

Daily Sibos

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Seize the 'cognitive business model' to win the digital race

By Neil Ainger

An era of "unprecedented change" is happening, driven by new regulation and technology, Ginni Rometty, chief executive of IBM, said during a plenary address, *Cognitive Business and the Future of Financial Services*.

"There is a moment of opportunity if you choose to seize it," she said, referencing artificial intelligence (AI), machine learning, big data and blockchain technology as a "cognitive business and technology model". This can offer real business benefits in terms of reducing cost via automation, she said, improving opportunity spotting, compliance and helping anti-fraud measures and so on.

Rometty spoke of the "digital foundation" of banks, which are being overhauled to eliminate legacy, enable the cloud and improve digital security, while arguing that "the transformation won't stop there". It will get stronger as AI technology, the blockchain and other new cognitive technologies are added to this foundation.

"I'm not talking about bitcoin, but the underlying distributed ledger technology [DLT], which allows you to have trust in the exchange of anything. The blockchain will do for transactions what the internet did for information," she said, while stressing there will have to be governance, standards and immutable certainty about the

irreversibility of transactions for it to progress. "Regulators have to be comfortable with it too," she later added. The Hyperledger Project should help in this regard as well.

"When everyone is digital who wins?" she asked. The winners, in her opinion, will be those businesses that are cognitive and able to use AI, DLT and other advanced technologies effectively. "You will need some new technology to deal with all of the data that is out there in order to gain insights, comply and operate efficiently," she said. "We are entering an era of systems that can understand, reason and learn, that is why I call it cognitive technology."

Cognitive technology is far more than AI and machine learning, she said, predicting that in five years most decisions will involve cognitive technology and that "FS would lead the way".

IBM released a study on 21 September from its Institute for Business Value backing up this assertion. The study questioned 2000 executives worldwide and found that close to 30 per cent of banks are already exploring cognitive initiatives. This is expected to become prevalent across the industry by 2018, claims the vendor, with almost two-thirds of banks in developed markets expected to deploy cognitive technology in the next two years.

Sergio Ermotti, group chief executive of UBS, joined a subsequent panel debate on this

"The industry is being asked to invest significant amounts of money and time into functionality for which there is not yet a firm business case"

Pascal Augé, Societe Generale



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Central banks must innovate to stay relevant

By Heather McKenzie

If central banks want to retain a large share of payments in central bank money, they must innovate, said Andrew Hauser, executive director for banking, payments and financial resilience, Bank of England (BOE).

Speaking during the *Towards a single platform for all payments* session, he said BOE consultation on a refresh of its real time gross settlement (RTGS) system suggested that users would migrate to other platforms if the Bank failed to innovate. He said this phenomenon is referred to as the 'Uberisation of central banks'. Uber is a mobile app that enables smartphone users to submit trip requests and automatically sends the driver nearest to the consumer. It has been much used in Geneva this week by Sibos delegates keen to avoid the high charges of the standard taxi service.

"We have to be very alert to this. If we don't innovate we could impede innovation elsewhere," he said. "Innovation can help to improve financial

stability – how stable are ancient legacy systems? The more robust and modern systems that can be delivered by innovation will be good for stability."

Any new RTGS system will have to take into account changing technologies and adopt those that are mature enough, he added.

Fellow panellist Marc Bayle de Jessé, director general, directorate general market infrastructure and payments at the European Central Bank (ECB) agreed. "As a central bank we must remember that our role is to provide a resilient and safe infrastructure that supports the development of our economies. We favour innovation in our economies and we need to make our economies welcoming environments for new, innovative technologies."

A significant challenge when innovating, and with IT in general, is maintaining availability, said Miguel Díaz Díaz, director of payment systems at Banco de México. Availability is particularly

"We have to be very alert to the 'Uberisation' of central banks – if we don't innovate users will migrate to other platforms"

important for Mexico, because most payments run along a single RTGS pipe. "A single platform gives efficiency of payments flows but there are also very important risks," he said. "If there is a problem with the pipe, there is a problem with all economic activity in Mexico."

For this reason, the bank had to be particularly aware of cyber threats (a ubiquitous theme at Sibos) because "when you allow everything to pass through the same tube, it becomes very important to defend against attacks." He added that a system is only as strong as its weakest link and therefore the bank not only makes sure that its defences against cyber attack are strong, but also that all participants in the payments

system have adequate defences.

BOE's Hauser introduced delegates to the concept of the 'chaos monkey', developed by Netflix. Chaos Monkey is a software tool that was developed by Netflix engineers to test the resiliency and recoverability of their Amazon Web Services. He said the tool helped to ensure that software was written to be very fault tolerant as the Chaos Monkey randomly goes through systems turning off switches at random.

A year ago at Sibos, said Hauser, panellists spoke about new infrastructures and the positive aspects of new technology. The focus this year, he said, was more about the potential threats those innovative technologies pose.

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topic, which was moderated by Dean Garfield, president of the US Information Technology Industry Council lobby group. Ermotti urged delegates to embrace cognitive technology. "We shouldn't be afraid of it," he said, pointing out that the threat from new fintech entrants and regulations are key drivers. He advocated the creation of "super back offices".

"We, as an industry, have legacy systems that cannot keep up with the rising amount of transactions and new regulations," said Ermotti, who estimated there were 40,000 alerts or changes of regulation a year at present. "No matter how good you are, you cannot catch up with that demand – you need help." AI automation and other such cognitive technology should help and also reduce errors as volumes grow. "Without AI you won't be able to keep up."

The biggest risk is no longer market or credit risk, he said, but operational risk, which includes cyber risk. Again, AI can help with battling hackers; it's not just helpdesk chat bots and automated

customer service assistance that will be the typical banking end uses.

Cost reduction is a crucial driver for Ermotti. "We all know there are few banks at the moment that can pay for their cost of capital," he said, in anticipation that cognitive solutions can help with this by increasing automation and efficiency.

The changing workplace and increasing adoption of these technologies will inevitably mean job losses, but IBM's Rometty argued it wasn't a case of "man vs machine", but rather "man and machine", adding that new jobs will be created "that we've never even thought of yet".

Ermotti admitted "some jobs will be eliminated" and that "there will be a transition phase" but he argued that it "was critical for us to embrace these new technologies to create a decent return for shareholders. Lastly, but not least of course, it will also create more interesting jobs."

'People-centric' Palestine Bank debuts

By Tanya Andreasyan

Bank of Palestine debuted at Sibos this year with a colourful booth and much interest from Sibos delegates. "We have been attending Sibos for many years as delegates and as our delegation grew from two or three people to bigger numbers, we decided to have a stand," said Hashim Shawa, chairman and general manager of Bank of Palestine.

Sibos is a great place to meet industry peers, partners and vendors, all under one roof – Shawa said – but even more importantly, it is a place to gather and exchange ideas, innovation and best practices.

When you see other banks trying new things it teaches you not to be afraid of innovation, he added.

"I love food and cooking. When I go to market I love picking up many different ingredients and food from all over. The same here – we collect all these ingredients and put them in the 'mix' in our 'kitchen', the bank." This influences the bank's business strategy and investment decisions.

Bank of Palestine is the fastest growing bank in the Middle East, with total assets now standing at \$4.1 billion, 70 branches and 10,000 POS machines across Palestine. It has also recently opened a location in the Dubai Financial Centre and will open a representative office in Santiago, Chile, becoming the first Middle Eastern bank to have direct presence in Latin America.

The bank is also involved in fintech and "has invested in technology dramatically", Shawa said. Five years ago, it set up a payments offshoot, PalPay (not to be confused with PayPal!), which it now plans to take to other emerging markets.

The solution enables the bank's POS terminals to be used as a fully-fledged payment outlet. Consumers make a broad variety of payments, including utility bills, school fees etc, using their cards. Shawa



emphasises that this service is not just for Bank of Palestine's customers, but is open to any individual.

"When you focus on customers only, you just see the leaves on the trees and you miss the whole forest," Shawa said. "We looked at the bigger picture."

