions and services.

Trayport's Broker Trading System Selected by BalkanerEnerji

14 March, 2016
Provider: *Trayport*
Client: *BalkanerEnerji*
Mandate value: *Undisclosed*

BalkanerEnerji has chosen Trayport'sGlobalVision Broker Trading System (BTS) for its OTC trading operations in the Turkish power market. Trayport's BTS has proven itself to be the preferred hybrid e-broking system in energy markets. The Trayport BTS offers brokers access to a growing network of traders using Trayport's trading technology. A multi-asset class electronic trading platform with a sophisticated matching engine and customisable front-end, the BTS is designed to enhance broker voice operations and facilitate an electronic hybrid brokerage model for OTC markets supporting an aggregated trading model.

Techcombank Goes Live with Misys FusionCapital

29 February, 2016
Provider: *Misys*
Client: *Techcombank*
Mandate value: *Undisclosed*

Misys, the leading financial software company, announced today that Techcombank in Vietnam has gone live with Misys FusionCapital to transform its growing Markets and Treasury functions and increase its risk management capabilities. By following Misys best practice implementation processes the bank went live within 10 months. FusionCapital offers full front-to-back integration with improved pricing capabilities, multi-curves analytics, position management and real-time data analysis connected with market and credit limits management.

PEOPLE MOVES

GFT Group Announces Tim Brazier as its Head of Application Simplification Practice

24 March, 2016

Tim Brazier has joined GFT as Head of the newly created Application Simplification Practice. Tim joins GFT from the Royal Bank of Scotland, where he was MD of Application Simplification. In this role, he managed a large scale program designed to simplify the application architecture across the bank. He has over 10 years' experience working in consultancy as both a practice head and COO at Thales Information Systems and Catalyst Ltd.

Onyx Group Appoints Andrew Bevan to the Position of Director of Client Solutions

16 March, 2016

Onyx Group has appointed Andrew Bevan to the position of Director of Client Solutions. This is, for Onyx, another key next step in the company's ambitious growth strategy for 2016. As part of his new role, Andrew will oversee the design and implementation of new customer solutions and services. He will also contribute to the development and introduction of new propositions, enabling Onyx to remain at the forefront of innovation within the IT managed services sector.

John B. McCoy Agrees to Join the Board of Earthport

17 February, 2016

Earthport is pleased to announce that John B. McCoy, the former Chairman and Chief Executive Officer of Bank One Corporation, has agreed to join Earthport's Board as a Non-executive Director. John McCoy retired as Chairman and Chief Executive Officer of Bank One Corporation in 1999, the fourth-largest bank in the United States at the time, where he had been CEO since 1984.

Elliptic Announces New Board of Advisors

03 February, 2016

Elliptic, the leading blockchain intelligence company, announced its Board of Advisors: David Harris, Martine Niejadlik, Richard Brown and Nadav Rosenberg. Elliptic CEO, Dr. James Smith, said, "We have carefully and thoughtfully selected these advisors, and we are humbled to be working with them. Each advisor is among the very best in the world at their discipline, and each brings a unique strategic perspective to Elliptic."

Ryan Murphy Joined VASCO as Area Sales Manager in the UK and Ireland

17 March, 2016

VASCO Data Security International has appointed Ryan Murphy as area sales manager in the UK and Ireland in a move that builds on the company's ongoing investment in the UK. His appointment is effective immediately. Murphy will support the growing global demand across both the private and public sector for the company's robust two-factor authentication, digital signature, and identity management solutions.

Lauri Rosendahl Appointed Nasdaq Nordic and Stockholm New President

07 March, 2016

Nasdaq unveiled that Lauri Rosendahl has been appointed President of Nasdaq Nordic and Nasdaq Stockholm. Lauri Rosendahl has been with Nasdaq since 2009 as Senior Vice President and President of Nasdaq Helsinki. "Lauri's over 25 years of experience in the financial markets coupled with an exceptional leadership and management track record will serve Stockholm well as we continue to lead today's dynamic exchange environment," said Hans-Ole Jochumsen, President of Nasdaq.

Robert Hau Joins Fiserv as Chief Financial Officer

17 February, 2016

Fiserv announced that Robert Hau TO join the company as chief financial officer on March 14, 2016. Hau's professional background includes nearly 30 years of progressive business and financial leadership roles. He most recently served as executive vice president and chief financial officer of TE Connectivity, a $12 billion global product technology company that designs and manufactures connectivity and sensor solutions for a variety of industries.

