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Sibos Issues

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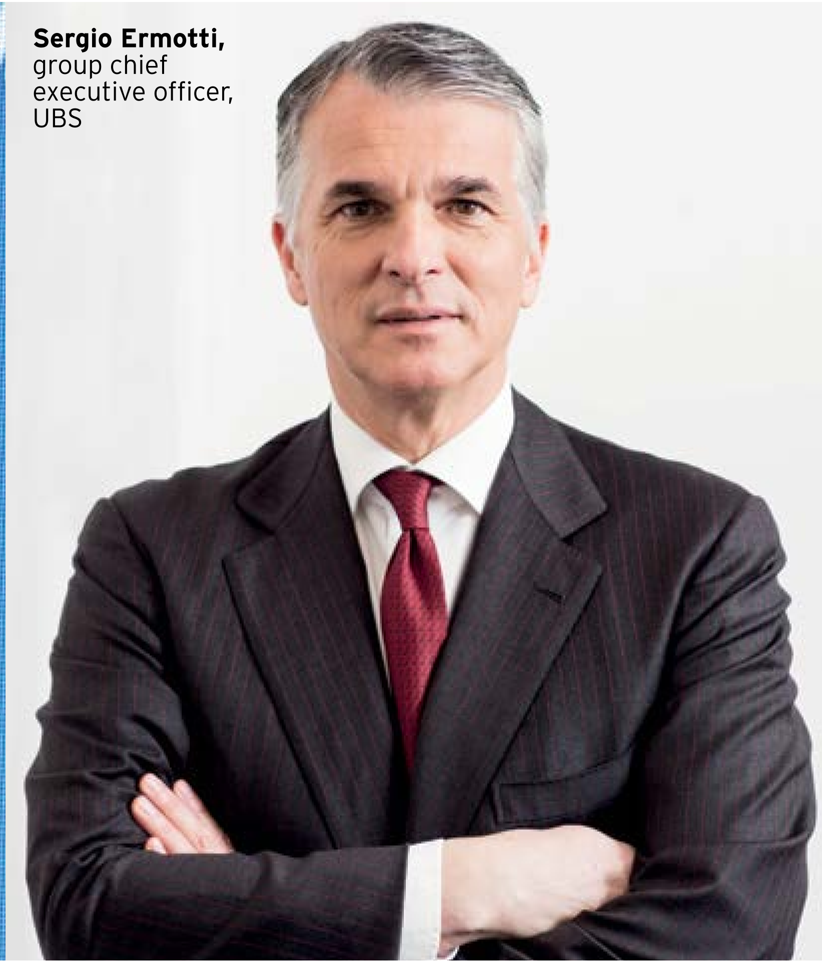
sibos

WEDNESDAY PREVIEW

BIG ISSUE DEBATE

An industry in transition

Ginni Rometty, chairman, president and chief executive officer, IBM



Sergio Ermotti, group chief executive officer, UBS

Industry giants discuss how digital and cognitive technology innovations have the potential to radically re-engineer banking.

What does it mean for a bank to be truly digital? How will banks differentiate themselves and add value to customers in the digital economy? And what are the implications for banks' services and business models as cognitive systems go mainstream? These are just some of the topics on the agenda for this morning's big issue debate on 'Cognitive business and the future of financial services'.

Through its Watson platform, IBM has been at the forefront of the development and application of cognitive systems for more than a decade. CEO Ginni Rometty will open the session with a keynote speech on the possible impacts on the financial services industry, in which she will highlight the latest trends in cognitive computing, focusing in particular on the uses of a new class of cognitive systems that understand, reason and learn, in combination with intelligent automation and blockchain networks. Rometty will then be joined for a moderated discussion with UBS group CEO Sergio Ermotti, who will share his thoughts on how banks and other financial services providers can adapt to and thrive in this evolving new landscape.

Limitations and benefits

Their discussion will be moderated by Dean Garfield, president and CEO of the Information and Technology Industry Council, who acknowledges the far-reaching and transformative implications of advances in the related fields of machine learning, artificial intelligence and cognitive computing.

"We now have cars that are smart enough to realise the potential for an accident to occur more quickly than the driver. We have robots that can conduct surgery that is more precise and beneficial to the patient than any surgeon in history. In addition, we are developing data analytics that can identify remedies and prescribe medication that is highly personalised to the precise needs of the individual," he says, noting: "We must, however, be alert to the potential limitations as well as the potential benefits. Cognitive systems are inspired by the brain, but they are not the brain."

In many cases, Garfield suggests, these recent advances should be viewed as augmenting existing capabilities rather than replacing them wholesale. As such, it is important to understand where and how they can be applied for maximum utility. "Cognitive systems effectively learn through observation over time, making them highly effective for tasks such as detecting the kinds of patterns that might indicate fraud. But artificial intelligence should be regarded as one more layer in a firm's cyber-security de-

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BANKING

The revival starts here

#Blockchain #Payments

Correspondent banking is responding to pressures for change. How will new initiatives and technologies help it to deliver greater value to customers?

Correspondent banking is at an inflection point. "For many years, the core clearing product did not need to change, but now it does," admits Anurag Bajaj, head of banks at Standard Chartered's transaction banking business. "New regulations, more nimble FinTech companies nibbling at the product value chain, enhanced sanctions screening, know-your-customer (KYC) and anti-money laundering (AML) expectations, as well as increased capital requirements, are impacting the customer experience more than in the past. The impact is more visible now given the robust growth of cross-border business driven by e-commerce players such as Amazon and Alibaba."

Greg Murray, global product head of high-value payments at Bank of America Merrill Lynch, agrees on the need for change. "The time is right for the global payments innovation (gpi) initiative launched by SWIFT – and the level of commitment

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An industry in transition

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> **"Cognitive systems are inspired by the brain, but they are not the brain.**
>
> **Dean Garfield,** president and CEO, Information and Technology Industry Council

fences rather than a sufficient solution in its own right, as factors such as resilience and redundancy remain critical," he insists.

Nevertheless, Garfield sees significant efficiency and service gains arising from the greater integration of cognitive systems and other parallel technology innovations into finance sector processes and services. "As far as the back office is concerned, there is an opportunity to process transactions at greater scale than would otherwise be possible, and to identify and correct anomalies. At the front end, we're already seeing artificial intelligence being deployed to help retail investors understand where and how to invest and get the best returns. But I think there is potential to help those who don't currently make optimal use of the finance sector, for example through application of voice recognition technologies, to improve financial inclusion," he says.

Strategic challenges

At a time when banks' customers are more demanding and more mobile, cognitive systems provide banks with many new options for utilising data to deliver value. Cognitive systems have a wide range of applications in banking and financial services because of their ability to sift through unstructured data and respond to natural language queries in real-time with hypotheses and recommendations – becoming more precise and personalised with every new use. An IBM Institute for Business Value report published last week, titled 'The Cognitive Bank', suggests that industry executives are keen to explore their potential. Just 11% of the 2,000-plus c-suite bankers surveyed said their firms had adopted cognitive technologies, but almost a third of respondents from banks that had outperformed peers in the last three years said they were ready to adopt cognitive computing. Many already believe cognitive systems can help them meet their key strategic challenges, with 49% of the total sample anticipating improved operational efficiency and 46% expecting to enhance customer engagement.

The report cites three broad applications. First, cognitive systems can help banks engage with clients at scale, supporting personalisation of services through the ability to contextualise data and learn from interaction. Second, cognitive systems can provide more effective analytical insights that can help bank staff make better decisions, for example by making recommendations based on past customer data, or capturing the 'market DNA' on a particular trend or theme, or even redesigning products or processes for greater efficiency. Third, the ability of cognitive systems to ingest multiple disparate data sources enables them to provide enterprise-wide visibility into specific business challenges – such as risk management or regulatory compliance – to ensure that even global firms' processes can be aligned with agreed policies and principles.

Although the cognitive era is in its formative stages, the scope for a revolutionary impact on banking services and models seems evident. As Rometty observes, "In five years, cognitive computing will impact every decision."

Smart contracts

Like other major global financial institutions, UBS has been keeping a close eye on the impact of digital and cognitive technology innovations in order to position itself to meet the needs of its clients well into the future. One of the more high-profile elements of the bank's approach has been the establishment of the UBS Innovation Lab, located in London's Level39 FinTech accelerator. Among several lines of research into the future of banking is the Crypto Pathfinder Program, which has been exploring use cases for blockchain-based technologies.

The programme team has been investigating the viability of a highly automated process that leverages smart contracts to issue and trade a 'smart bond' without the need for pre- and post-trade intermediaries. The smart bond concept is a prime example of the potential for digital technology innovation to render long-standing elements of the financial markets obsolete – and there are several others in a recent UBS white paper, 'Building the Trust Engine'. The document lays out in detail the ways in which widespread adoption of blockchain could transform not only finance, but the world. It also makes clear that traditional business models are under threat, not just familiar processes. While blockchain's ability to act as a decentralised, autonomous and reliable record of transactions or accounts can reduce the complexity and cost of many of today's banking interactions, its ability to certify identity much more flexibly and conveniently than current protocols could move security, compliance and due diligence into a new paradigm. The risk and capital consequences of real-time settlement, inherently compliant products and blockchain-connected smart wallets, to take just three examples, are mind-boggling and the new roles for banks far from clear. Perhaps mindful of centuries of change and innovation in the financial industry, UBS is relatively positive.

"With the disintermediation of trust may come new paradigms which could put large, centralised organisations at a disadvantage," the white paper asserts, noting however: "There is more to banking than just transactions. Since its early days it has also been about personal relationships, expertise and advice. These functions will not disappear."

How will cognitive computing change current banking services, operating models and strategies? Come to today's session to find out. ■

TO LEARN MORE ...

