Tue 27 Sep 2016

Sibos Issues

sibos

TUESDAY PREVIEW

The official daily newspaper of Sibos 2016 Geneva I 26-29 September

BIG ISSUE DEBATE

Partners in defence against cyber-crime

#Technology #Cyber-security

Information sharing and analysis are helping the finance industry counter the growing threat of cyber-security attacks.

In its September 2015 analysis of the cyber-security industry – 'You've Been Hacked! – Global Cyber-security Primer' – Bank of America Merrill Lynch cited cyber-attacks as one of the top global risks facing businesses and governments today. The statistics alone range from the unsettling to the terrifying. There are approximately 80-90 million attacks per year. Close to 400 new threats occur every minute. The majority – up to 70% – of attacks go undetected. Finance and insurance is the most targeted sector. Cyber-attacks are the biggest source of intellectual property theft for corporates.

The worst case scenario, which Bank of America Merrill Lynch described as 'cybergeddon', involves bad actors achieving a permanent advantage as an increasing number of devices come online – thanks to the growth of the Internet of Things – creating a base for launching further attacks. The nature of cyber-security attacks might be changing and growing fast – but so is the intelligence and sophistication of defence strategies deployed by banks and market infrastructures.

Multi-layered attacks

Cheri McGuire, chief information security officer at Standard Chartered Bank and panellist on today's Big Issue Debate on cyber-security, says that the methods attackers are using are becoming increasingly multi-layered.

"What we saw more in the past were wide-scale phishing attacks, in which a large number of individuals were sent emails intended to trick them into clicking on a malicious link or providing sensitive personal or financial information," she says. "While this still happens today, we see much higher levels of blended attacks using complex social engineering tactics."

continued on page 2

"Public-private partnerships can help make significant progress.

Cheri McGuire, chief information security officer, Standard Chartered Bank

BIG ISSUE DEBATE

Unfinished business

Capital levels have risen and the banking sector is more robust, but how will banks support customer needs and economic growth in the emerging landscape?

The global financial system may be in a stronger position today than at the time of the financial crisis, but new challenges now confront banks and regulators. Many of these will be explained and explored in today's big issue debate on financial stability, moderated by Merryn Somerset Webb, noted finance sector commentator and editor-in-chief of MoneyWeek.

Several areas of concern arise from the post-crisis reform programme itself. In response to regulatory restrictions on capital and leverage, banks have retrenched from lending and liquidity provision in markets they have previously dominated. This has brought new players into these markets and, potentially, new risks. Regulators must work together to deal with the weaknesses that have emerged

continued on page 6

BIG ISSUE DEBATE

Partners in defence against cyber-crime

continued from page 1

These attacks can include 'spear phishing', where emails are purportedly sent from firms or individuals known to the recipients, often followed by 'vishing', or voice phishing, attacks.

"When an individual receives an email followed by a call, they are more likely to believe the request is real," she says. "What this means for our employees though is that we need to ensure proper training. Employees need to be hyper vigilant, for example asking challenging questions whenever unsolicited or suspicious requests are received."

Awareness of the threats is improving as the patterns of attack become more visible to and understood by security analysts, risk managers and senior executives across the financial industry. Due

"Collaboration across financial institutions is helping the industry to be more proactive.

Marco Gercke, director, Cybercrime Research Institute

to increasing information-sharing activities among banks, and greater cross-organisational correlations of threats, coordinated attacks are not masked so easily.

Marco Gercke, director at the Cybercrime Research Institute, says, "We have a common understanding when a number of attacks form a campaign, as opposed to an individual criminal element that is launching vishing attacks, for example. Both our technology tools and collaboration across financial institutions are helping the industry to be more proactive in identifying some of these things, before they can have a broader impact."

Fighting back

The universal nature of the internet means identifying who is stealing information and who is profiting from it can be highly complex. Criminal organisations can divide up the work involved and might be based in multiple locations all over the world.

"Individuals are doing different parts of the job: some are doing the intrusions into the networks, others are taking those stolen numbers and producing the cards," according to Catherine Lotrionte, executive director of the MSFS CyberProject at Georgetown University. "Others will then go to the ATM machines and actually pull out cash."

But it is still possible to track down and prosecute the criminals responsible, even those operating from far afield, says Lotrionte. A notable US case saw a five-member Russian and Ukrainian gang convicted of hacking several US companies. The attack yielded at least US$300 million, based on losses reported by three of the corporate victims alone. Two of those charged were arrested in the Netherlands and extradited, albeit with one extradition process taking over two years.