Misys Appoints Rob Binns as CFO

01 February, 2016

Misys appointed Rob Binns as its Chief Financial Officer. Mr Binns joins Misys from HP Inc where he was Head of Treasury and Investor Relations. He joined Hewlett-Packard in 2007 from Mercury Interactive and has held a number of senior finance positions in the company including VP Software Field Operations and VP Investor Relations before being appointed Vice President and CFO, HP Software in 2014.

Financial IT

Financial Technology Buyers' Guide

March 2016

BelPay offers comprehensive and cost-effective solutions to commonly experienced administrative challenges in support of international trade. Our tailor-made services support your company's supply chain management, corporate treasury and various functions related to payment services in international transactions. Through extensive technical and financial research we are able to suggest to enterprises the latest and most advanced means of managing cross-border transactions.
BelPay conducts a range of traditional and novel business-to-business payment support services, primarily for mid-size enterprises involved in international trade across the European Union.

COMPANY PROFILE	
Company type	Private Company
Annual turnover	Undisclosed
Number of Customers Total	Undisclosed
Number of Employees	Undisclosed
Inception	2013
Geographical coverage	Europe, Americas

COMPANY CONTACT DETAILS	
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China Systems is the leading Trade Services Solutions vendor in the world, with offices throughout Europe, the USA, Asia, and the Middle East. Established in 1983, China Systems has gained extensive experience in international banking systems by exploiting the functional adaptability and development capabilities of Eximbills, its renowned toolkit for Trade Services within the banking industry.
Apart from our rich technical heritage, we also offer true global product implementation as well as support and maintenance services. We have worked with banks to implement our products throughout their global branch network.

COMPANY PROFILE	
Company type	Private Company
Annual turnover	Undisclosed
Number of Customers Total	+200
Number of Employees	Undisclosed
Inception	1983
Geographical coverage	Europe, the USA, Asia, and the Middle East

COMPANY CONTACT DETAILS	
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Founded in 1976, CGI is a global IT and business process services provider delivering high-quality business consulting, systems integration and managed services. With 68,000 professionals in 40 countries, CGI has an industry-leading track record of delivering 95% of projects on-time and on-budget. In the Financial Services industry, CGI professionals work with more than 2,500 financial institutions including 24 of the top 30 banks worldwide. We are helping our retail and wholesale banking clients reduce costs, achieve strategic objectives and drive competitive advantage. As a demonstration of our commitment, our average client satisfaction score consistently measures higher than 9 out of 10.

COMPANY PROFILE	
Company type	Corporation
Annual turnover	$10 billion
Number of Customers Total	Undisclosed
Number of Employees	68,000
Inception	1976
Geographical coverage	Americas, Europe and Asia Pacific

COMPANY CONTACT DETAILS	
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Compass Plus provides proven software and services for financial institutions, including retail banks and payment processors across the globe that operate in complex and rapidly changing business and technology environments. Compass Plus builds and quickly implements comprehensive and integrated payment technologies that allow customers to increase revenue and profits, and improve their competitive position by implementing flexible systems that meet market demands. With hundreds of successful projects spanning card, account and merchant management, card personalisation, mobile and electronic commerce implemented in record breaking time, Compass Plus ensures its customers make the most of their technology investments.

COMPANY PROFILE	
Company type	Limited Partnership
Annual turnover	Undisclosed
Number of Customers Total	Undisclosed
Number of Employees	Undisclosed
Inception	1989
Geographical coverage	Global

COMPANY CONTACT DETAILS	
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Established in February 2006, with the sole objective of delivering fast, agile and functional business software to the Investment Management sector, CYMBA Technologies, from its very inception has concentrated exclusively on the delivery of such products within the Front Office environment and has successfully delivered on this objective as evidenced by its ever increasing global customer base. The Company's detailed knowledge of Hedge Funds and Investment Management processes has enabled the development of leading edge Investment Management systems for Algorithmic Trading, Execution Management, Real-time Profit and Loss (CYMBA Athena IMS), and Compliance (CYMBA Centurion).