The bank worked with software developers and also stakeholders such as government entities, education establishments and utility companies to bring to market a solution that would be "socially responsive". Many people in Palestine do not have bank accounts and many of them are women. Not everyone has access to mobile banking. And there are still many people who are not financially literate. PalPay aims to provide a genuinely useful service to these people, Shawa emphasised, in order to drive financial inclusion.

"We want to be people-centric, not customer-centric."

Blockchain and DLT a slow burn for CSDs

By Antony Peyton

Blockchain innovation for central securities depositories (CSDs) is a slow burn and one that can divide opinion. During the *Innovation in CSD space: What about distributed ledger technology?* session yesterday, some panellists argued that the technology would hail the end of CSDs while others said there would be no revolution, just a "natural evolution" of what exists.

"DLT is the Pokémon Go of finserv," was how the moderator, Virginie O'Shea, research director at Aite Group, put it. The panel may not have agreed, but they did recognise DLT's use.

For Robert Palatnick, managing director and chief technology architect at the Depository Trust and Clearing Corp, increasing regulation, legacy systems and

costs pressures, are drivers for CSDs to at least embrace some aspects of blockchain.

Cliff Richards, general manager, equity post-trade services at the Australian Stock Exchange said "any change has risk but our eyes are wide open".

As is often the case with blockchain, panel members said there was "uncertainty" over its use, but Angus Scott, head of product strategy and innovation, Euroclear, added that people should try out their ideas or "we'll be talking about this for the next six years".

A specific use case was forthcoming as Artem Duvanov, director of innovations at Russia's National Settlement Depository, said the CSD is using DLT for proxy voting, because it doesn't need "huge performance".

In a pragmatic fashion he said if proxy voting goes wrong, the CSD can forget about it and "do it better" on another platform.

The message from the CSDs was that they are open to innovation with blockchain, but will test it out in safe places first. As Scott said: "We are at the very early stage of an evolution."

A poll of the audience revealed that 34 per cent of delegates thought DLT should always be private in the securities market (rather than public). The audience was also asked whether it was too early for DLT standards to be established, which could negatively affect the development of the technology. The vote was close – 45 per cent said yes, 47 per cent no and 8 per cent didn't know.

Blockchain: be ready to 'fail fast and fail cheap'

By Neil Ainger

Correspondent bankers have been advised to "fail fast and fail cheap" when it comes to blockchain technology. During the *Blockchain and correspondent banking – The way to go?* session yesterday, a panel explored the possible use cases and barriers to adoption of blockchain technology – one of the most talked about technologies at this year's event.

Mark Buitenhak, global head of transaction services at ING (and the man who recommended fast failure) said: "We experiment with fintech firms and new applications in this field all the time." The Dutch bank is a member of the R3 consortium and has been working on know your customer (KYC) projects. It is also working with the Dutch Government on a digital identity project.

Jon Lloyd, managing director of treasury services, Emea at JP Morgan, talked about a project his bank has piloted to move money between its London and New York offices using distributed ledger technology (DLT). He also cited UBS' Utility Settlement Coin (USC) as an interesting digital cash equivalent project that isn't a completely decentralised crypto-currency like bitcoin – no doubt to the pleasure of Alex Batlin, innovation manager at UBS' FinTech Innovation Lab, who was also a member of the panel.

"Trade finance and cross-border payments are natural end uses of blockchain," said Batlin. Other "low hanging fruits" identified by James Wallis, vice-president of payments and blockchain at IBM, were a variety of reconciliation end uses. "We also went live three weeks ago on what we believe is the first enterprise hyperledger project in the world," he added. "It's for dispute resolution between us and business partners

covering about \$100 million every day. It's released about \$50 million in working capital for us each day."

There are still many barriers to adoption, however, including fears about settlement finality if there is not one single entity in charge of the blockchain. Also, there are concerns about the wisdom or otherwise of using a public blockchain and about cyber risks. The panellists also voiced concerns that if a permitted or trusted consortium model is followed, it must be connected to other such value chains to ensure the technology still offers simplicity, cheaper operating costs and the other expected benefits.

The moderator of the Sibos session, Gideon Greenspan, founder of MultiChain, an open source private blockchain platform, also referred to an attack that drained \$60 million out of The Decentralized Autonomous Organization (DAO), a project built on the Ethereum blockchain, this year. It was targeted by cyber criminals, "which was unfortunate for investors", said Greenspan "but useful in terms of learning lessons."

The lack of standards was a concern too. "That is why permitted blockchains are preferable as there is more opportunity for rules and standards and to effectively get a central clearing house," said Mark McNulty, global head of FI payments and clearing, Citi.

The session came to an end with a live poll vote asking audience members to vote again, as they did at the beginning, on whether the blockchain in correspondent banking will be: revolutionary (19 per cent vs 26 per cent initially); evolutionary (61 per cent vs 50 per cent initially); not sure (14 per cent vs 20 per cent initially); useless (6 per cent vs 4 per cent initially).

Collaboration will energise ISO 20022

By Antony Peyton

To drive ISO 20022 adoption, the industry is calling for collaboration and for those with the 'right stuff' to lead the way. A panel yesterday, *ISO 20022 market practice developments*, gave a global view of the status of ISO 20022 in the payments and securities markets.

Gerard Smith, director collateral services at LCH.Clearnet, said the ISO 20022 standards were easy to adopt because they reduce costs. They provide a simple message flow and have "worked well for a couple of years". Smith also said LCH was leading the way and wanted others to follow its example.

The view from Australia was equally appreciative of the ISO 20022 standards. Karen Webb, manager, equity post-trade services at the Australian Stock Exchange (ASX), said the exchange would adopt the standard as "we really liked the options it gives us". The ASX did look at other options around the world, but Swift won this battle.

Representing the US, Gina Russo, assistant vice-president, payment product management at the Federal Reserve Bank of New York, focused on high value payments and discussed the High Value Payments Plus (HVP+) group. The group was formed by Swift and major global banks and market infrastructures to address evolving market needs in high value payments.

To date the group has met once, but will meet next week to discuss the implementation of ISO 20022 standards. "If people do things their own way we will end up moving away from a common standard. We need to collaborate and there is a lot of work to do," said Russo.