Cognitive business and the future of financial services
Wednesday 28 September – 11:30-12:30

WEDNESDAY 28 SEPTEMBER

BIG ISSUE DEBATE / PLENARY

11:30-12:30	Cognitive business and the future of financial services	Plenary

BANKING

09:00-10:00	Blockchain and correspondent banking - The way to go?	Conference Room 2
09:00-10:00	Towards a single platform for all payments...	Conference Room 3
10:15-11:15	The ultimate corporate wish list	Conference Room 2
14:00-15:00	How can banks help corporates grow their business?	Conference Room 2
15:30-16:30	Reinventing correspondent banking: Where next?	Conference Room 3
15:30-16:30	How can technology help in treasury strategy?	Conference Room 2

SECURITIES

14:00-15:00	Innovation in CSD space: What about distributed ledger technology?	Conference Room 3

COMPLIANCE

09:00-10:00	Machine learning - The future of compliance?	Conference Room 1
10:15-11:15	Utilising compliance data assets to generate new business opportunities	Conference Room 1
14:00-15:00	Fraud and AML compliance - Time for a joined-up approach?	Conference Room 1

CULTURE

09:00-10:00	Education: Cybersecurity 101 - Outwitting ingenious attackers	Conference Room 5
10:15-11:15	DevOps - Continuous delivery: Hype vs reality	Conference Room 3
10:15-11:15	Unconscious bias awareness training is hot, but the outcome is not! How can we design to encourage inclusive behaviour?	Conference Room 4
14:00-15:30	How to make wiser decisions & future proof your organisations through inclusion of diverse perspectives	Workshop B
15:00-17:00	Cyber crisis management workshop	Workshop A
15:30-16:30	Behaviour and culture under the spotlight	Conference Room 1

STANDARDS FORUM

09:15-10:00	ISO 20022 harmonisation programme - Theory becomes practice	Standards Forum
10:00-10:15	ISO 20022 harmonisation charter signing ceremony	Standards Forum
10:30-11:15	ISO 20022 market practice developments	Standards Forum
13:00-13:45	The corporate debate: Banks should stop differentiating non-competitive services	Standards Forum
14:00-14:45	From practice to performance - ISO 20022 implementation planning in payments initiatives	Standards Forum
15:00-15:45	From practice to performance - ISO 20022 implementation planning in securities initiatives	Standards Forum
16:00-16:45	ISO 20022 - An end-to-end success story	Standards Forum

INNOTRIBE

09:00-09:30	Innotribe day opening and Startup Challenge for Latin America	Innotribe
09:30-10:15	The future show live	Innotribe
10:30-11:15	Digital ethics	Innotribe
12:45-13:45	FinTech hubs - Americas	Innotribe
14:00-15:00	AI for financial services	Innotribe
15:15-16:00	Innovation in cybersecurity: Innovative defences to innovative attacks	Innotribe
16:00-16:45	Thingclash	Innotribe
17:00-17:30	Innotribe day closing (Man-machine, Day 3)	Innotribe

SWIFT INSTITUTE

09:30-10:00	New dynamics of the FinTech talent pipeline	SWIFT Stand
10:15-10:45	Business leaders - Think cyber	SWIFT Stand
14:00-14:30	SWIFT Institute University Challenge 2016	SWIFT Stand
14:30-15:00	Mobile banking revolution: M-PESA's impact on Africa and beyond	SWIFT Stand
16:30-17:15	Open APIs and the transformation of banking	SWIFT Stand

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Deep thinking on the future of compliance

#Data #Payments #Technology

Advances in machine-learning techniques are extracting more content and context than ever before, even from unstructured data. How can such innovations help to create more cost-effective compliance monitoring solutions?

It's hard to put a figure on the 'true' cost of compliance to the banking industry. It's easy, however, to conclude the cost is big, very big, and growing. In 2015, a Financial Times article estimated that the annual outlay for some banks was upward of US$4 billion. For individual institutions, sums twice this amount have been suggested. There is no doubting the fact that banks' compliance headcounts have risen sharply into the tens-of-thousands. The cost of recruiting chief compliance officers is often cited as one of the reasons executive pay continues to climb. But as banks are being pressed by regulators to improve their compliance monitoring and reporting capabilities, other forces are compelling them to rein in costs across the board.

"Everyone realises that machine learning is the future," says Anthony Fenwick, global head of AML compliance, treasury and trade solutions at Citi. Not only is the cost of compliance running into the hundreds-of-millions, he observes, but the focus of banks' investment on compliance needs to shift. Over the last decade, much of the investment has been around rules-based scenarios to monitor and root out suspicious activity. "This is simply not cost-effective," says Fenwick. The process involved in filing a suspicious activity report is lengthy, labour-intensive and more often than not fruitless. Detection and execution ratios are poor.

A big part of the problem is that banks are bogged down by running multiple legacy systems. For the purpose of monitoring transactions, data from all these systems has to feed in together. "This can cause havoc with monitoring," explains Fenwick, "especially because the more you try and get out of it, the more data-hungry it becomes." One of the biggest problems with a monitoring system is that when an alert is generated, it becomes necessary for the appropriate data sets to be identified and unravelled, taking account of different systems and, in the case of the largest banks, contending with regional variances.

> **Everyone realises that machine learning is the future.**
>
> **Anthony Fenwick,** global head of AML compliance, treasury and trade solutions, Citi

"Compliance is a huge cost of doing business today," acknowledges Dan Adamson, founder & CEO of OutsideIQ, a compliance-focused cognitive solutions developer. Much of that cost is human, with banks creating armies of people to monitor transactions and investigate alerts. Adamson sees this as a 'knee-jerk' reaction by banks, throwing bodies at the problem when the regulatory bar is raised. While this approach has allowed banks to continue to conduct business, it is far from optimal and comes with a significant price-tag. A lot of compliance work is done in duplicate, even triplicate, because it is so error prone. There is a huge overhead to recording everything and making it auditable. "It is not only inefficient, it is ineffective: a lot of money laundering isn't caught," says Adamson. "We have created this monster that spits out millions of alerts," concurs Fenwick.

How to be smart

There is common consensus that banks need to find a more intelligent solution. Prior to founding OutsideIQ six years ago, Adamson joined Microsoft to work on Bing, the web search engine owned and operated by the software giant, where he focused on refining its vertical search strategy. OutsideIQ was established on the premise that the machine-learning techniques and vertical search algorithms used for consumer site searches could be adapted for business to help deal with risk. "We have incubated a technology that is now a cognitive computing platform based on machine-learning techniques and focused on identifying risks," explains Adamson.

While the underlying platform is ubiquitous, OutsideIQ has developed products that serve specific use cases, including a due diligence product, DDIQ, geared to identifying risks around on-boarding clients. By relying on machine-learning techniques it allows users to conduct due diligence in a highly reproducible, auditable and cost-efficient manner, explains Adamson. Work that was previously undertaken manually can be done by computers. "It clears the noise," he explains, enabling banks to move up to 95% of their KYC workload into a machine-operated AI environment.

Citi's Fenwick supports the development of machine-learning based products that are built for a specific use case. Today, the compliance process is hampered by banks relying on a single 'catch-all' monitoring system that runs similar risk scenarios, irrespective of client type or the market in which they operate. "At present it is a catch-all that catches little and that is the problem," says Fenwick. The monitoring process as it stands fails to distinguish in a meaningful way between a hedge fund and a large corporate client, for example. "These are very separate and distinct businesses and we are going to have to start creating different monitoring platforms," says Fenwick.

One example of a specific use case might be correspondent banking, where Fenwick sees a potential role for SWIFT in developing a tool to monitor transactions using machine-learning techniques, supported by human oversight and guidance. Ideally, he would like to see a tool developed that allowed the bank to eliminate MT 202s from its roster of items to monitor, a move which he says could potentially save millions of dollars.

Human dimension

While there is agreement on the benefit of machine-learning techniques, there is no room to become over-evangelical about their application. One of the historical failings of monitoring systems is that they have been left solely to technologists and operational teams to build. "This results in a monitoring system operating like a mathematical model, rather than an investigatory tool designed to detect someone who is undertaking criminal activity," says Fenwick.

"One of the pitfalls with machine learning is to think that monitoring is something you can leave solely to a computer," he adds. Although AI functionality can make a significant contribution to compliance monitoring by eradicating the mundane and stemming unnecessary errors, the human element is still critical. Machine-learning solu-

tions will ultimately allow banks' compliance teams to move away from an approach that monitors every transaction coming down a pipe, to concentrate instead on the pathways that throw up abnormalities.

This is an approach that Adamson supports. While a great advocate of machine-learning techniques in the here and now, he believes computers have a defined place, albeit a very important one, in the compliance process. Machines can be very good at weeding out 95% of the noise, but a human 'last step' will be necessary for a final review leading to action. In the very near future, Adamson predicts, we will see more people working on the smarter oversight aspects of compliance, with the routine groundwork having been laid by machines. ■

TO LEARN MORE ...

Machine learning – The future of compliance?
Wednesday 28 September – 09:00-10:00

The revival starts here

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among banks speaks to a common desire to move the process forward," he says. "Transparency of cost, certainty of payment and traceability and tracking are essential if commercial cross-border payments are to operate with the same effectiveness as the cross-border commerce they support."

Certainly, banks are keen to enhance the client experience, and more effective tracking of payment is part of the solution. Philip Bruno, expert principal at McKinsey, suggests the largest clients might not be the ones to benefit most. "Very few financial institutions start with meeting the needs of SMEs, who are perhaps the most likely to see benefit from SWIFT's gpi in terms of reduced friction," he says. Nevertheless, Bruno believes gpi gives timely support to banks' efforts to

Transparency of cost, certainty of payment and traceability and tracking are essential.

Greg Murray, global product head of high-value payments, Bank of America Merrill Lynch

support the evolving payment needs of clients. "Digitisation of B2B commercial transactions is happening now and if banks want to avoid being disrupted they need to adapt and create alternatives that maintain their position in the overall transaction journey," he says.