COMPANY PROFILE	
Company type	Private Company
Annual turnover	Over £ 1 Million
Number of Customers Total	over 15
Number of Employees	Less than 10
Inception	2006
Geographical coverage	UK, US & Asia

COMPANY CONTACT DETAILS	
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Since 1991 Diasoft has been providing cutting edge financial software solutions supporting all the aspects of retail, corporate and universal banking, treasury and capital market services, and insurance business. The company's main offer to the global financial market is FLEXTERA – a SOA-based software solution for front-to-back automation of financial services. Using the most advanced technologies to create its software products, Diasoft became one of the first companies having implemented SOA-principles in the banking solutions, which is attested by IBM Banking Industry Framework certification. The company is ranked in TOP 100 global financial technology providers and TOP 5 software vendors in Russia.

COMPANY PROFILE	
Company type	Sole proprietorship
Annual turnover	2014 results: 69.2 Million Dollars
Number of Customers Total	400
Number of Employees	1,600
Inception	1991
Geographical coverage	Asia, Europe, Russia

COMPANY CONTACT DETAILS	
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essDOCS is a leading enabler of paperless trade, providing customer-led solutions that automate and accelerate trade operations & finance. essDOCS' flagship solution – CargoDocs – delivers significant value to the entire supply chain: enabling users to streamline processes, reduce working capital needs and risk, while improving collaboration, compliance and visibility across organisations. As of Q1 2016, Over 3,600 companies, ranging from 12% of the Fortune Global 500 to innovative SMEs, use essDOCS solutions across 72 countries in the energy, agriculture, chemicals and metals & minerals markets.

COMPANY PROFILE	
Company type	Privately Held
Annual turnover	Undisclosed
Number of Customers Total	3,600+
Number of Employees	55
Inception	2005
Geographical coverage	EMEA, Asia Pacific, Americas

COMPANY CONTACT DETAILS	
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FERNBACH, a medium-sized software company, was established by Günther Fernbach in 1986 and now operates internationally. The company focuses on the automation of reporting processes, particularly in the finance and accounting sectors. Reports are created automatically for all stakeholders, employees, managers, investors and supervisory authorities. Each year, FERNBACH has been listed in the upper third of the 100 leading risk technology vendors worldwide by Chartis Research, the main provider of global research and analyses for risk management technology.

COMPANY PROFILE	
Company type	Sole proprietorship
Annual turnover	Undisclosed
Number of Customers Total	more than 50
Number of Employees	150
Inception	1986
Geographical coverage	Africa , Asia, Europe

COMPANY CONTACT DETAILS	
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Fidessa provides products and services for the whole life cycle of the trading process for both the buy-side and sell-side, from low latency trading tools to settlement, compliance, market data and risk management. By automating the entire workflow, Fidessa improves productivity, competitiveness and efficiency, while at the same time reducing both costs and risk to the financial institutions. Some of the flagship products offered by Fidessa include Fidessa IMS, Sentinel, Affirmation Management Service as well as Minerva suite for order and execution management.

COMPANY PROFILE	
Company type	Public Company
Annual turnover	Undisclosed
Number of Customers Total	Undisclosed
Number of Employees	Undisclosed
Inception	1981
Geographical coverage	Global

COMPANY CONTACT DETAILS	
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Headquartered in Bangalore, India and with offices in Mumbai, Manila, Johannesburg, Dubai and New York, Fintellix is a leading Compliance, Risk & Analytics (CRA) Products and Solutions provider for the global Financial Services industry. Fintellix's Banking solutions are available for on-premise implementations as well as provisioning from a regional Cloud infrastructure. Fintellix is currently active in India, US, Europe, Middle-East, Africa and South East Asia; and has some of the Global Top 50 Banks and leading Global/ Regional banks as clients.

COMPANY PROFILE	
Company type	Sole proprietorship
Annual turnover	Undisclosed
Number of Customers Total	35+
Number of Employees	300
Inception	2006
Geographical coverage	India, USA, South Africa, Philippines, Vietnam, UAE, UK

COMPANY CONTACT DETAILS	
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Fiserv is highly regarded for its financial services technology and services innovation, including solutions for mobile and online banking, payments, risk management, data analytics and core account processing. Fiserv is helping its clients push the boundaries of what's possible in financial services delivering deep expertise and innovative solutions to help financial institutions, businesses and consumers move and manage money faster and with greater ease. The most popular solutions invented by Fiserv are DNA, CUnify, Signature, Agiliti Platform.