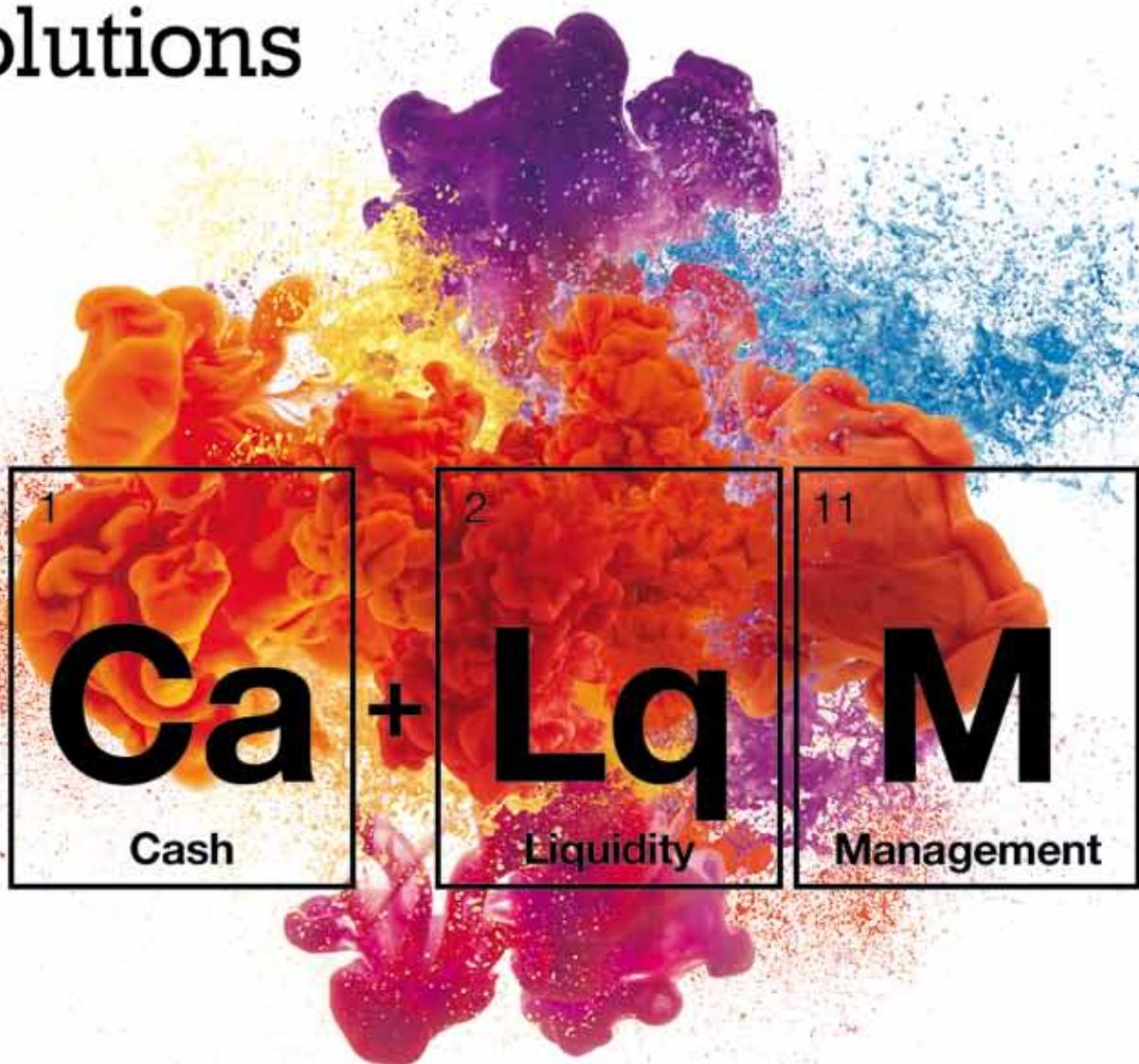
The Fed is implementing ISO 20022 in phases and is in the first stage of implementing payments clearing and settlement messages and cash management messages. This should be complete by the fourth quarter of 2016 or the first quarter of 2017.

David Renault, head of Step2 services at EBA Clearing, said instant payments should be live in 2017. Expressing a common theme from Sibos, Renault said instant payments would become the "new normal". Whether it's a pension or salary, he said the payment would be made in milliseconds as users would expect that.

Whatever the industry, it seems customer demand is the driver.

Meanwhile, a formal signing ceremony of the ISO 20022 Harmonisation Charter was conducted yesterday. The Charter was first published during Sibos 2015 in Singapore by Swift and a number of key market infrastructures. Since then more than 20 market infrastructures have endorsed the charter, confirming their intention to apply its best practice principles in their adoption projects. Those signing yesterday were: LCH.Clearnet, National Bank of Ukraine, VPS Norway, Poland's KDPW and Kir, Hong Kong Exchange, Central Bank of Kosovo and Austria's OEKB.

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Digitising Azerbaijan

The International Bank of Azerbaijan has partnered with Backbase to implement its omnichannel digital banking platform. With the platform, the bank will be able to provide its products and services to customers through multiple channels synchronously, creating a single multimodal touch point.

The contract was signed yesterday onsite at Sibos at Backbone's booth, between Jouk Pleiter, chief executive and co-founder of Backbase (pictured on the right) and Ulvi Mansurov, deputy chairman of the board and chief financial officer, International Bank of Azerbaijan.

This is Backbase's first client in Azerbaijan. The vendor has a growing presence in the Central and Eastern European region and has clients such as Altyn-i in Kazakhstan and Sberbank in Russia.

Sberbank goes blockchain with Hyperledger Project

By Antony Peyton



Sberbank and the Linux Foundation have entered into an agreement on the bank's participation in the Hyperledger Project.

The deal was signed at Sibos and Lev Khasis, first deputy chairman of the executive board of Sberbank, (*pictured left*) said the new development with Hyperledger, and its open source platform based on blockchain, offered "access to international expertise and cutting-edge blockchain developments".

He told *Daily News at Sibos* that the bank will not use blockchain for just one item. It sees many opportunities for the technology within fintech and outside of fintech (such as real estate). He expects in the next 12 months that one use case will go live.

Sberbank will have a 'dedicated team' of developers working with Hyperledger. The bank has 9000 developers in total, but not all of these will be working on blockchain.

Hyperledger was established in December 2015 by the Linux Foundation – a non-profit consortium. Members of the project include Deutsche Boerse, LSE, IBM, Cisco and Intel. Financial institutions that have joined Hyperledger include ABN Amro, Australia and New Zealand Banking Group, BNP Paribas, BNY Mellon, Moscow Exchange, Wells Fargo and Swift.

Hyperledger offers access to international expertise and cutting edge blockchain developments for Sberbank

Ericsson rolls out mobile remittance in emerging markets

By Tanya Andreasyan

Ericsson has joined forces with HomeSend, a joint venture between Mastercard, eServGlobal and Bics that focuses on mobile money remittances in emerging markets. Ericsson's digital wallet, Ericsson Wallet Platform, is now HomeSend Certified. The product has access to HomeSend's network of money transfer operators, cash agents and banks in more than 200 countries.

Peter Heuman, global head of mobile financial services, Ericsson, said the company was on an "inclusion and expansion" mission.

The partnership offers financial services providers "a low-cost, simple and fast way to connect the HomeSend global money transfer hub with Ericsson's mobile money offering", Heuman said. Instead of multiple technical contract connections, the takers will need just one.

"This represents a major advance in helping to grow mobile financial services ecosystems, whilst supporting financial inclusion."

The digital wallet can be used on smartphones, as well as older mobile phones.



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Innotribe plots rise of new fintech hubs

By Heather McKenzie

A decade ago, cities fought to be financial hubs; today they fight to be financial technology (fintech) hubs. While London, New York and Silicon Valley claim strong status as fintech hubs, Sibos has proved that there are plenty of emergent centres snapping at their heels.

Innotribe's Startup Challenge, which brings fintech companies to the attention of Swift members, has been considerably expanded since it was launched in 2011. This year delegates saw presentations from Challenge winners in Africa, Latin America and Asia Pacific. Next year Innotribe will launch a Startup Challenge for Russia.

"Since 2011, a plethora of similar startup 'competitions' and fintech accelerators have launched, meaning the time was appropriate to evaluate 'where to go next?' with the Challenge in order to make it still relevant and impactful in today's world," said Fabian Vandenreyd, global head of securities markets, Innotribe and the Swift Institute. "After Sibos last year, we decided to develop the Challenge from a global competition to a local programme focused on supporting emerging fintech ecosystems where demographic trends, economic growth and integration initiatives are creating fertile ground for new technologies to emerge."

For example, for the past two years, Innotribe has partnered with Swift's Africa Regional Conference to tap into the high potential African start up market (*see below*). Africa has a healthy fintech landscape and at law firm Hogan Lovells' Africa Forum in London earlier this year, delegates heard that fintech is not a new concept in the region. Suzanne Prosser, group general counsel at MicroEnsure, a developer of emerging markets insurance products, said: "Innovation is part of the DNA of Africa." Mobile payments technology was embraced by African consumers well before it gained traction in more developed economies, for example. One of the most high-profile examples

of fintech disruption in Africa is M-Pesa, a mobile money transfer service. Originally designed to address financial inclusion, at least 40 per cent of Kenya's GDP now flows through the M-Pesa system, said Edward George, head of group research at pan-African bank Ecobank.

There are "endless start-ups" investigating the application of technology to address unbanked people in the region, said George. Companies that are using disruptive technologies such as blockchain are forging ahead in financial services in Africa and "unless banks get their heads around this" they could lose around one third of their business in the region during the next five years.