Despite the difficulties inherent in tracking down highly elusive cybercriminals, Lotrionte says the case demonstrates that prosecutions can be achieved. "For years, a lot of countries just didn't have the necessary criminal justice set-up. The US Department of Justice (DoJ) is always thinking about how it can get better, and some of it involves changing laws to obtain the tools they can work better with," she says.

Another example of international cooperation in 2014 successfully disrupted and disabled Cryptolocker ransomware and the Gameover Zeus botnet network that distributed it, with charges filed in absentia against Evgeniy Bogachev, a Russian national.

"We saw a major coordinated effort, including international law enforcement agencies, private industry and academia working together in order to tackle that threat," says McGuire. "These types of public-private partnerships to share information and work together to thwart criminal networks are vital in today's threat landscape. Because cyber-crime has no borders, creating sustainable deterrents can be difficult, but public-private partnerships can help make significant progress."

Effective defence

According to Gercke, the measures that firms need to deploy for effective defence against cyber-attacks can be framed in terms of the classic 'three lines of defence' model of risk management. In this model, the first line of defence consists of management controls and internal control measures enforced and monitored at departmental or business unit level; the second is the risk governance framework overseen by central HQ functions, such as compliance, security or risk management; while the third layer of defence is provided by the internal audit function and the board.

"For years, a lot of countries just didn't have the necessary criminal justice set-up.

Catherine Lotrionte, executive director, MSFS CyberProject, Georgetown University

While Gercke asserts that high-quality risk management personnel and processes should be able to handle cyber-security attacks effectively, he concedes that cyber-risks have important differentiating characteristics.

"If a company building is on fire, one has a general understanding as a manager of how long it will take to rebuild that factory and what impact that will have on the business," he says. "In a cyber-attack very often in the very beginning you have no idea [about the long-term impact]. If somebody says: 'There is something wrong with our server there seems to be a data leak, shall we shut it off?', the immediate response is not always clear."

Unfortunately, there remain many 'known unknowns' about cyber-security attacks, even after the event. Attacks can keep firms occupied for hundreds of days. Managing such an event is beyond the usual procedures that firms have in place. As such, it is often recommended that administrators, risk managers and management teams conduct regular role-play exercises in order to familiarise themselves with the priorities, procedures and mindset they will need to adopt in a real attack.

Understanding that neither cyber-security attacks nor solutions are clear-cut helps the industry to get better at protecting itself. Technology is being employed not only to block attacks, but also in more sophisticated ways. McGuire notes that while machine learning can find patterns and behaviours for security purposes, it can also be useful in adjacent functions, such as legal teams checking legal opinions given in previous cases across multiple jurisdictions in order to arrive at a statistical likelihood of a favourable ruling in a similar case.

Developing a more advanced legal defence helps to fight against criminals, even when the outcome of technological battles is uncertain. Breaking the anonymity of the internet can be a powerful tool in the fight against cyber-crime, insists Lotrionte. "One reason the DoJ is bringing charges even if criminals are not in custody, is the belief that by calling them out you are also raising the costs to those hackers." ■

TO LEARN MORE …

Cybersecurity – Catching the bad guys
Tuesday 27 September
14:00-15:00

TUESDAY 27 SEPTEMBER

BIG ISSUE DEBATE / PLENARY

11:30-12:30	**Financial Stability – The future of global finance**	Plenary
14:00-15:00	**Cybersecurity – Catching the bad guys**	Plenary

BANKING

10:15-11:15	**Payments interoperability across communities and currencies**	Conference Room 2

SECURITIES

09:00-10:00	**Enabling investment management's next era: The rise of the robo-adviser**	Conference Room 3
10:15-11:15	**When RegTech meets FinTech: the day after tomorrow – How technology disruption intersects with regulation in securities**	Conference Room 3
10:15-11:15	**Latest developments in the FX Markets: The impact of current regulation and insights into future market evolution**	Workshop A
14:00-15:00	**The role of regulation in asset management**	Workshop B
15:30-16:30	**The future of funds hubs**	Conference Room 3

COMPLIANCE

09:00-10:00	**Evolution of correspondent banking: Can compliance help defend the model?**	Conference Room 1
10:15-11:15	**Recent trends in counter terrorist financing**	Conference Room 1
15:30-16:30	**Utilities: Reaching the tipping point?**	Conference Room 1