COMPANY PROFILE	
Company type	Public Company
Annual turnover	Undisclosed
Number of Customers Total	13,000+
Number of Employees	10,000+
Inception	1984
Geographical coverage	Global

COMPANY CONTACT DETAILS	
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FIS is a global leader in financial services technology, with a focus on retail and institutional banking, payments, asset and wealth management, risk and compliance, consulting, and outsourcing solutions. Through the depth and breadth of our solutions portfolio, global capabilities and domain expertise, FIS serves more than 20,000 clients in over 130 countries. Headquartered in Jacksonville, Fla., FIS employs more than 55,000 people worldwide and holds leadership positions in payment processing, financial software and banking solutions. Providing software, services and outsourcing of the technology that empowers the financial world, FIS is a Fortune 500 company and is a member of Standard & Poor's 500® Index. For more information about FIS, visit www.fisglobal.com.

COMPANY PROFILE	
Company type	Publicly traded (NYSE:FIS)
Annual turnover	Undisclosed
Number of Customers Total	Over 20,000
Number of Employees	55,000+
Inception	Undisclosed
Geographical coverage	Global

COMPANY CONTACT DETAILS	
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GFT Group is a business change and technology consultancy trusted by the world's leading financial services institutions to solve their most critical challenges. Specifically defining answers to the current constant of regulatory change – whilst innovating to meet the demands of the digital revolution. Utilising the CODE_n innovation platform, GFT is able to provide international start-ups, technology pioneers and established companies access to a global network, which enables them to tap into the disruptive trends in financial services markets and harness them for their out of the box thinking.

COMPANY PROFILE	
Company type	Public Company
Annual turnover	€178.76 M in H1 2015
Number of Customers Total	9 out of 10 world's top investment banks
Number of Employees	4,000
Inception	2001
Geographical coverage	Global

COMPANY CONTACT DETAILS	
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INDATA is a leading industry provider of software and services for buy-side firms, including trade order management (OMS), compliance, portfolio accounting and front-to-back office. INDATA's iPM – Intelligent Portfolio Management technology platform allows end users to efficiently collaborate in real-time across the enterprise and contains the best of class functionality demanded by sophisticated institutional investors. INDATA provides software and services to a variety of buy-side clients including asset managers, registered investment advisors, banks and wealth management firms, pension funds and hedge funds. What sets INDATA apart is its single-minded focus on reducing costs and increasing operational efficiency as part of the technology equation.

COMPANY PROFILE	
Company type	Limited Liability Company (LLC)
Annual turnover	Undisclosed
Number of Customers Total	Over 200
Number of Employees	Over 150
Inception	1968
Geographical coverage	North America, Europe

COMPANY CONTACT DETAILS	
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Milestone Group is a global provider of advanced software solutions to asset managers, fund product manufacturers and distributors, life and pension companies, and fund administrators. Its pControl funds platform is a single application platform delivering market leading operational efficiency, transparency and control to key business functions. Milestone Group brings global insight and proven technology to deliver a unique business partnership.

COMPANY PROFILE	
Company type	Limited Partnership
Annual turnover	Undisclosed
Number of Customers Total	Undisclosed
Number of Employees	Undisclosed
Inception	1998
Geographical coverage	Global

COMPANY CONTACT DETAILS	
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NICE Actimize is the largest and broadest provider of financial crime, risk and compliance solutions for regional and global financial institutions, as well as government regulators. Consistently ranked as number one in the space, NICE Actimize experts apply innovative technology to protect institutions and safeguard consumers and investors assets by identifying financial crime, preventing fraud and providing regulatory compliance. The company provides real-time, cross-channel fraud prevention, anti-money laundering detection, and trading surveillance solutions that address such concerns as payment fraud, cyber crime, sanctions monitoring, market abuse, customer due diligence and insider trading.

COMPANY PROFILE	
Company type	Public Company
Annual turnover	Undisclosed
Number of Customers Total	over 100
Number of Employees	over 500
Inception	1999
Geographical coverage	Global

COMPANY CONTACT DETAILS	
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Pendo Systems was established to provide a new standard in Investment Accounting System Delivery. At Pendo Systems, our mission is to be a premier provider of software solutions to global financial institutions. We strive to not only help our clients achieve their business objectives and goals, but also to contribute to the success of individuals, businesses and communities throughout the world. We are driven to work with our clients in a collaborative partnership, and are guided by the fundamental values of professionalism, respect, teamwork and quality in delivering products and services to our clients.