Next up on the Innotribe Startup Challenge starting blocks is Russia, which will gain its own Challenge next year. Vandenreyd said the reasons for this are twofold: "First, the Swift community in Russia has asked Innotribe to help foster collaboration between financial institutions and fintechs; second, we feel that the Russian fintech ecosystem has the right ingredients to become a strong global fintech player." He believes the Russia Startup Challenge is also "a natural progression for the initiative" and goes back to the roots of why the challenge was first created – to build bridges between the fintech and financial services communities. "The challenge will enable Innotribe to connect the Swift community in Russia and the Commonwealth of Independent States with innovative fintechs, which will also be core to the economic development of the region."

An array of exciting fintechs are emerging from the region, he said, including a significant number of payments, lending, personal financial management and blockchain-related startups. "By engaging with Russian fintech, Innotribe will gain a greater understanding of local innovation in Russia and share those insights with the wider Swift community," he added.

Lev Khasis, chief operating officer and first deputy chief executive of Sberbank, told *Daily News at Sibos* that many Russian banks began innovative fintech developments in the early days of the internet era, unburdened by the significant legacy IT investments that Western financial institutions faced.

"There are quite a few banks in Russia that may be considered state of the art in technology and innovation. Sberbank probably was the only Russian bank facing legacy issues and a massive non-digital infrastructure. During the past eight years we have been catching up, aggressively investing in technology and building up digital banking," he said.

An attitude of 'mobile first' was in the technology DNA of Russia since the beginning of the internet and mobile era, he said, and is one reason Russia is one of the most "internet addicted" countries in Europe.

Africa day at Innotribe

African startups "are leapfrogging" in terms of their progress and are not hampered because "they don't have legacy systems", said Denis Kruger, regional account manager Africa south at Swift, writes Antony Peyton.

The three Africa Startup challenge winners presented their solutions to the Innotribe audience.

For Cedric Atangana, chief executive of WeCashUp, a universal mobile money API, a personal experience drove him, after his father fell ill and a frantic search ensued for money for hospital fees, leading to questions about the current state of transferring cash.

Abraham Cambridge, founder of The Sun Exchange, wants to "close the finance gap for clean energy projects", by offering lending for such projects in South Africa.

Ahmed Cassim, chief commercial officer at Hello Paisa said his money transfer solution is targeted at the migrant community in South Africa, where there is no formal or legal way to send money home "and so they used illegal means fraught with problems".

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CROSSING THE NEXT FRONTIER

There has been a huge amount of hype at this year's Sibos about financial technology and its role in financial services. *Devie Mohan** looks at the technologies that will help financial institutions cross the next frontier of innovation



The world of financial technology has seen a clear and significant shift in the past year – the focus of innovation has moved from pure technology to information and learning. Platforms around payments, lending and advisory have reached a certain level of maturity. Now, the attention of banks, investors and the financial technology industry has shifted to use cases around emerging technologies that build on and learn from all available data and information.

Cognitive computing

Financial services firms globally are experimenting with cognitive systems, applying them to the vast amount of unstructured data they hold in order to identify potential use cases that will have immediate impact. Whether it is data from industry research, advisory reports, news, product brochures, terms documents, stock information or customer transaction data, these tools can be deployed to help provide a better and more efficient customer service. Firms are increasingly aware of the potential of cognitive computing technologies to increase engagement with the customer, thus improving customer experience and loyalty. Personalised engagement, >>





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intelligent targeting and marketing and advisory around personality traits are some of the areas where these technologies are beginning to be applied.

Artificial intelligence techniques including machine learning and neural networks have several applied use cases today, especially around security optimisation, risk management and fraud detection. Financial technology firms such as Feedzai and BillGuard use big data mining and machine learning to detect fraud and risky customers in a much more efficient manner than any traditional method used in banks. Machine learning is being used for image and voice recognition to improve authentication accuracy. However, the vast majority of banking use cases for artificial intelligence is focused on customer support. 'Chat bots' and deep insights are used to deliver a human-like, conversational customer experience with quick and easy access to relevant information.

Predictive analytics

If last year was the year of big data, this year all activities for banks are centred on getting the best out of the now available data infrastructure. They are using analytics, especially predictive analytics, to improve their understanding of customer behaviour. A recent report from Aberdeen Group found

that firms using predictive analytics tools experienced an 11 per cent increase in customer acquisition numbers (compared to 8 per cent for those not using them) and an 8 per cent increase in cross-sell revenues (compared to 3 per cent for those not using them).

Almost all banks globally are using predictive analytics techniques across their product portfolio. Citi has used predictive analytics tools as part of its treasury management portal and several banks including Commerzbank, HSBC, Bank of America and BNP Paribas have used it to handle cash forecasting. Although corporate banking products such as cash, trade finance and supply chain finance have been popular with predictive experimentation so far, several innovations are being applied in consumer banking and insurance, for example, to handle peer to peer lending,

automated investing and customer underwriting and risk management.

Biometrics

Authentication and know your customer requirements have remained two of the biggest challenges for banks. Many banks are working closely with financial technology firms to explore solutions that offer both accuracy and automated efficiency. Facial recognition, fingerprints, finger vein patterns and iris recognition are some of the most commonly used biometric inputs in branch and cash machine banking. Several banks such as Wells Fargo are experimenting with voice recognition and multi-factor authentication methods to improve online and phone banking security.

One of the most important areas of future development in this space is expected to be around wearables, with



Citi has used predictive analytics tools as part of its treasury management portal and several banks including Commerzbank, HSBC, Bank of America and BNP Paribas have used it to handle cash forecasting

banks including Halifax and TD Bank experimenting with heartbeat-based online authentication, which is considered more reliable than fingerprinting.

Robotics

The obvious application for robots in banking is around automating repetitive manual tasks, especially in customer-facing functions. Software robots can help provide a human-like interface between different systems in a process, or to bring together disparate data sources, with minimal intrusion and increased accuracy. For example, according to Acca Global (Association of Chartered Certified Accountants, the global body for professional accountants), Barclays Bank's work with robotic automation software resulted in a £175 million annual reduction of bad debts.

Bank of Tokyo-Mitsubishi UFJ and the Bank of Taiwan have launched robot tellers that can learn, adapt and respond to customers' branch banking queries. Apart from these physical robots, virtual robots or bots are widespread in the banking industry today, handling everything from personal finances and payment of bills through to money transfer and IT support. Most banks have experienced tremendous impact from this automation;

for example, Swedbank's robotic assistant achieved 78 per cent first contact resolution in its first three months of operation.

Augmented reality and internet of things

When Commonwealth Bank of Australia experimented with augmented reality-based property search apps in 2010, it was perhaps the first step towards the digital revolution seamlessly collaborating with the physical world and its senses. Any product that has a physical presence can be digitalised using augmented reality. Such technology can be applied to corporate banking challenges around collateral and inventory management and insurance claims processing. It also can be applied to consumer banking challenges around personal insurance, health sensors, credit cards and retail shop rewards, for example.

Combined with the big data initiatives most banks have taken on, there is tremendous potential for internet of things to connect all payments or sensory devices to a bank's data networks. Risk management and security remain two areas of concern and there is considerable research and development in these spaces to help find sustainable solutions that work across both urban and rural banking customer groups.

Use cases for emerging technologies

These emerging technologies are being applied in three main areas of banking: customer and IT support, marketing automation and fraud anomaly detection.

Whether it is about humans and machines working together or machines replacing humans in certain tasks, all of the use cases around these emerging technologies are focused on deriving huge efficiencies in terms of human and physical resources.

Quantum computing is another technology being used to achieve vastly improved efficiencies by banks across all groups.