No illusions

Time is of the essence, but there remains the practical reality of managing the complex process of getting things done. No-one is under any illusion about the scale of the task or the level of investment of people and money that will be required. Deutsche Bank has made public its intention to commit more than €1 billion to its transactions businesses in the coming years. At Bank of America Merrill Lynch, Murray notes that investment is not limited to the banks themselves. "SWIFT's gpi is only as good as its weakest link. In some cases, local payment systems will need to adapt to SWIFT gpi standards if its benefits are to be fully realised. But we are confident as a group that the necessary changes will be made both by payment systems and the banks that use them," he says.

As well as collaborating on customer initiatives to maintain relevance, banks are also under pressure collectively from regulation. As such, they also need "a cooperative model that will enable them to share knowledge and expertise in areas such as KYC and AML," says Bruno. Independent of regulatory pressures, the industry must address the twin threats of financial crime and cyber-security, asserts Susan Skerritt, global head of institutional cash management and Americas regional head of Global Transaction Banking at Deutsche Bank. "Correspondent banking is in a key position to fight cross-border financial crime and prevent cyber-security breaches that damage individual lives and businesses," she says. "While regulators may provide additional encouragement from time to time, successfully tackling these problems is necessary if the industry is to survive, grow and meet the evolving needs and expectations of our clients."

The need for banks to act is increasingly urgent, suggests Standard Chartered's Bajaj. "Geopolitical unrest has increased. As a consequence, cross-border financial crime is a major issue for the industry. The minimum requirements for 'success' are higher," he observes. "Banks need to make sure clients' activities are well understood and AML/KYC and sanctions screening procedures are robust. Not only do transactions need to be screened in real time, but analysis of past patterns and transactions history can also help identify problem areas and hotspots."

If banks do not deal with the issues themselves, whether individually or through combined ventures, it is likely that new FinTech companies will take on the problem, as the potential returns are large. While respectful of these new participants, Bajaj believes incumbent banks enjoy a number of advantages that are easily underestimated. "Banks benefit from being regulated – their customers trust them and the infrastructures they use," he says. "In addition, banks are able to offer corporate customers, large and small, a number of other services that pure technology firms executing financial transactions cannot."

Hedging bets

Whether this is sufficient remains to be seen. All agree that the level of trust is lower than it once was. Some of the very largest banks are already hedging their bets by working on new technologies within a number of consortia as well as setting up their own accelerator and incubator programmes. Blockchain, which today features in almost any discussion on financial services technology development, presents both a threat and an opportunity.

Skerritt believes that not all banks, even some of the very largest, will be willing to make the investment necessary, but says those that do will be better positioned to meet future challenges. Even so, she suggests correspondent banking may not be affected by technology innovation as directly or immediately as adjacent business lines. "Technology, especially very new developments like blockchain, takes time to reach a level of adoption to reach a 'tipping point'. Payments, which are relatively efficient today, may not be the best starting point for the use of that new technology," she says. Within transaction banking activities, trade finance and securities settlement are seen as better candidates. Meanwhile FinTech firms may, as Bruno notes, "take a less direct approach by offering payments off the back of other bank-owned payment systems such as invoicing platforms".

Payments, which are relatively efficient today, may not be the best starting point for the use of blockchain.

Susan Skerritt, global head of institutional cash management and Americas regional head, Global Transaction Banking, Deutsche Bank

Both Mark Buitenhek, global head of transaction services at ING, and James Wallis, vice president, global payments and blockchain at IBM, believe that the next three to five years will see distributed ledgers and blockchain technology delivering better solutions in a number of areas of correspondent banking. "The most attractive use cases at present seem to be around smart contracts in trade finance and conditional payments. Domestic payments may not merit a solution involving the complexity of blockchain, but cross-border payments are definitely a good candidate," says Buitenhek. As such, he hopes that the industry will take a 'deep dive' into the requirements to properly determine whether this new technology represents a viable next step following the completion of SWIFT's gpi. However he recognises, "the existing infrastructure covers thousands of banks and represents a massive level of connectivity. Implementing anything new is going to represent a huge challenge, organisationally as well as technologically."

Innovation in practice

Both IBM and ING are exploring using blockchain through many channels. ING is a member of the R3 consortium of financial institutions, which completed a trial of five nascent blockchain technologies earlier this year. IBM is working with the Linux Foundation and dozens of other financial and technology companies on the Hyperledger Project to advance blockchain technology by identifying and addressing important features for a cross-industry open standard for distributed ledgers. According to Wallis, this initiative will offer users an open source distributed ledger, smart contracts, security and permissioning and will validate transactions using a consensus method, rather than 'proof of work'. As Wallis notes, "regulated businesses will almost certainly require a permissioned blockchain and consensus is the appropriate way to validate in those cases."

IBM's own global finance arm launched an initiative in which blockchain is being used as an adjunct to the existing core capabilities without replacing them. Wallis sees this as an approach that could facilitate use of blockchain in many areas. "Blockchain can start by adding value to existing processes alongside current systems," he says. "As users and senior management better understand the capabilities and as the technology itself matures, blockchain can become a candidate to replace core technologies at the appropriate time." ■

TO LEARN MORE ...

Blockchain and correspondent banking – The way to go?
Wednesday 28 September – 09:00-10:00

Reinventing correspondent banking: where next?
Wednesday 28 September – 15:30-16:30

Thinking cyber – at every level of the business

#SWIFT Institute #Market Infrastructures #Cyber-security

With cyber-security concerns an increasing industry priority, Euroclear UK & Ireland CEO John Trundle explains why cyber-threats are a business rather than a technical issue.

Sibos Issues: How do you view the main cyber-threats to businesses in the financial sector today?

John Trundle: We tend to think about the technical threats and of course those threats are real, but the market needs to realise cyber-security is more than having good IT systems. It also concerns a firm's day-to-day 'hygiene.' Good practices include monitoring access to buildings, maintaining password controls and challenging people you don't recognise.

Cyber-risk can involve many kinds of system exploitation that can harm the company, so we make sure our staff are well informed in terms of the threats.

At Euroclear, we do an internal threat assessment in which we work with external specialists to identify and examine different scenarios relevant to our industry. We then categorise them in order, prioritising those scenarios to which we could be most vulnerable.

Sibos Issues: What specific cyber-threats does the industry face on a day-to-day level?

John Trundle: We are well protected against many of the outsider threats, but culturally, it can be difficult to raise the alertness of employees to insider threats. This is because most of our employees are extremely competent professionals, many of whom have been with us for a long time and are highly trustworthy.

But in the absence of any incidents that disrupt the business from an insider perspective, people tend to assume they will never happen and are very trusting. This makes a firm vulnerable if it has a 'bad egg' in the company.

One of the areas we focus on is to make people appropriately aware of security threats from colleagues as well as outsiders, to raise awareness overall. It is easier to imagine the 'bad guy' in another part of the world using high-tech techniques to try to infiltrate the company. It is much harder to imagine a colleague or a visitor committing this type of attack.

There are many potential routes into a company's systems, including the impersonation of business leaders in order to try to initiate a fraudulent transaction. So staff have to be alert, as well as firms being technically resilient to prevent access.

Sibos Issues: How has the task of maintaining cyber-security defences changed in recent years?

John Trundle: We have seen a lot of new potential threats. A firm cannot be complacent, and must remain up to date with best practice in protecting its environment against cyber-threats.

Over the last couple of years, the sophistication around monitoring system traffic has improved significantly. For example, we now have teams that monitor what normal looks like in terms of data exchanges between different parts of the organisation in order to detect unusual patterns.

The timeliness of this procedure has also improved. We can now run separate monitoring systems, 24 hours a day. We have always had operational teams monitoring our systems, but now have separate teams who specifically monitor both external and internal threats from a cyber perspective.

Sibos Issues: Why is it important to see cyber-security as a business issue?

John Trundle: The reason I am speaking at Sibos about cyber-security rather than a head of technology is to show this is a topic that must be owned by the business side as well as the IT side. It has to be shared across the firm.

Business leaders do not need to understand every last detail of the technical threat, but they need to be on top of the broad types of threat that we face and the best ways to try to mitigate, prevent and respond.

It is important to emphasise the business aspect of cyber-security because we run a business process across various high-tech systems, and this process has a number of entry points whose controls are set by the business leaders.

Sibos Issues: What specific measures do you take to train staff in cyber-security practices?

John Trundle: We run a lot of internal training on the risks of sharing information with anyone from outside the company who is trying to access its internal systems.

This kind of training is relevant both to our professional and personal lives, which includes the protection of personal computers. We try to make staff conscious of a wide range of risks, for example by deliberately sending them spam emails and then assessing their responses. I've learnt a great deal personally from this!

Sibos Issues: What should business leaders be doing themselves to address cyber-security issues?

John Trundle: The first priority is to conduct a thorough review, utilising external expertise as necessary; taking into account both technical and business aspects. When we conducted such a review, we identified and analysed scenarios from the perspective of how we might be attacked and the ways in which we might be vulnerable.

The reputational risks of being perceived as not sufficiently strong on cyber-security are significant. Business leaders should recognise this and talk about it openly throughout the business community.

Sibos Issues: What specific measures can business leaders take in the event of a cyber-attack?

John Trundle: There are a number of organisations enabling the sharing of information. These groups are very good at providing advice about potential attacks and informing relevant parties of new forms of attack. This is particularly important in the financial services sector, as firms face similar kinds of threat.

Once under a successful attack, a firm can manage the event as best as possible, but in some respects it's too late if the right measures haven't been taken. All a firm can do then is minimise rather than prevent the damage. We all face the possibility of a successful attack and need to plan for that type of scenario.

Sibos Issues: Are any particular business streams more susceptible to threats than others?

John Trundle: A question that everyone in the financial services industry is asking itself is 'why target me?' The fact is we are all in the firing line as there are so many external threats.

The financial services sector is a natural target because we sit on high values which are readily mobile. Accepting that we are prime targets, firms such as Euroclear need to monitor intelligence constantly to gauge threat levels, but even if there isn't a specific immediate threat, we should recognise there is an ongoing general risk.