COMPANY PROFILE	
Company type	Sole proprietorship
Annual turnover	over $5M
Number of Customers Total	20+ top tier banks worldwide
Number of Employees	over 10
Inception	2006
Geographical coverage	North America

COMPANY CONTACT DETAILS	
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Pegasystems develops strategic applications for sales, marketing, service and operations. Pega's applications streamline critical business operations, connect enterprises to their customers seamlessly in real-time across channels, and adapt to meet rapidly changing requirements. The solutions offered by Pegasystems are available on-premises or in the cloud and are built on its unified Pega 7 platform, which uses visual tools to easily extend and change applications to meet clients' strategic business needs.

COMPANY PROFILE	
Company type	Public Company
Annual turnover	Undisclosed
Number of Customers Total	2000+
Number of Employees	3000
Inception	1983
Geographical coverage	Asia, Europe and North America

COMPANY CONTACT DETAILS	
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Polaris Consulting & Services Limited is a global expert in Financial Technology (FT) for Banking, Insurance, and other Financial Services. Polaris innovates digital transformation offering solutions that result in performance breakthroughs where incremental improvements are not sufficient. The specialized practice areas include: mobile, user experience, data & analytics, systems integration, testing, infrastructure management and business process outsourcing; along with specialized vertical practices in consumer and corporate banking, capital markets, and insurance.

COMPANY PROFILE	
Company type	Public Company
Annual turnover	Undisclosed
Number of Customers Total	Undisclosed
Number of Employees	5001-10,000
Inception	1993
Geographical coverage	Global

COMPANY CONTACT DETAILS	
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Profile Software, an ISO-certified and listed company, is a specialised financial solutions provider, with offices in Geneva, Dubai, London, Singapore, Athens and Nicosia. It delivers market-proven solutions, with an exceptional track record of successful implementations, to the Banking and Investment Management industries. The company is acknowledged as an established and trusted partner across many regions, offering a wide spectrum of solutions to the financial services sector.
Profile Software's solutions have been recognised and approved by leading advisory firms and enable Institutions worldwide to align their business and IT strategies while providing the necessary business agility to proactively respond to the ever-changing market conditions.

COMPANY PROFILE	
Company type	PLC/listed firm
Annual turnover	Undisclosed
Number of Customers Total	250
Number of Employees	152+
Inception	1990
Geographical coverage	Global

COMPANY CONTACT DETAILS	
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Ripple provides global financial settlement solutions to enable the world to exchange value like it already exchanges information – giving rise to an Internet of Value (IoV). Ripple solutions lower the total cost of settlement by enabling banks to transact directly, instantly and with certainty of settlement. Ripple bridges these siloed networks with a common global infrastructure that brings new efficiency to financial settlement by enabling real-time settlement, ensuring transaction certainty and reducing risk.

COMPANY PROFILE	
Company type	Privately Held
Annual turnover	Undisclosed
Number of Customers Total	25 active integrations
Number of Employees	110
Inception	2012
Geographical coverage	Global

COMPANY CONTACT DETAILS	
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SAGE SA delivers innovative solutions that help financial institutions make better investment decisions and build client trust even in uncertain market conditions by allowing them to communicate investment decisions in total transparency. SAGE SA has solutions for investment tracking, wealth management, asset management, risk management and more. SAGE SA has the ideal solution for today's financial services provider. SAGE SA offers Prospero, a suite of wealth management solutions that is user-friendly, robust and cost-effective; and BlackSwan Finacial Platform, a Portfolio Optimization solution. SAGE SA, which was founded in 1986, has its headquarters in Switzerland, and has branches in Dubai and Singapore

COMPANY PROFILE	
Company type	Corporation
Annual turnover	Undisclosed
Number of Customers Total	Undisclosed
Number of Employees	80
Inception	1986
Geographical coverage	Asia, Europe

COMPANY CONTACT DETAILS	
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SmartStream provides Transaction Lifecycle Management (TLM®) solutions and Managed Services to dramatically transform the middle and back-office operations of financial institutions. Over 1,500 clients, including more than 70 of the world's top 100 banks, 8 of the top 10 asset managers, and 8 of the top 10 custodians rely on SmartStream's solutions. SmartStream delivers greater efficiency, automation and control to critical post trade operations including: Reference Data Operations, Trade Process Management, Confirmations and Reconciliation Management, Corporate Actions Processing, Fees and Invoice Management, Collateral Management, Cash & Liquidity Management and Compliance Solutions.