It is clear that with the help of these technologies, both humans and machines will learn, adapt and grow with each other, thus driving the speed of innovation further. With most global banks experimenting actively with new technologies and desiring to be ahead of the innovation curve with these tools, financial technology has crossed over to a new dimension where back-end use cases driven by customer experience, accuracy, security and sustainability of costs have taken over from user interface or user experience improvements and front-end platforms. [DNS](#)

* Mohan Devie is a financial technology industry advisor and analyst based in London

Financial regulators globally are putting pressure on financial institutions to move to real-time solutions in both retail and wholesale banking. Advances in technology and a desire by regulators to reduce risks in the financial system are driving the trend. *Heather McKenzie* reports

Discussions about real time technology and solutions span the banking world at this year's Sibos. While great excitement surrounds advanced technologies such as distributed ledger and artificial intelligence, real-time solutions are being rolled out on an almost daily basis across financial institutions. It is testament to the advances made in the real time environment that it is considered no longer a 'hot topic'.

In wholesale banking the focus of real time is on liquidity management and monitoring. The Basel Committee on Banking Supervision (BCBS) required financial institutions to implement a set of monitoring tools which focus on intraday liquidity monitoring and reporting. Banks now have to pull together the necessary data so supervisors will be able to monitor their intraday liquidity risk and their ability to meet payment and settlement obligations on a timely basis under normal and stressed conditions.

The last financial crisis highlighted well documented weaknesses in liquidity management across the global financial network, says Adam Raw, head of financial institution and global corporate propositions at Lloyds Bank Global Transaction Banking. "Real-time liquidity reporting should however be seen as distinct but in support of the Basel III requirements. When you look at the BCBS Liquidity Monitoring Tools content, the reporting itself is clearly a real means of evidencing to regulators and supervisory bodies that financial institutions are indeed actively managing their intraday positions." The generation of these can be captured only with real time transaction level data and by having a robust intraday management system. Any



hicups in the regular flow of settlement and funding will be spotted early, he adds.

Banks do not have a choice when it comes to real-time liquidity monitoring and management, says Emmanuel de Board, global head of cash clearing services at Societe Generale Global Transaction Banking. "Increasingly, banks have to monitor liquidity because they have to report their liquidity positions to financial regulators. Financial regulators will require banks to cover any gaps in liquidity – with collateral or buffers – in order to reduce risk. Because this is costly, banks are monitoring liquidity on a real-time basis in order to ensure their liquidity requirements are kept at a minimum. For example, rather than making all payments at a certain time of day, banks can monitor payments so that those that can be deferred are paid later in the day and liquidity requirements are reduced."

Jean-François Mazure, the bank's incoming global head of cash clearing services (de Board

retires this month) adds: "The pressure from financial regulators on banks to introduce real-time payments does not reflect a requirement among corporate treasury clients. For this sector, security is the paramount concern, rather than speed of payment. My belief is that regulators are interested in encouraging banks to move to modern and efficient technology systems without considering the business case."

Dennis Sweeney, head of liquidity and capital management at Societe Generale says whether it is liquidity as it relates to business operations in the wholesale markets or to the provision of funds to customers, its monitoring and management is becoming more important in the banking world. "A decade ago, the provision of liquidity was relationship-based; there was an understanding that if a client did not have funds for payment, credit limits would be extended and it would all work out in the end. Today, the world is much more



buttoned-down and as a result of de-risking banks are reluctant to deal with liquidity in the same way."

Structural reform, such as the ring-fencing proposals in the UK will put additional strain on liquidity as bank groups are broken up into smaller entities. These smaller banks will not have a central point of liquidity from which to draw. "The correspondent banking industry is in a state of transition. We have universal regulations on liquidity monitoring and reporting that are interpreted very differently across countries. There is no standard set of regulations to govern this area. International banks have to deal with each country individually."

Many Russian banks are participants of the Bank of Russia's urgent electronic bank payment system, which involves the necessity to manage liquidity in the real-time mode, says Lev Khasis, COO of Sberbank. "According to the information we have, the Bank of Russia

is planning to implement additional services within the framework of creating a prospective payment system, and these services are expected to increase the share of payments processed in the real-time mode or a mode close to it. This, in turn, will make more and more banks shift towards managing liquidity in the real-time mode."

A shift towards real-time liquidity management may cut the volume of liquidity that banks need to effect payments within one day, he adds. "Meanwhile, this shift means higher requirements for the quality and degree of automation of the intraday liquidity management process, as well as requirements for the reliability of banks' settlement systems." At present, there is no shortage of liquidity for corporate clients, says Khasis. Quite a high rouble rate, supported by the Bank of Russia, is not boosting demand for liquidity from such clients. If the rate goes down, he says, lending may start growing, and, consequently, demand for liquidity will increase.

Nick Noble, product management, SmartStream, says the financial industry is "looking to reach the next level of intelligence and efficiency" for the liquidity management model. Current models, he says, do not take into account behavioural patterns or significant market events. This is where technologies such as artificial intelligence will come in. "This technology gives us the opportunity to provide a next level of cash liquidity management to clients. We are working on establishing use cases implementing this type of technology" >>



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as a way of embedding elements into existing platforms. It will enable clients to look at previous trending data based on seasonal events, bank holidays etc. They can get a feel of the volumes and payments and receive an activity risk weighting that can be adjusted. An algo can learn as it goes along and therefore forecasts will improve over time."

The more accurate a financial institution can be in assessing its liquidity requirements, the less surplus cash it will have at the end of the day. This, says Noble, will reduce the reliance on credit lines and expense of overdraft fees. "Banks can save tens of millions of dollars per year by improving their liquidity forecasting. This is also an important theme of regulators, which are asking banks to better manage and predict their liquidity requirements."

In real-time payments, there is much less need for liquidity monitoring. The vast majority of real-time payments are person to person, domestic transactions. These are generally low-value and the liquidity to manage such payments is almost non-existent because in a real-time system the transaction is immediately settled at the central bank or is pre-funded. In a real-time payments system, liquidity is brought into the transaction when the payment is made. Because there is no liquidity shortfall there is no need to report on it, which relieves banks of a significant burden, although they will always ensure that they are safe and there is no liquidity gap.



"The industry is being asked to invest significant amounts of money and time into functionality for which there is not yet a firm business case"

Pascal Augé, Société Générale

With the advent of real-time payment systems, the industry is moving away from the traditional end of day settlement process to repeat intraday cycles, says Raw. "In UK Faster Payments the deferred net settlement process runs three times daily and it is imperative that this scheduling becomes part of an active intraday monitoring cycle, by anticipating and preparing any funding requirements in advance of each settlement. Each UK participant is responsible for setting its own net sender settlement cap and in our experience routinely review and flex it to ensure it is sufficient for their needs. Ideally it should always cover the largest expected debit position of any cycle, so it requires active management to ensure it is sufficient for Faster Payment Service flows."

Real time in retail payments

Earlier this year, EBA Clearing made available the specifications for its future pan-European instant payment solution scheduled to go live in November 2017. Its goal is to deliver a liquidity-efficient, pan-European instant payment service, compliant with the European Payments Council's SCT Inst scheme, which is based on the Sepa credit transfer.

There are some hurdles to overcome, including the definition of how fast a fast payment is (the time differs among countries), says Pascal Augé, head of global transaction and payment services, Société Générale. For example, there is discrepancy between what the industry can deliver and the expectations of regulators. "The industry is being asked to invest significant amounts of money and time into functionality for which there is not yet a firm business case. At present, banks are trying to understand what type of commercial offerings they can put in place that will balance the investment that has to be made in real-time capabilities. It is difficult to see that a return on investment will be possible."

Matthew Williamson, global head of payments at Misys, says the success of real-time payments systems will come down to the success of end to end, non-functional requirements. "In processing you can make the delivery very fast and implement a 15 second response time, but if you also have to do postings, sanctions watch list checks etc in the same workflow, it becomes challenging," he says. "Each of these has real-time characteristics, but with batch processing in many banks, they must think about potential pinch points. As the value of the transactions that flow over these systems grows, we can expect to see the higher value systems transferring to these channels, which are free."