The industry can counter cyber-security risks using closed, highly-secure systems accessible to only a small group of known counterparties. But even when the centre of these systems is highly secure, we still need to think about the security of the system as a whole.

There is no way we can stop ourselves from being a target, but we can ensure our defences are varied and effective. ■

TO LEARN MORE ...

Business leaders - Think cyber
Wednesday 28 September – 10:15-10:45

Addressing the corporate agenda

#Corporates #Trade Finance #Standards Forum #Payments

Three sessions today tackle the question: are banks giving their corporate customers what they need?

Serving customer needs should be the key priority of any business – but the customer's viewpoint can sometimes slip from sight when highly-regulated and complex businesses like banks are faced with so many competing imperatives. Three sessions today bring the needs of banks' corporate customers sharply into focus.

"Most banks are working continuously with their large corporate customers on a one-to-one basis to understand the customer's strategy and refine the bank's (technology) investment plans," says Helen Sanders, editor of Treasury Management International and moderator for 'The Ultimate Corporate Wishlist'. "But large corporates are multi-banked; they want one way of doing things with all their banks. So the important thing is to define corporates' priorities for the banking community as a whole."

> The challenge is to find innovative financing solutions to help clients, but which don't expose the bank to too much risk.

Yunfei Liu, deputy general manager, global trade service, Bank of China

Sanders expects the discussion to focus on a number of areas: the new potential of 'big data' to help corporates with a range of business analysis and fraud prevention solutions; the continuing search for supply chain efficiency; and – perhaps above all – the challenge of achieving deep integration of financial flows across the business and with banking partners. "Innovation is obviously important – there's a huge level of interest in SWIFT's global payments innovation (gpi) initiative, for example," she says, noting also the importance of integration and standardisation.

Seamless experience

For banks, the never-ending challenge is to provide the easy integration and seamless experience that corporate customers expect (thanks in large part to the success of international standards) while still retaining a distinguishing edge that allows them to deliver added value and compete in an increasingly commoditised industry.

Betsy Clark, treasury director, Alliance Data, believes that value-add should come from an advisory approach focused on achieving best practice and a holistic view of the client relationship. "More often, we see a siloed, product-based offer that doesn't understand or take account of the full corporate footprint," she says. Alliance Data understands customer relationships better than most – the company is the engine behind loyalty and marketing campaigns for more than 1,000 consumer-facing companies worldwide across all industries. With 30 or more banking partners world-wide, Clark also knows the difficulties of non-standard banking practices and processes only too well, and cites the huge variety of forms and signature protocols required by different banks in different geographies. "How do we make that better? I would like to have a single source of expertise for this."

This is a topic that will also come under scrutiny in 'The corporate debate: Banks should stop differentiating non-competitive practices', a Standards Forum session which asks whether banks have leveraged standards sufficiently on common services to corporates. "Global corporates are dissatisfied with many aspects of onboarding," according to a recent Celent report, which asserts: "Corporate onboarding is one of the few differentiators remaining in a commoditised environment."

Susan Feinberg, senior analyst at Celent, who authored the report, is moderating this debate. Although an ISO 20022 standard exists for electronic bank account management (eBAM), uptake has been limited. Feinberg suggests the blame cannot be placed solely at the banks' door. "Often these days it's less a lack of technical standards and more a case of underlying business rules and inconsistent regulatory frameworks preventing corporates from working with all their banks in the same way," comments Feinberg. Alliance Data's Clark agrees: "I would love eBAM to become a reality, but we need to design an efficient process before it can be automated, which gets back to my point about the variety of forms and signature protocols. Without a better underlying structure, any eBAM solution is destined to fail."

Working capital

There will be a chance to hear answers to the question, 'How banks can help corporates to grow their business?' in a session moderated by David Blair, managing director, Acarate Consulting, and a former treasury practitioner at Huawei, Nokia, ABB and other multinational corporates. Blair says it is important to remember the basics of the corporate-bank relationship: "The raison d'être of banks is to support the real economy with funding and efficient payments. If working capital is unpredictable and systems lack transparency and efficiency, then that saps energy from business, costs money and ultimately affects growth."

Yunfei Liu, deputy general manager of global trade service at the Bank of China, says her customers' primary requirement is for financing (Bank of China is one of China's leading international-facing banks, serving predominately Chinese companies and joint ventures). "Manufacturers are looking to increase their sales by providing financing to their dealers or franchisees; sellers want to shorten the duration of receivables and obtain receivables financing without recourse where possible," she observes. "So the challenge is to find innovative financing solutions to help them, but which don't expose the bank to too much risk." During the session, Liu will explain how Bank of China is adapting its credit granting process, as well as how it is using proprietary online channels to respond to the desire of corporate customers for more up-to-date status information on transactions.

Shared infrastructure

Inevitably, the basic corporate requirements of funding and payment processing get more difficult to deliver in a complex world with ever-increasing regulatory requirements and ever-evolving risks. Know-your-customer (KYC) checks have a significant impact on the efficiency of day-to-day issues such as account opening requirements and dealing with changes in signatory personnel, for example. One way in which banks can simplify and manage these requirements is through shared infrastructure, as they have already for sharing KYC information in the correspondent banking realm, via SWIFT's KYC Registry.

> I would love eBAM to become a reality, but we need to design an efficient process before it can be automated.

Betsy Clark, treasury director, Alliance Data

For many large corporates, and indeed banks, a core objective is to standardise and simplify financial management processes in order to automate and aggregate information flows more effectively. Alliance Data, for example, intends to build a single repository of financial data using in-house expertise. As an example of her ongoing challenges, Clark mentions the difficulty of managing the "buffet" of security tokens required to access the company's accounts with different banks. As such, she is looking forward to using a single connection to her banks once Alliance Data completes its current project to implement SWIFT access. "SWIFT connectivity will be the building block for so many things," she says. ■

TO LEARN MORE …

The ultimate corporate wish list
Wednesday 27 September – 10:15-11:15

The corporate debate: Banks should stop differentiating non-competitive services
Wednesday 27 September – 13:00-13:45

How can banks help corporates grow their business?
Wednesday 27 September – 14:00-15:00

ISO 20022 moves centre stage

#Standards Forum #Market Infrastructures #Payments

As efforts to harmonise ISO 20022 implementation intensify, practical experience is helping market infrastructures find consensus and develop best practice.

Boris Brunner, member of the executive board, SIX Interbank Clearing

The ISO 20022 Harmonisation Charter, published during Sibos 2015 in Singapore, has since been endorsed by numerous market infrastructure operators, confirming their intention to apply the charter's principles in their adoption projects.

A signing ceremony this morning at the Standards Forum is testament to the growing commitment to a common approach to ISO 20022 implementation by market infrastructures. Indeed, Sibos delegates with a particular interest in the practical application of the ISO 20022 messaging standard will enjoy a packed agenda today, as several sessions will be exploring how far the industry has progressed in leveraging ISO 20022, with reference to several of the many initiatives under way in payments and securities markets.

"There is already a greater understanding of, and support for, ISO 20022 around the world," says Philip Verriest, director for change management at Euroclear, and one of today's speakers. "Now that those using it in various domains understand the benefits it brings, there is a definite momentum building."

Supporting interoperability

The ISO 20022 Harmonisation Charter has a dual aim, says Verriest: to continue promoting ISO 20022; while at the same time ensuring that the global community deploys the standard in a harmonised way to support interoperability. As fellow panellist David Renault, head of STEP2 services and instant payments project manager at EBA Clearing, put it, "A choice of 31 flavours is great for ice cream, but is a worst-case scenario when you are trying to adopt a singular definitive standard."

Unveiled at Sibos last year, the charter builds on discussions at the fourth Market Infrastructure Summit, held at SWIFT's New York offices in May 2015. At that summit, Isabel Schmidt, head of institutional cash management, Americas, Deutsche Bank, was clear on the scope and urgency of harmonisation. "It brings benefits to end-users, and opportunities for risk reduction," she said. "By moving to a single standard, the pool of data becomes consistent, allowing for better analytics which can help with fraud prevention and anti money-laundering efforts." Schmidt will be joining this morning's first panel.

"The charter will play a central role in helping to ensure consistency of implementation," says Patrik Neutjens, head of the ISO 20022 programme at SWIFT. "SWIFT's ISO 20022 programme aims to make sure that SWIFT is completely geared up to offer ISO solutions at the same level as FIN, to any market infrastructure that is considering a move to the standard," he comments. "An effective community approach needs to be consistent and transparent with a clear understanding of best practice."

SWIFT recently formed a global market practice task force of market infrastructures and banks to assist in the dissemination of the ISO 20022 Harmonisation Charter. Sponsored by the Payments Market Practice Group (PMPG), the task force aims to address the evolving ISO 20022 standards requirements of high-value payment systems providers. A first set of additional market practice guidelines will be published in MyStandards, SWIFT's online platform for sharing standards information, in the coming months.

"ISO 20022 allows for different versions, but unless this is done in a coordinated manner, there is a risk of creating exactly what you want to avoid by having to support all those versions. The charter therefore aims to keep that flexibility without encouraging a free-for-all," says Verriest.

Market practices

Before today's signing, the agenda will start with the session 'ISO 20022 harmonisation programme – Theory becomes practice', which offers a progress briefing on the ISO 20022 Harmonisation programme, covering the latest adoption status and best practice principles.

Thereafter, 'ISO 20022 Market Practice Developments' will focus on market practices under development in payments and securities markets, with an outline of their scope and timelines from representatives of the related working groups.

Among the organisations represented on the panel, last October LCH.Clearnet became the first central counterparty to introduce ISO 20022 to notify members of margin calls. Gerard Smith, director of collateral services at LCH.Clearnet noted at the time that, "Leveraging SWIFT enables members and their clients to be notified of their margin obligations in a more timely and standardised fashion." Since then LCH.Clearnet signed up to the Charter as part of the firm's efforts to provide clearing members with efficient processes via its collateral management services.