COMPANY PROFILE	
Company type	Privately Held
Annual turnover	Undisclosed
Number of Customers Total	1,500 clients
Number of Employees	over 500
Inception	2000
Geographical coverage	Global

COMPANY CONTACT DETAILS	
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Strands is a global provider of personalization and recommendation solutions for digital banking and retail markets, serving customers worldwide, including Barclays, BBVA, BNP Paribas, Bank of Montreal, Carrefour and Panasonic. Strands serves its customers via two business units:
Strands Finance – develops innovative FinTech, empowering financial institutions to offer superior customer experiences through their digital channels
Strands Retail – drives the businesses of over 100 online retailers with industry-leading recommendation and customer segmentation solutions.

COMPANY PROFILE	
Company type	Private Limited Company
Annual turnover	Undisclosed
Number of Customers Total	20+ top tier banks worldwide
Number of Employees	100
Inception	2004
Geographical coverage	Global

COMPANY CONTACT DETAILS	
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SunTec Business Solutions is the leading provider of revenue management and business assurance solutions to financial services and digital and communications services industries. With deployments in 58 countries, SunTec's highly functional and technology-agnostic product suite Xelerate™ empowers the clients to create real-time personalised offerings to improve profitability and customer experience while optimising customer lifetime value. The product suite enables service providers to develop, launch and monetise innovative offerings quickly. Xelerate has helped create products and services for over 300 million end-customers today.

COMPANY PROFILE	
Company type	Privately Held
Annual turnover	Undisclosed
Number of Customers Total	40
Number of Employees	800+
Inception	1990
Geographical coverage	Global

COMPANY CONTACT DETAILS	
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VocaLink is a global payments partner relied on by financial institutions, corporates and governments to provide high availability and resilient payment solutions. VocaLink provides payment clearing systems and ATM switching platforms which underpin the majority of UK electronic payments – we provide a national grid for payments. Platforms developed by VocaLink enable to make payments confidently, securely and cost effectively. In 2015 VocaLink processed over 10 billion transactions with a value of £5 trillion.

COMPANY PROFILE	
Company type	Privately Held
Annual turnover	Undisclosed
Number of Customers Total	Undisclosed
Number of Employees	1000+
Inception	2007
Geographical coverage	Global

COMPANY CONTACT DETAILS	
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Volante Technologies is a global leader in the provision of software for the integration, validation, processing and orchestration of financial messages, data and payments within financial institutions and corporate enterprises. Many clients use Volante to assist with multiple product implementations ranging from message transformation and integration, through to the processing and orchestration of transaction data and payments. Along with its products, Volante Designer and its VolPay suite of payments integration and processing products, Volante constantly maintains a growing library of over 85 domestic and international financial industry standards plugins with more than 250 prebuilt, customizable, and bidirectional transformations to and from these standards.

COMPANY PROFILE	
Company type	Private Company
Annual turnover	Undisclosed
Number of Customers Total	more than 80 in 26 countries
Number of Employees	around 120 and growing
Inception	2001
Geographical coverage	US, Latin America, UK, Europe, Middle East, Africa, India

COMPANY CONTACT DETAILS	
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Way Back is a Brazilian company working in the Debt Collection industry since 1991 and experienced both out-of-court and court debt collection stages. With a significant portfolio of customers, Way Back is a company with strong presence in Brazil and abroad working with the collection of receivables in different sectors of the economy, such as the financial, industrial, trade and services sectors. Headquartered in São Paulo, Brazil, and with a branch in Miami, USA, Way Back is present in over 155 countries and offers the best performance and service structure in the credit and collection segment by means of its business sectors: Debt Collection B2B, B2C, Judicial, International and other BPO services.

COMPANY PROFILE	
Company type	LTD (Brazil LTDA)
Annual turnover	Undisclosed
Number of Customers Total	186
Number of Employees	212
Inception	1991
Geographical coverage	Global

COMPANY CONTACT DETAILS	
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Way Back

International Debt Collection

www.wayback-usa.com

+ WE SPEAK THE LOCAL LANGUAGE

+ WE UNDERSTAND THE LOCAL CULTURE

+ WE ACT ACCORDING TO THE LOCAL LAWS

+ WE RECOVER CREDIT

MONEY KNOWS **NO BORDERS,** NEITHER DO WE

Hire our **international collection** services in your country and **expand** it in more than 145 countries.

We offer international debt collection services across **145 countries** in a secure, transparent, ethical and professional manner on a **'NO WIN NO FEE'** basis.

Address: 80 SW 8th Street, Suite 2000 - Miami, FL 33130 | Phone: +1 (305) 423 7038 | Email: info@wayback-usa.com