Financial institutions will have to make architectural changes to meet the most challenging performance requirements. "For example, memory-based systems may be required but it will be a while before the larger banks look at re-architecting. As with everything, there will be a tipping point but it isn't like Sepa where regulators were mandating change. Banks will need to make internal business cases for transformation."

Richard Chapman, head of strategy, FIS reconciliation solutions, says "true real time" implies 100 per cent availability with a central infrastructure operating 24x7. "Reality translates this into a more realistic, but still daunting (for some players) commitment to 99.995 per cent uptime, or under 30 minutes downtime per year. This means that an annual 30-minute software upgrade would invalidate the service level agreement."

Chapman says the march toward the instant gratification of immediate payments looks set to continue. "Instant surely is the new norm. But speed is not the sole driver at play, the ability to innovate on top of instant payments in a contextual environment is 'the killer app' for banks." **DNS**



RETHINKING SYSTEMS FOR A REAL TIME WORLD



Open application programming interface (API) banking and immediate payments are a perfect storm for new banking, according to FIS. Established payment systems do not work in the way most consumers and businesses expect in a digital, mobile, real time world.

Consumers expect instant gratification; digital money should act more like physical cash in terms of speed and ease than a funds transfer. Banks will have to rethink their roles in order to serve their customers in this environment, bearing in mind that customer loyalty is a thing of the past; if banks do not develop the services customers want, those customers will go elsewhere.

During yesterday's Open Theatre session, *Flavours of fast – Immediate payments & open API banking: The perfect storm*, FIS explained how banks might approach an 'always on' payments environment. "In an open API environment, customer expectations will be quite different," said Warren Gardiner, vice-president strategy, enterprise payments at FIS. "Banks used to talk about 99.95 per cent availability; now it is 99.999 per cent. But in a 24-hour world, even that won't be enough."

What does this mean for banks' infrastructures? Banks can approach this from a legacy point of view or can use the changing requirements as a reason to reassess systems. Real time payments

will mean a significant increase in hits on banks systems and every transaction that comes in must be validated, requiring other systems to be interrogated. One bank FIS was advising calculated that migration from batch to real-time payments processing could require tens of millions of dollars extra to be spent on support of those payments.

"Banks need to think about how they can deploy systems that will allow them not to have to spend that sort of money and also to take the load off systems," he said.

Richard Chapman, vice-president and functional head of reconciliations at FIS, said in searching online about the benefits of faster payments and API banking one group was conspicuous by its absence: banks. "We have heard a lot at Sibos about how banks have to adapt to the new world and create new revenue streams for their business," he said.

There was an underlying theme to the Sibos hot topics of blockchain, open APIs and faster payments, he said, and that was the transfer of data into and out of a bank. "The services banks deliver in the future will all be around data. To do that, you need to have confidence in your data."

In a real time payments world, banks need platforms that will enable them to validate, enrich, collate and report on data in a focused manner. "Faster payments delivers the capability to provide supplementary data and open APIs enable banks to collect

information more seamlessly. Combining these innovations on a powerful framework based on new technologies such as machine learning, will enable banks to deliver new solutions."

These solutions will form the basis of new revenue-generating streams. Chapman mentioned a few, such as the concept of delivering payments messages with invoicing details and collecting information from other banks in order to aggregate it and provide a holistic service to customers so they know their positions across all of their banks. "Banks can create efficiencies for customers using the same data that is collected, validated and enriched on the same platform."

FIS reminded delegates that in the instant world, you need to provide context in order to drive revenues, reduce costs and increase efficiency. Faster payments without data or context is just less slow payments; open APIs without context or data is confusion.

Andy Schmidt, senior analyst at CEB Towergroup, reminded the audience that customer loyalty among corporates is a thing of the past. The share of the corporate wallet is being spread across many more banks. While relationships remain important to corporates, being able to deliver innovative products and services to meet their needs – and that will evolve with them – also matters.



MEETING HACKERS HEAD-ON

Online hacks are rapidly replacing the bank heists of old. With banks increasingly at risk, early threat detection is imperative. *Eleonore Fournier-Tombs** explains how banks can protect themselves

In a climactic conclusion to an insider threat story that has been developing since 2015, Morgan Stanley agreed to pay a fine of \$1 million to the US Securities and Exchange Commission (SEC) in June this year for failing to protect private customer data.

The leak in question took place between 2011 and 2014, as a former Morgan Stanley employee, Galen Marsh, downloaded the bank's client information onto his personal computer using a very simple hack of the client data management system. His personal computer was then allegedly

accessed by an unknown third-party hacker who posted the information on the public code sharing site, Pastebin.

Morgan Stanley itself discovered the breach during a security sweep on Pastebin and traced the information back to Marsh, whose employment was terminated. He was subsequently criminally charged and fined in 2015.

Early threat detection

Marsh conducted at least 6000 searches on the client management system to download 730,000 customer account details. These queries were built by entering Morgan

>>

Stanley Smith Barney (MSSB) branch identifiers, to which he had access and then entering different financial advisory numbers until he obtained the correct combination. The information was then downloaded to his personal computer, rather than a Morgan Stanley issued machine.

Let's break down the scenario in which Marsh was apprehended the first time that he downloaded client data onto his personal computer. This happened in 2011. Marsh had been working at Morgan Stanley since 2008 and was familiar with the organisation's client management system.

He was presumably downloading data from an account on which he was working, when he realised that he was able to change the filters on the system. Perhaps he did this at work and waited until he was at home to log-in again from his personal computer. After this discovery, he took actions that would have raised the following flags in an alert system.

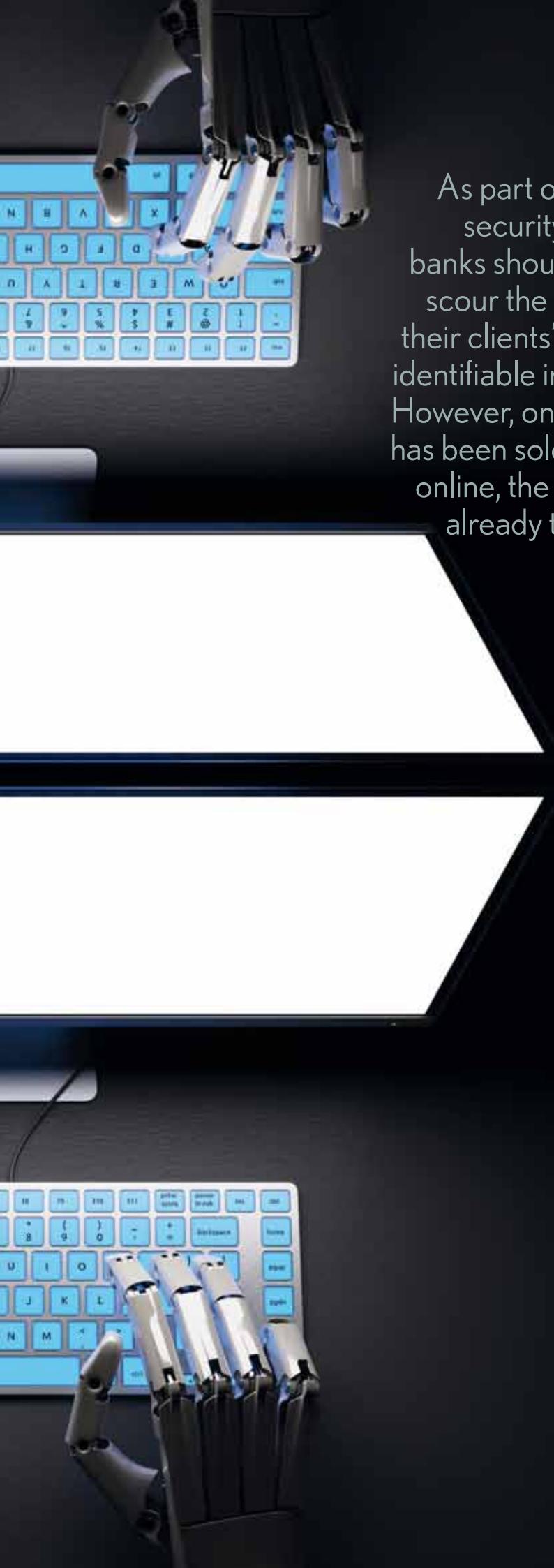
- Logged in from a personal computer: by itself, a low risk – yellow
- After logging in, selected a branch identifier to which he was not assigned – immediate red flag
- Fiddled with the financial advisory numbers until he found the correct one – orange, could happen, but presumably not more than once during a session
- Downloaded the data onto his personal machine – immediate red flag, presumably no one should download anything from the client management system unless it is on a Morgan Stanley machine
- Presumably repeated steps two, three and four above several times until he logged out for the night – a layered alert showing increasing counts of suspicious actions

Ultimately, Marsh undertook these actions thousands and thousands of times during the course of his employment. That's terrifying to security teams and understandably so. Had Morgan Stanley been monitoring for these items, using a centralised platform for the analysis of log-in data and client management system activity (including where the downloads were going), a security analyst could have received an alert showing the layering of these threat events, producing a very high-risk score.