Two afternoon sessions will examine ISO 20022 implementation planning in payments and securities initiatives, both highlighting recent and ongoing projects.

Among the payments session panellists, Boris Brunner, member of the executive board of SIX Interbank Clearing, will comment on the firm's implementation of a new real-time gross settlement system, which went live in April 2016, and the development of definitions to support the implementation of ISO 20022-based interbank messages for payments on the new platform.

In the securities session, panellists will highlight three projects at different stages in their implementation: TARGET2-Securities (T2S, which is midway through its ISO 20022 roll-out programme); the Hong Kong Stock Exchange's project to use ISO 20022 for corporate actions; and the use of ISO 20022 for regulatory reporting in the EU under MIFIR/MIFID2, which comes into force in January 2018.

T2S, the single securities settlement platform launched by the European Central Bank last year, was first approved in 2008, when ISO 15022 was the message standard of choice in the securities back office. For Siegfried Vonderau, head of division for TARGET2/T2S services management at the Bundesbank and session panellist, the subsequent decision to only use ISO 20022 messages within T2S was taken partly because of its broader scope, but also because ISO 20022 can be deployed effectively in both payments and securities markets.

Today will conclude with a session on 'ISO 20022 - An end-to-end success story'. "This session is for anyone looking to launch or join a standards initiative, for inspiration and reassurance!" says Andrew Muir, head of standards operations at SWIFT.

Double-edged sword

As all standards experts know, widespread adoption is a double-edged sword; the value of a standard increases in proportion to its number of users, which can only be achieved by flexibility, but so too does the risk of fragmentation. For now, ISO 20022 seems to be maintaining a healthy balance.

"We now have the right trade-off between flexibility and harmonisation," says Euroclear's Verriest. "Although there will always be some differences in definition and market practice at a country level, given the way certain flows are handled, there is nevertheless a narrowing of these differences as overall harmonisation across markets accelerates." ■

TO LEARN MORE …

ISO 20022 harmonisation programme – Theory becomes practice
Wednesday 28 September – 09:15-10:00

ISO 20022 market practice developments
Wednesday 28 September – 10:30-11:15

From practice to performance – ISO 20022 implementation planning in payments initiatives
Wednesday 28 September – 14:00-14:45

From practice to performance – ISO 20022 implementation planning in securities initiatives
Wednesday 28 September – 15:00-15:45

ISO 20022 – An end-to-end success story
Wednesday 28 September – 16:00-16:45

Get set for the new reality

#Data #Technology #Innotribe

The potential impact of digital technology innovation on our daily lives is all-embracing, the public policy implications barely less so.

The future has never been closer. According to some experts, technology is set to change the way we live and do business more in the next 20 years than in the previous 300. As such, the need for individuals, companies and governments to prepare for a future with artificial intelligence and cognitive computing has never been more crucial.

One of the firmest forecasts made by Gerd Leonhard, futurist, author and CEO of The Futures Agency, concerns the switch to voice control of technology. Within five years, Leonhard believes we will no longer be typing into computers or tapping at mobile phones. Voice recognition technology will be so sophisticated that all our interactions with computers will be spoken. "Voice recognition has been around for some time and never actually worked – but now it is more than 99% accurate."

> **Humans will focus only on adding value to the routine jobs we were doing in the past.**
>
> **Gerd Leonhard,** CEO, The Futures Agency

Your virtual friend?

As machines become intelligent, in effect learning to hear as well as to read, less time will be spent programming computers and we will be able to rely on computers themselves to determine what they should do. "The computer will become our virtual friend. It is a scary thought but this is where self-learning devices, or cognitive computing, are headed," he adds.

Until recently, Leonhard says most transactions have been too vast and too complex and individual to be fully automated, but this is changing with the introduction of next-generation computing, specifically quantum computing, artificially-intelligent software and cognitive platforms.

Coupled with public newsfeeds, commercial databases and literally unlimited data from social media, an increasing number of financial transactions are becoming automatable and virtualised. He says: "IBM Watson is already working on automating medical diagnosis and has recently acquired a huge global library of MRI records and X-rays. A similar process is happening in banking – so within the next five years I think a significant number of transaction processes will end up completely automated.

"Reading and voice recognition have been the two big hurdles. Once a machine can actually read and speak, it can carry out any routine job. This means levels of automation will be dramatically increased within the next few years. Humans will focus only on adding value to the routine jobs we were doing in the past."

For Leonhard, the ubiquity of cloud computing is inevitable too, due its significant security and cost advantages over traditional methods of data storage. "Firms that are not going into the cloud with their data will probably not be competitive in the near future," he asserts.

With this new digital era come newly emerging risks and responsibilities. Different laws, regulations and social contracts will be needed as we look to harness the potential benefits of new technologies, from machine-learning to big data to blockchain. Leonhard notes the increased budgets of

governments and companies in the realm of cyber-security, but points to many other public policy implications.

He says: "Wider use of blockchain is inevitable because it makes transactions so much quicker, cheaper and user-friendly, but it will not work without government supervision, approval or regulation. And as technology frees up human labour to be more meaningful rather than routine, we must be very careful not to lose our skills and abilities. For example, the ability to understand languages should not be diminished by using apps that translate.

"In 10 years we will be in a situation where computers and machine intelligence will handle so many tasks that we will no longer understand how we did them without them."

Policy implications

In some respects, regulatory frameworks are still struggling to catch up with the wider implications of a previous generation of information technology innovation. Aurélie Pols, data governance and privacy advocate at Krux Digital and a member of the ethics data group at the European Data Protection Supervisor, says we are only now beginning to understand the data privacy consequences of widespread internet usage and commercial exploitation, and argues that we should learn from past experience in preparation for the next wave of innovation.

Pols, who works closely with data companies and software vendors, says greater use of data aggregation techniques may have reinforced inequality. "For example, those with a low credit score will see a high amount of advertising for payday loans, getting them into more debt. This practice was recently banned in the US, and slowly we are defining a better balance between equality and dignity for all and using data in a more ethical way."

Much of the new push toward greater automation is fuelled by vast pools of data, but here too public policy or industry-level consensus may play a role in ensuring responsible usage of this resource. Pols calls into question the lack of statistical analysis and hypotheses carried out on big data today to rigorously test its representativeness to check for any biases, despite the data mining and algorithmic tools available. "I think we should move towards using data in decision-making but we should not forget the fundamentals of statistical analysis," she adds.

To some extent, machines are learning to do this statistical analysis themselves, using algorithms to check for diversity whilst avoiding the risk of identifying individuals. But Pols argues that hypotheses and formulas for data mining, as well as the internal processes within companies for determining ethical behaviour and treatment of data, still need to be defined.

> **In the future, customers will not just buy a product, but a relationship with a company.**
>
> **Aurélie Pols,** data governance and privacy advocate, Krux Digital

As privacy legislation and data protection regulation evolve, more companies are training their data scientists about appropriate practices relating to privacy, sensitive data-handling and consent. Some also form ethical boards to improve these processes.

"Data is seen as an asset – the new oil – since the World Economic Forum in 2011. Now the regulation of the market for data needs to be better defined," says Pols. "Rules for the exchange, ownership and co-ownership of data need to come in the next three years."

Reshaping reality

Innovation reshapes commercial realities and, in turn, policy implications. At present, many firms remain focused on refining their marketing strategies via data merging techniques to achieve more effective personalisation. But Pols hopes new breakthroughs will prompt a move away from marketing-focused uses of text-mining and machine-learning toward product development; technology deployed to better understand target audiences, creating products and services that engender long-term relationships with trusted and loyal customers.

"In the future, customers will not just buy a product, but a relationship with a company. The move toward subscription and rental models will encompass responsibility for security and the choices to be made about data usage. Businesses should not miss this opportunity to build on this new concept of loyalty," says Pols. ■

TO LEARN MORE ...

The future show live
Wednesday 28 September – 09:30-10:15

Digital ethics
Wednesday 28 September – 10:30-11:15

Delivering a 21st century payments experience

#Payments #Market Infrastructures

Evolving customer expectations are driving platform consolidation, but is a single system desirable or achievable?

"The online experience has led consumers and businesses to have very high expectations of payments services. Payments market infrastructures (PMIs) are working to meet these expectations and support innovation and new entrants – while continuing to deliver complete resilience and reliability," says Lisa Lansdowne-Higgins, vice president, card operations, Royal Bank of Canada.

PMIs have many common challenges, including ageing systems and increasing cyber-security and regulatory imperatives. As a result, we are witnessing a wave of payment infrastructure renewal planning with some common threads: delivery of real-time, or near real-time retail payment systems; a move away from proprietary standards to messaging using the XML-based ISO 20022 standard framework; and simplification of a multiplicity of legacy payment systems.

Are these trends moving us towards a single platform for all payments? Today's session, moderated by Lansdowne-Higgins, will consider the evidence.

Encouraging competition

Like many other large, complex economies, the UK has multiple payment systems, with their own rule books, governance, standards and technology, says Andrew Hauser, executive director of banking, payments and financial resilience at the Bank of England. "Many of these are world-class. But there are good reasons why UK authorities are driving towards simplification. Small pools of payments are costly in terms of operational costs and collateral, they create potential barriers to new entrants and they limit the potential to substitute between different schemes, which would boost system-wide resilience."

The UK's Payments Strategy Forum, an industry-wide body established by the UK Payment Systems Regulator, recently published a draft strategy document for consultation, aimed at "encouraging competition, innovation and increased service standards across the payments industry". The strategy proposes a Simplified Payments Platform for UK payments using open APIs and international messaging (ISO 20022), to deliver greater competition and more innovation at lower costs.