Although it is clear that the client management system could have been

Ultimately, Marsh undertook these actions thousands and thousands of times during the course of his employment. That's terrifying to security teams and understandably so





As part of their daily security practices, banks should certainly scour the internet for their clients' personally identifiable information. However, once the data has been sold or shared online, the breach has already taken place

better secured, a high-risk activity alert could have informed Morgan Stanley of the breach at the very beginning of this activity and allowed it to rectify the situation before it escalated to hundreds of thousands of customers.

Could the third-party hacker have been apprehended earlier?

The fact that Morgan Stanley found the hack itself shows that it was, in fact, conducting some security controls.

Pastebin, a platform initially created to allow developers to easily share and store code, is now a known repository for illegally obtained information, such as credit card numbers, bank account names and social security numbers. Lately, Pastebin has been associated with hacking groups such as Anonymous, Guardians of the Peace and DemonSec, all of which have had run-ins with the US Federal Bureau of Investigation (FBI).

As part of their daily security practices, banks should certainly scour the internet for their clients' personally identifiable information. However, once the data has been sold or shared online, the breach has already taken place. It is more effective, therefore, to catch an insider threat in the early stages of a hack, particularly one which seemed to have taken place so systematically and for so long.

Online hacks are the bank heists of old. The Identity Theft Center listed 454 data breaches to mid-August 2016 in the US, with more than 12 million people exposed. However, where there is a higher incidence of breaches, there is also a higher potential for apprehension. Companies are analysing log-ins, print logs, remote access and web access to paint a vivid picture of insider threats and how they are operating. In fact, the FBI found in 2014 that most data breaches were caused by disgruntled employees, not external hackers.

We don't know Marsh's motivations – was he disgruntled, angry, or seeking retribution? It's not even clear what he intended to do with the data he stole. What is certain, though, is that all of his actions left telling fingerprints and that if only the light had been angled correctly, they would have begun to glow. [DNS](#)

* Eleonore Fournier-Tombs is a RedOwl field data scientist

Future proofing payments

The global payments industry faces more challenges than ever before – fiercer competition, more regulations, an increasing threat from cybercrime and new demands from customers. *Thierry Chilosí, Head of Markets & Initiatives, EMEA at SWIFT* talks to *Daily News at Sibos* about the steps market participants can take to future proof their payments infrastructure

The global payments industry is undergoing a period of significant transformation as payments infrastructures are modernised and business models renewed. In an environment of constantly evolving regulations, innovations in technology, new competitive forces and the growing threat of cybercrime, banks are moving away from a reactive approach to change and towards a new mindset.

"In the past, many banks felt that regulations were being imposed on them and they were focused on how to react to that regulation," says Thierry Chilosí, Head of Markets & Initiatives, EMEA at SWIFT. "This has changed; regulation has become almost 'business as usual' for banks and now the question is how the industry can leverage regulation to review their business models and better position themselves against competition."

Chilosí says this change in mindset is also reflects the fact that SWIFT and its member banks "understand they need to keep evolving". Banks' ultimate clients want an easier and improved banking experience. "As an industry, we have made our business extremely efficient," he says. But the old ways are no longer enough; both retail and wholesale clients require ubiquity, speed and transparency.

Moving to this new world is difficult and there are challenges to be met. A balance has to be struck between meeting the requirements for speedier payments with the fact that banking is a network economy. "Sometimes it seems like the industry has one foot on the accelerator and one foot on the brakes," says Chilosí. "Everyone recognises the need to accelerate payments, but there are issues slowing us down, such as legacy technology, regulation and the need to have cyber resilience." In being faster, banks have to recognise they need to be careful, too.

Banks and SWIFT can work together and think "multi-dimensionally", says Chilosí, and rather than developing certain

payments products for specific scenarios can instead focus on the complete value chain of payments. One way to do this is to combine the existing systems and programs of banks with the innovations developed by FinTechs. SWIFT's global payments innovation (gpi) initiative operates on the same payments rails banks have used for many years, but by complementing these rails with new processes and new technology, user banks can now offer advanced payments tracking and other services to clients. "The payments industry has realised that collaboration and cooperation are the way to transform payments in order to meet the needs of clients," he adds. Even very large corporations such as Apple recognised that they needed to collaborate with banks in order to deliver innovative payments products and services to its end customers.

There are four 'Game Changers' that banks should keep in mind when reviewing and developing their payments infrastructures, says Chilosí. These are:

THE IMPORTANCE OF MARKET INFRASTRUCTURES

Market infrastructures (MIs) can drive change in payments and ultimately help to drive economic growth. In a networked economy such as banking, MIs can help to drive economies of scale and ensure security, resilience and certainty in payments.

APPROACH TO INNOVATION

Incumbents can also innovate (as evidenced by gpi). The bigger correspondent banks can take a portfolio approach to innovation: investigate different technologies, modernise their infrastructure, or even acquire FinTech companies. Smaller banks can invest in building new and improved customer experiences by building on existing technology, in which they have made considerable investment, and add new innovations where relevant.

THE CHALLENGES OF DE-RISKING

In responding to regulatory requirements to improve risk controls, many correspondent banks have adopted a 'zero risk' policy. This has left banks in regions such as Africa and the Caribbean with a dwindling number of foreign counterparties and created a scenario where informal payments channels – that are less controlled and secure – could flourish. De-risking also has implications for financial inclusion and corporate supply chains. Chilosí says banks can take steps to avoid being de-risked by adopting a more collaborative approach, improving transparency, establishing verifiable control frameworks and adopting international standards.

CYBER RESILIENCE

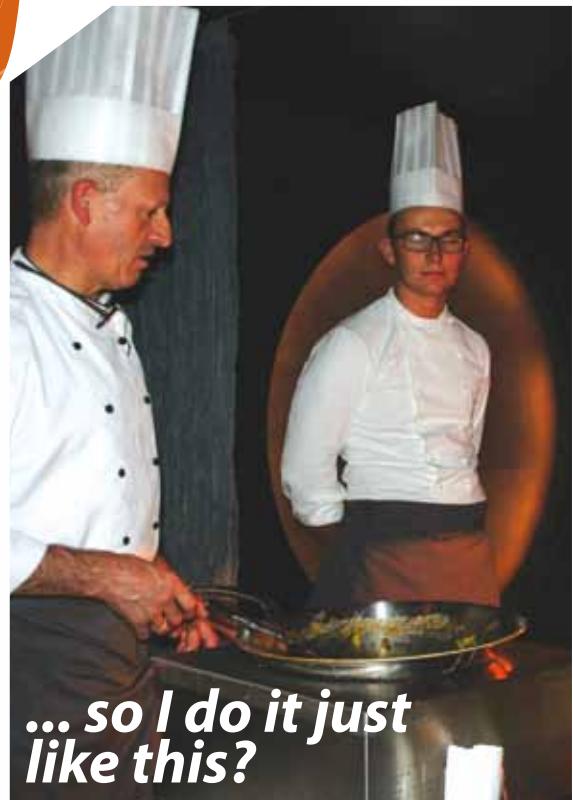
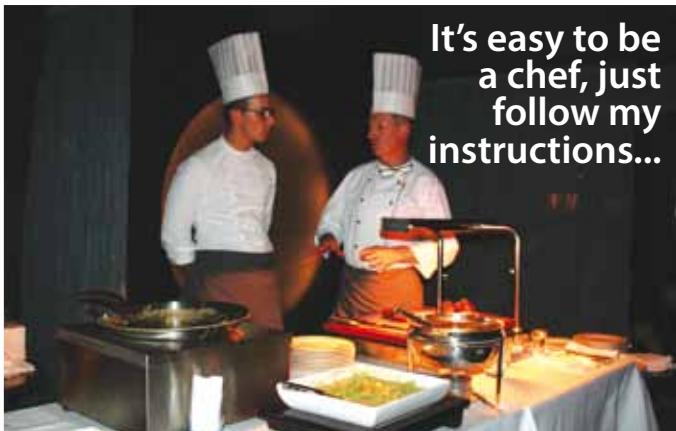
The most effective way to protect against cyber-attacks is to build processes, people, tools and a mindset of cyber resilience. SWIFT is implementing the Customer Security Programme to help members tackle the growing cyber security threat.