Concurrently, the Bank of England is drawing up a blueprint to replace the UK's real-time gross settlement (RTGS) system, now 20 years old, to ensure resilience, but also guarantee responsiveness to changing payment demands. The Bank announced in June that direct access is to be extended to non-bank payment service providers meeting appropriate standards, and has long made clear its intention to move to ISO 20022 at the time of the next major upgrade. A complete reform package was released for consultation just before Sibos.

But Hauser suggests there are limits to simplification. "Promising to meet all user needs on a single system is not on the cards in the foreseeable future – nor is it needed," he says, stressing the value of distributed, but integrated systems when it comes to ensuring resilience.

The European Central Bank (ECB) has also been consulting the market on its vision for the future of Europe's financial market infrastructure, aimed at improving efficiency and fostering further integration. Three priorities have been identified: harmonisation of Eurosystem collateral management arrangements; modernising TARGET2, the pan-European RTGS system operated by the Eurosystem; and developing new services to support innovation – in particular, a pan-European real-time payments scheme (SEPA Credit Transfer Instant). For TARGET2, the vision is to consolidate it with TARGET2-Securities (T2S) in order to reap the benefits of T2S's use of ISO 20022 messaging, access via different network service providers and multi-currency capabilities. "A multi-currency TARGET2 would not only benefit non-euro member states, but also position Europe well for any future global interconnectivity," says Marc Bayle, director general, market infrastructure and payments at the ECB. A decision on these proposals is imminent, and, says Bayle, "by Sibos 2017, we will have full clarity on where we see the future of Europe's market infrastructure."

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A multi-currency TARGET2 would not only benefit non-euro member states, but also position Europe well for any future global interconnectivity.

Marc Bayle, director general, market infrastructure and payments, ECB

A global experience

With major PMIs apparently well aligned on the need for real-time payments and the use of internationally-recognised ISO 20022 messaging standards, how far might the consolidation of payment platforms go?

Tony Brady, global head of business strategy and market solutions, BNY Mellon Treasury Services, suggests a single platform for all payments is a misnomer. He prefers to think in terms of delivering a "global real-time experience for cross-border payments, similar to the experience already provided by global wireless telecom companies". And he believes it is very achievable. "You need standards, the network effect and global regulatory engagement to make this happen." Brady points to progress on all three: work on global interoperability of ISO 20022 messaging; the imminent ubiquity of real-time payments; and regulators' willingness to foster innovation.

If a single (global) platform for all payments is a wish too far, the ECB's Bayle believes a single system – based on interconnectivity of regional payment platforms – might ultimately be achievable. ISO 20022 offers this promise. "I think it is necessary to consider the global dimension as we modernise our systems," he says.

The Bank of England's Hauser recognises the desirability of ubiquitous instant cross-border payments, but sounds a note of caution: "Obviously there are strong commercial pressures, but this is really the hardest part to achieve," he says, pointing to differences in market practices, governance and risk issues that would need to be overcome. "Technology – however revolutionary – is not going to unlock this on its own." In Europe, for example, debate is ongoing about instant clearing vs. instant settlement.

"

Payments market infrastructures are working to meet high expectations and support innovation.

Lisa Lansdowne-Higgins, vice president, card operations, Royal Bank of Canada

Open to debate

BNY Mellon's Brady is a member of the vision group for SWIFT's global payments innovation (gpi) initiative, which has created a rule-book for a same-day business-to-business payments service, offering transparency on fees, based on service level agreements and SWIFT messaging. More than 70 banks have joined the initiative which will begin operations in 2017. "A real-time, cross-border payment experience could be stitched together by having transformational programmes work together – such as gpi, real-time payment systems and mobile banking solutions such as M-Pesa," says Brady. Acknowledging the long-term nature of such a project, Brady suggests it should factor into today's deliberations. "There's a danger in taking our foot off the accelerator," he says.

Lansdowne-Higgins sums up: "We are at a convergence in many markets, and there is a global mind-set about delivering an instantaneous client experience, without compromising on clearing efficiency, resiliency and reliability. But will there ultimately be a single platform? I don't think we've come to a conclusion about that. For the time being, PMIs are working through the heaviest priority for each of them. Let's see where it leads." ■

TO LEARN MORE ...

Towards a single platform for all payments?
Wednesday 28 September – 09:00-10:00

Taming the robot

#Technology #Cyber-security #Innotribe

The internet of things is becoming a 'world-sized web' that will change the nature of cyber-security threats, according to Bruce Schneier.

It is an almost self-evident truth that every technology breakthrough brings new risks as well as new opportunities. Equally, the most profound benefits and drawbacks may not be the most immediately apparent, but instead evolve over time. At the dawn of the railway age, for example, many warned of the unknown effects of speed on the human body.

Parallels have been drawn between the impact of the industrial revolution, of which railways were a significant part, and today's digital revolution. Digital technologies are being deployed to usurp established methods of production and distribution, as well as providing the basis for myriad new services, often leveraging newly-available streams of data. This revolution brings disruption to some, but is viewed as beneficial overall; at the same time, the major risks – e.g. theft of assets via cyber-attacks, for example, or job displacement – are regarded as well-understood if not easily prevented. Nevertheless, every new stage in our new industrial revolution gives rise to new risks as well as new opportunities.

Re-think required

World-renowned information security expert Bruce Schneier believes the rapid growth of the internet of things (IoT) – which effectively enables the widespread network connectivity of multiple everyday objects – requires a re-think by organisations that have to date focused their cyber-security strategies on combatting theft. "With the advent of the IoT and cyber-physical systems in general, we've given the internet hands and feet: the ability to directly affect the physical world," noted Schneier – chief technology officer at Resilient, a cyber-security solutions provider owned by IBM – in a recent blogpost.

In fact, Schneier goes further. If the devices are the hands and feet, the data they run on is provided by various sensors ("the eyes and ears"), while their actions are dictated by processors, algorithms and other forms of analytics ("the brains"). In short, he says, we have created a robot, a "world-sized web", that will become increasingly smart and capable over time. The wider implications are profound, as are the challenges of securing such an inter-connected network. "A lot of the risks we already see are going to be turned up to eleven," he says.

Broadly speaking, a cyber-attack can enable a breach of confidentiality (e.g. data theft), integrity (data manipulation), or availability (preventing access to data). While denial-of-service attacks are common, breaches of confidentiality have been a bigger concern of financial institutions as these may compromise client confidentiality and facilitate massive transfers of value. But many experts, including Schneier and James Clapper, US director of national intelligence, believe hooking up more devices to the internet will force firms to focus on integrity and availability as much as confidentiality in their information security strategies. According to Clapper's latest threat assessment report, "Future cyber operations will almost certainly include an increased emphasis on changing or manipulating data to compromise its integrity (i.e., accuracy and reliability) to affect decision-making, reduce trust in systems, or cause adverse physical effects."

Why does the IoT alter the nature of cyber-security threats? First, turning thousands of devices into internet-enabled computers will increase overall vulnerabilities to cyber-attack because the regular security-based software fixes and updates that protect smartphones, for example, will not offer the same level of protection to refrigerators and other devices with slower replacement cycles. Second, the sheer increase in interconnectedness inherent in IoT growth will heighten the unpredictability of cyber-attacks, with new vulnerabilities arising via multiple unlikely and labyrinthine linkages. Third, the greater autonomy granted to IoT-linked devices – to change temperatures, to open gates, to drive cars etc. – allows reduced human supervision, potentially leaving cyber-attackers to wreak damage for longer prior to detection and remedy.

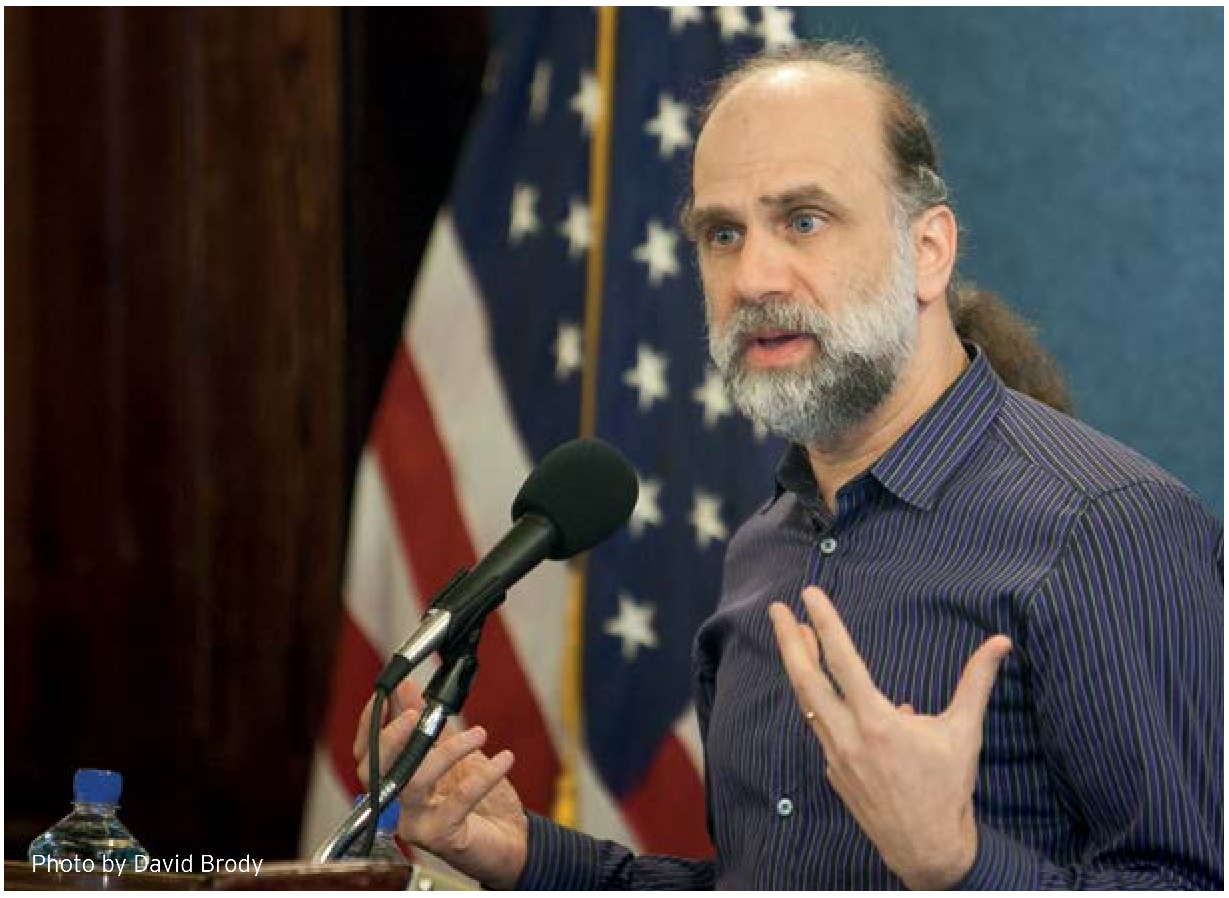
Photo by David Brody

> **The internet of things will allow for attacks we can't even imagine.**
>
> **Bruce Schneier,** CTO, Resilient, IBM

The construction of the IoT is well under way and the warnings of cyber-threats are plentiful. In November 2013, cyber-criminals broke into US discount retailer Target via its air conditioning services contractor, albeit to steal customer credit card details (confidentiality) rather than to render the stores unusable by controlling the thermostat (integrity).

For Schneier, however, "the internet of things will allow for attacks we can't even imagine". This evolving, unpredictable new risk is unsettling for an industry like banking, which by nature is highly reliant on high volumes of interactions across multiple networks and is in the midst of efforts to make its systems and services more easily accessible to customers, e.g. via smartphone-based apps. But Schneier asserts that banks are better prepared to handle the growing IoT threat than many other organisations and entities, in part because of their prior experience and expertise in tackling cyber-attacks. Beyond governments, banks were among the first organisations to implement security operations centres, for example, and have invested heavily in the skills and systems to thwart cyber-attacks. Although he admits developing a company-wide understanding of cyber-security threats – a task likely to become more important in the IoT era – remains difficult for any large organisation. "Building a security culture is harder – but banks are taking the challenge very seriously," he told Sibos Issues.

> **Building a security culture is harder – but banks are taking the challenge very seriously.**
>
> **Bruce Schneier,** CTO, Resilient, IBM

Multi-faceted defences

While the nature of cyber-attacks will continue to evolve, so too will the tools available to those manning the defences. Bold claims are being made for security solutions that use artificial intelligence and machine learning to identify unusual patterns in data flows, for example, at greater speeds and volumes than can be achieved by humans. Schneier is cautiously optimistic and believes that AI can contribute to existing efforts to protect against cyber-attacks. "AI-based solutions are able to address an increasing range of cyber-security threats, but the big risk for potential users right now is false alarms," he says. "If, for example, an ATM was to raise a false alarm once in 100 uses, the reputational damage would probably be a bigger problem for the bank than the effect of a cyber-attack it is trying to prevent."

For the foreseeable future, banks and other frequently-targeted entities must seek to balance artificial and human intelligence in their multi-faceted cyber-defence strategies. But Schneier suggests the morphing nature of cyber-threats from the IoT requires a government-level response too. From a purely technological standpoint, solutions are being developed to protect data from rising integrity and availability threats. Schneier worries, however, that the complexities and tensions between security and commercial imperatives could compromise effective deployment: "Governments need to play a larger role: setting standards, policing compliance, and implementing solutions across companies and networks." ■

TO LEARN MORE ...

Innovation in cyber-security: Innovative defences against innovative attacks
Wednesday 28 September – 15:15-16:00

Is blockchain a game changer for CSDs?

#Blockchain #Market Infrastructures

Though drawn to the potential of blockchain, central securities depositories are approaching innovation in a context of increasing regulatory oversight.

Central securities depositories (CSDs) are not necessarily a natural place to look for innovation. After all, their reputation is based on stability and prudence: the securities industry's ultimate backstop in a time of crisis. Nevertheless, this is a period of change for those responsible for securities settlement. As Angus Scott, head of product strategy and innovation at Euroclear, points out, regulators themselves, concerned with mitigating risk along the transaction chain, have been reviewing both the role and nature of CSDs.

"In Europe, this is partly reflected in the TARGET2-Securities initiative, which is a fairly major structural change," says Scott. "In addition, the CSD Regulation helps to codify and standardise aspects of the CSD business, but also contains new ideas about inter-CSD competition." Other new regulations such as UCITS V and the Alternative Investment Fund Managers Directive (AIFMD) contain liability provisions that may change the way CSDs interact with customers, as part of regulators' efforts to provide more transparency for end-investors.

Both regulatory and technological change are traditional drivers of process innovation in the finance sector. And while distributed ledger technology (DLT) is expected to feature prominently in today's debate, the focus is likely to be less on the threat of disintermediation that decentralised ledgers may pose, than on the benefits that these and other technologies can bring within the established roles of CSDs.

"A lot of the things people would like to do with blockchain and capital markets in the areas of security and authorisation, for example, are much easier to do in the context of a CSD licence," says Scott. "CSDs are well-placed to respond to some of the regulatory change in the industry."

> **The industry has to balance any kind of technology innovation with the need to ensure security.**
>
> **Virginie O'Shea,** research director, Aite Group

Slow progress?

The potential of blockchain-based innovation to improve post-trade processes attracted significant attention at Sibos 2015 in Singapore. But progress since then has been relatively slow, not least because of the complex issues around coordinated industry migration. Panel moderator, Virginie O'Shea, research director, Aite Group, suggests that the challenges posed to the financial services industry by cyber-security risks may also be acting as a brake on its embrace of DLT.

"The industry has to balance any kind of technology innovation or exciting development with the need to ensure security," says O'Shea. "I would, for example, be surprised if the question of recent Bitcoin breaches did not come up."

Regulators are looking closely at blockchain, in part attracted by its potential transparency benefits, but they have not yet explicitly sanctioned its adoption at the market infrastructure level. "Innovation in capital markets tends to be rather slow to reach critical mass," says O'Shea. "In Singapore, we hit peak hype about blockchain; this year I hope the discussion will focus on what we can realistically do with this technology and the timeframe needed to adopt it. While we've seen a number of pilots and substantial exploratory work over the past year, we've yet to experience anything concretely transformative."

As with many other systemic IT innovations, the most likely area for progress is in developing economies, where legacy infrastructures are less entrenched, or where consensus can easily be reached on the need for a market-wide replacement project. "Adoption is always going to be faster where you can develop infrastructure from scratch or where you are replacing something that was an entirely manual process, rather than where you have to run huge technology systems in parallel with each other," says O'Shea.

> **A lot of the things people would like to do with blockchain and capital markets in the areas of security and authorisation are much easier to do in the context of a CSD licence.**
>
> **Angus Scott,** head of product strategy and innovation, Euroclear

Two CSDs that have already made strides in the practical application of DLT will be represented on the panel. Cliff Richards, general manager, equity post-trade services, at the Australian Securities Exchange (ASX), will explain how the exchange group has incorporated DLT into one of its long-standing post-trade market infrastructure priorities.

Mindful of the need to upgrade or replace its existing settlement platform – Clearing House Electronic Subregister System (CHESS) – the ASX enlisted US-based firm Digital Asset Holdings to help develop solutions for the Australian equity market using blockchain technology that meets its need for scalability, security and performance.

Speaking last month at the Centre for International Finance and Regulation in Sydney, Richards said that blockchain could help modernise the "non-functional" aspects of CHESS, but added, "Blockchain technology alone cannot solve the challenge of real-time securities settlements and transactions in capital markets."

Further, Richards said there was a need to map out a pragmatic path for financial institutions and intermediaries to implement blockchain technology in the longer term. "There is absolutely no scenario we can see in mainstream capital markets in the near term where we would apply the ultimate promise of blockchain to solve the post-trade processing problems," he said.

Getting practical

US post-trade utility DTCC has also been working with Digital Asset Holdings, in this case to explore the potential use of DLT solutions in repo transactions. Nevertheless, panellist Robert Palatnick, DTCC's chief technology architect, acknowledges that "distributed ledgers may not be the solution to every problem", and suggests market infrastructure operators and their users should continue to consider the full range of alternative opportunities to lower the costs and risks through standardised industry workflows and expanded use of cloud technologies.

Writing on the TABB Forum website, Palatnick noted: "Key challenges with the platform will need to be overcome before it can be widely adopted or considered enterprise-ready."

Whereas last year at Sibos, the emphasis was on blockchain's potential, discussion in Geneva is likely to focus more closely on its practical application for market infrastructure efficiency. For Scott at Euroclear, there is also the question of how far CSDs should be driving DLT initiatives. "I suspect the divergence will be between those who are inherently conservative – which one might say is the natural mindset for CSD managers – who see experimentation as something we should let FinTech firms and investment banks explore, and those who see so much opportunity that CSDs should definitely be looking to play," he says. ■

TO LEARN MORE ...

Innovation in the CSD space: What about distributed ledger technology?
Wednesday 28 September – 14:00-15:00

Making the business case for a better banking culture

#Diversity

The benefits of diversity and inclusion in the workplace are increasingly well understood, but cannot be achieved overnight.

Just as a chain is only as strong as its weakest link, the culture at individual financial organisations can detract from the overall health of the global financial system. With this in mind, institutions are putting behaviour, diversity and inclusion at the forefront of their agendas – and seeing benefits to their bottom lines as well as a reduction in systemic risk.

This shift in perspective is an important one, says Tinna Nielsen, anthropologist, behavioural economist and founder of Move the Elephant for Inclusiveness, a non-profit focused on creating systemic behaviour and cultural change in organisations. "For too long, diversity and inclusion have been stuck in a compliance perspective or as something that is nice to do because it is the right or politically correct thing to do," says Nielsen. "The truth is that diversity and inclusion should be at the heart of good business decisions at any organisation."