At times of great pressure, concludes Chilosí, an industry will become more innovative. The payments industry has been on a transformation continuum since the days of initial automation in the 1970s, the pursuit of efficiency during the 1980s and 1990s, through to today where simplicity, ubiquity and greater use of analytics are coming to the fore. To create payments services that reflect these elements the banking industry – and FinTechs – are working together more closely. The specialised knowledge of each party, as well as their culture, are combining to transform payments. Collaboration is not only required externally; within a bank the establishment of cross-functional teams to work on product development will help to create solutions that meet the needs of all payments stakeholders.

"The key elements of future proofing payments are customer centricity, an integrated approach to innovation and no compromise on security and resiliency," says Chilosí.

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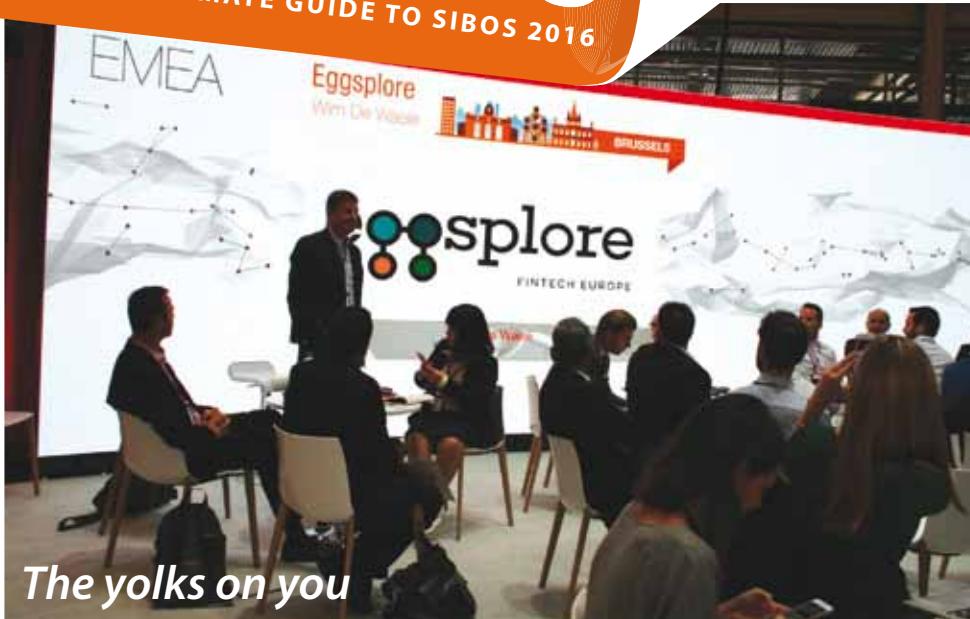
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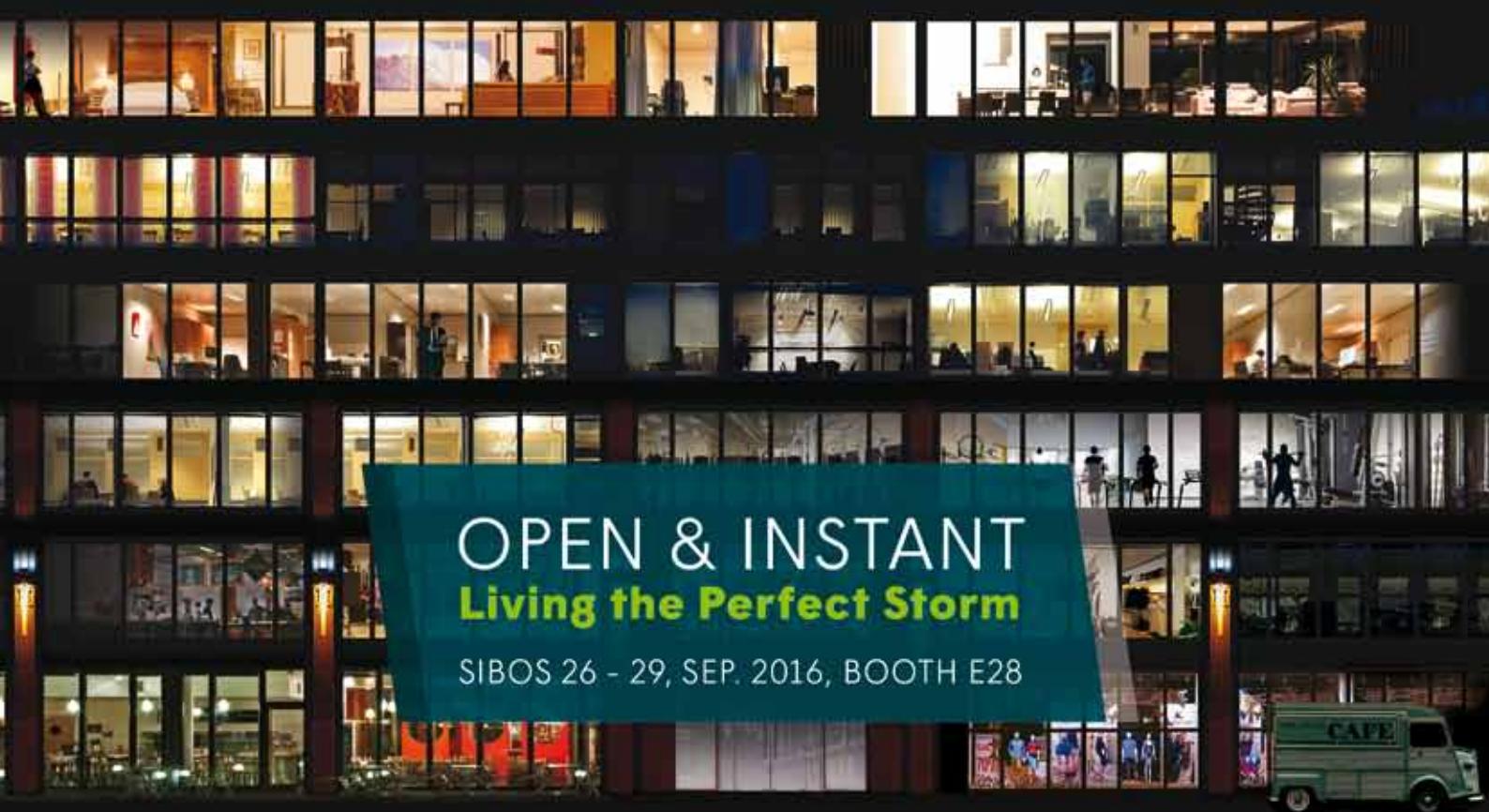
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