Though significant strides in changing behaviour and increasing diversity and inclusion have been made over the past two decades, says Nielsen, "we are way behind on this and it is, to put simply, just a waste of people's potential. We need to reframe inclusion from a 'nice to have' to a 'need to have'," Nielsen adds.

Crisis causes

This topic is on the radar of a number of regulatory bodies, such as De Nederlandsche Bank (DNB), the Dutch national bank, which has been examining the role of "prevailing culture" or how individual actions and group dynamics affect the risk profile and financial performance of institutions post-financial crisis.

"After 2008, we asked ourselves whether the crisis – in addition to economic and technical causes – was also due to behavioural patterns," says Wijnand Nuijts, head of DNB's governance, culture and organisational behaviour department. "So in 2009 we decided to design and develop a methodology to integrate behavioural and cultural aspects into our supervisory practice."

Since 2011, the Dutch supervisory authority has conducted more than 50 cultural and behavioural assessments across the financial ecosystem, from banks and insurers to pension funds and trust offices, identifying what it calls "fundamental risks" in more than half. Some of the pain points identified include an "insular subculture", "leadership and chairmanship too much focused on content, thereby neglecting group dynamics," and a tendency toward "consensus and optimism", over doing the hard work that the diversity of opinions often brings.

Kim Newell Chebator, executive vice president, head of global markets at State Street, understands the importance of fostering an environment that avoids groupthink. "To be successful and innovative, it is essential to encourage a culture that supports constructive debate through diverse perceptions and views.

Newell Chebator suggests that a firm cannot be considered truly client-focused unless it has placed diversity and inclusion at the heart of its business. "We have several initiatives running within our workplace to try and encourage gender diversity. Mentoring is key and we've established a Career Partnership Programme, in which vice-presidents and senior vice-presidents are paired with our CEO's direct reports to accelerate the development of our female talent," she says.

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Organisations are willing to change. They are willing to scrutinise the effectiveness of their behaviour.

Wijnand Nuijts, head of governance, culture and organisational behaviour, De Nederlandsche Bank

Group dynamics

For DNB, continued monitoring is key until the desired behavioural change has been achieved. "We looked to assess the quality of decision-making by individuals as well as the group dynamics at the director and board level of these financial institutions," says Nuijts, adding that where people often fall short is in their awareness of their own behaviour and its direct link to institutional performance.

Nielsen agrees. "Part of the solution is reframing our unconscious minds, which dominate our behaviour," says the former global head of diversity, inclusion and collaboration at Denmark's Arla Foods. "In my line of work, I saw this default behaviour play out again and again." The key, she says, is to mitigate bias "by gently pushing the brain in the direction of inclusive behaviour and decision-making without promising incentives or punishment". This can include anything from blind hiring practices to using photos of an executive committee or board to "humanise the numbers", Nielsen says.

A pre-requisite for any change programme is patience. Nielsen believes it is important to acknowledge that instilling new behaviour patterns and positive cultures in the financial sector is, and will continue to be, hard work.

"We were never promised that this would be easy," she says. "I don't think it will ever be easy – it would mean that we had agreed too fast." Nevertheless, the long-term benefits are tangible. Nielsen cites the research of Scott E. Page, a University of Michigan professor of complex systems, political science and economics, which asserts that a more diverse team produces better results even when compared with teams comprised solely of high performers.

Sharing best practice

Being able to refer to evidence-based academic studies is useful in winning over the sceptics, but both Nielsen and Nuijts believe in the importance of creating a sharing community of best practices as another key way to increase diversity and inclusion – even among financial institutions that have made previous missteps.

"Organisations are willing to change," Nuijts says. "They are willing to scrutinise the effectiveness of their behaviour and acknowledge how that affected their performance. There is an emphasis on reflection within a group and how to make amendments to their decision-making."

At one level, organisations perform their role within social and economic systems more effectively if they can improve their culture and their decision-making through sharing best practice. At another level, individual members of the team become more fulfilled because they are able to contribute more to the collective effort.

"We are all different and we have to utilise the value in those different ways of thinking," says Nielsen. "When we don't, we exclude knowledge, information, and people and that creates miserable lives. It creates so much joy in our work life when we succeed in being inclusive. Why not make sure differences make a difference?" ■

"

It creates so much joy in our work life when we succeed in being inclusive.

Tinna Nielsen, founder, Move the Elephant for Inclusiveness

TO LEARN MORE ...

Unconscious bias awareness training is hot, but the outcome is not! How can we design to encourage inclusive behaviour?
Wednesday 28 September – 10:15-11:15

How to make wiser decisions & future proof your organisations through inclusion of diverse perspectives
Wednesday 28 September – 14:00-15:30

Behaviour and culture under the spotlight
Wednesday 28 September – 15:30-16:30

Look up to the Salève

Nestled among the fray of corporate logos and coffee stands on the exhibition floor, delegates may have noticed the colourful sketching of the Salève mountain and Mont Blanc on a large mural as this year's Sibos art installation takes shape.

Artists Guillaume Ozon and Alexandre Levine started work on their two murals on Monday afternoon and expect to be finished by Thursday. Using water-based paints and stepladders to reach their 220x230cm canvasses, Ozon and Levine have already attracted considerable attention.

"It's great to have the art on display here and we have received a lot of interest from delegates taking photos and asking questions about it," says Ozon.

The eye-catching mural of the Salève, which overlooks Geneva, will be donated to a local institution for disabled children, while the second mural, focused on the theme of finance, is expected to find a home in Geneva.

The art project is part of SWIFT's partnership with the Anouk Foundation, a Geneva-based charitable organisation that creates art to improve the wellbeing of patients, residents, family and staff in hospitals, special needs facilities, orphanages, psychiatric centres and nursing homes. ■

Taking the industry's temperature at the transformation lounge

Banks have been living with the gloomy reality of low interest rates and higher capital requirements for some time now. But in the current environment, geopolitical shifts, the political landscape and cybercrime are creating the greatest doubt and concern amongst delegates.

These are just some of the insights that can be gained from exploring the Transformation Lounge situated between the exhibition hall and conference rooms. Boasting white leather chairs and cosy booths for contemplation, the lounge also features games that encourage conference delegates to share their views on issues that are transforming the banking landscape.

In a nod to the technology challenges facing banks, delegates can also use colourful balls of string to depict how their institutions are managing the disruption caused by FinTech.

So far, partnering with FinTech companies or making investments in-house are the preferred options for institutions (corporate and commercial banks, central and retail banks, software consultancies) from EMEA, the Americas and Asia. Some corporate and commercial banks from Asia-Pacific and EMEA indicated that they were acquiring FinTech providers.

Using different coloured marker pens, Sibos delegates are being asked to rank on a scale from one (not threatened) to 10 (very threatened) their feelings about cyber-security attacks. To date, most delegates feel 'very threatened' by the threat of malicious insiders – a common cause of data leakages and theft within organisations – Trojans and social engineering cyber-attacks that use psychological manipulation. Ransomware and network intrusion were also considered threatening.

Do you agree? Pop along to the Transformation Lounge to enjoy some thoughtful contemplation or share your insights with other delegates. ■

Meet the innovators (part two)

Sharing insights and celebrating their victory, the three winners of Innotribe's Latin America Startup Challenge will join the Sibos conversation at the Innotribe stand, 09:00 this morning.

Bitso, which connects Mexico's traditional banking infrastructure to Bitcoin and blockchain for international cross-border payments, and Quotanda, the school-managed marketplace for student financing (also Mexico-based), will join Chile's Destacame, an enabler of financial inclusion for individuals and SMEs, for an in-depth discussion about their ideas, their strategies and their markets with Juan Martinez, SWIFT's head of Latin America & The Caribbean. The three winners will then be available to meet delegates at Innotribe's satellite FinTech Hub, stand B80.

"For us, the Startup Challenge was an incredible opportunity," says Daniel Vogel, co-founder and president of Bitso. "SWIFT is an incredibly recognised name, and Innotribe's competition has a significant amount of clout." Participation in the Startup Challenge entailed a two-day coaching session on pitching. "That has helped us to attract capital - we've raised a round of financing since then," says Vogel.

Another takeaway from the Startup Challenge was the insight that disruption doesn't rule out collaboration with current players. "In the months since the challenge, we've opened new partnerships with financial institutions in Mexico that we thought wouldn't want to work with us. Now, we've found a way to work with them, and that's meant a lot of growth for us," says Vogel. And how are you finding Sibos? "I'm amazed by the amount of work that everybody is putting in. It's a lot of fun, too." ■

To grandma with love

How would tomorrow's generation tackle today's banking challenges? This question lies at the heart of a recent SWIFT Institute initiative to encourage university students to apply theories and knowledge learnt in the classroom to real-life, practical problems faced by banks and their customers. One possible answer will be presented this afternoon on the SWIFT stand by two members of a team of students from University of Warwick Business School, who will outline a way of reducing the time and cost involved in sending remittances from the UK to Indonesia, using recent technological advances.

Their idea was inspired by the difficulties experienced by a friend's grandmother in collecting remittances sent to Indonesia from the UK. Living on one of Indonesia's 900-plus inhabited islands, she would have to take a day off work to reach the nearest bank branch, thus incurring a reduction in the amount received, in addition to the fees levied by remittance service providers. The proposed solution – which the students have called HADU – involves recent technology innovations, including blockchain and near sound data technology, but also some innovative thinking, such as high-security transport networks. The students believe the solution could prove cheaper, quicker and more convenient than current remittance services.

To find out more, come and listen to Fiza Hussain and Sneha Sunkara (pictured to the left) give a talk and take questions at 14:00 this afternoon.

This year's pilot competition was open to UK universities, but the SWIFT Institute is already working on setting up a new challenge for students at universities across Canada, with the aim of short-listed teams presenting their solutions at Sibos 2017 in Toronto. ■