CULTURE

09:00-10:00	**Building a culture of security**	Conference Room 2
15:00-17:00	**Cyber crisis management workshop**	Workshop A
15:30-16:30	**Diversity and inclusion – The leaders' perspective**	Conference Room 2

STANDARDS FORUM

09:30-10:00	**On the drawing board – The role of standards in disruption, with Professor Michael Mainelli**	Standards Forum
10:00-11:15	**Audience Discussion: What should we learn – or reject – from disruptors?**	Standards Forum
13:00-13:45	**Business standards in the DLT stack**	Standards Forum
15:00-15:45	**Standards governance and mechanisation**	Standards Forum

INNOTRIBE

09:00-09:30	**Innotribe day opening and Startup Challenge for Africa**	Innotribe
09:30-11:15	**Organise for complexity**	Innotribe
12:45-13:45	**FinTech hubs – EMEA**	Innotribe
15:15-16:45	**Situational awareness maps**	Innotribe
17:00-17:30	**Innotribe day closing (Organisation, Day 2)**	Innotribe

SWIFT INSTITUTE

15:30-16:00	**Divergence in finance – Big bang blockchains or boring lowly ledgers?**	SWIFT Stand

Publisher: Sven Bossu, SWIFT ■ **Managing editor**: Alan Rowan, SWIFT ■
Sibos Issues is written and produced by Strategic Insight on behalf of SWIFT ■
Advertising contact: Stephanie Gerniers, SWIFT; stephanie.gerniers@swift.com; +32 2 655 4734 ■
Printed by Innovative Print Solutions Pte Ltd ■

Regulators take a positive approach to innovation

#Blockchain

Banks and their customers might be excited about the potential of new technologies to deliver greater value, but regulators are showing signs of qualified enthusiasm too.

Wide-ranging regulatory reform – much of it focused on improving transparency and oversight in order to mitigate systemic risk – is taking place against the backdrop of huge structural and technological change in the financial services ecosystem.

As reflected in the make-up of today's panel, blockchain-based technologies in particular are viewed as offering opportunities to rethink banking processes and transform financial services. Meanwhile, global financial institutions are increasingly interested in pushing middle- and back-office functions and transaction processing into the cloud. As bank operations and market structures are re-engineered using new technology innovations, a number of implications arise for the regulators. Prominent among these are: how should the regulatory framework adjust to account for a more collaborative approach to product development and delivery across regulated firms and FinTech providers? And can these new technologies help to achieve regulatory objectives more effectively and with a lighter administrative burden on both the regulators and regulated?

It is easy to assume that regulators automatically eye innovation with suspicion. But while any responsible regulator will always be alert to the risk implications of new ideas, the conservatism of the industry's watchdogs can be overstated. Many are actively involved in projects to explore the potential benefits of the blockchain in particular and FinTech in general, notably the UK's Financial Conduct Authority (FCA), represented today by director of policy David Geale.

Having actively promoted technology innovation in financial services through its Project Innovate scheme, launched in October 2014, the FCA recently published its feedback to its November 2015 consultation exercise, which called for industry input on "supporting the development and adopters of RegTech", defined as "new technologies that facilitate the delivery of regulatory requirements".

Published in July, the FCA's feedback statement identified four types of RegTech that could benefit the financial services industry: technology that allows more efficient information-sharing and reporting (e.g. cloud computing, open online platforms, shared utilities); technology that drives efficiencies by closing gaps between intention and interpretation (e.g. semantic technologies, shared data ontologies, APIs); technology that simplifies and enhances data management (e.g. big data analytics, visualisation technologies and artificial intelligence); and technology that allows regulation and compliance processes to be delivered more efficiently (e.g. blockchain, biometrics and system monitoring).

While acknowledging the regulator's limited power to support industry efforts to define standards and guidelines, the FCA signalled it would continue to play an active role, committing itself to acting "as a catalyst for change that helps to unlock the potential benefits of technology innovation".

Sharing knowledge

Blockchain and other related technology innovations are changing how banks and technology firms interact with each other, acknowledges Philippe Ruault, chief innovation and digital officer of the Digital & Innovation Lab at BNP Paribas Securities Services.

BNP Paribas is looking to FinTech companies as potential partners to help accelerate a number of initiatives and already cooperates on existing projects, some of which involve blockchain, where the bank partners with an equity crowdfunding company. The bank is also involved with a FinTech company focusing on depository banking activity and how a combination of improved data management and artificial intelligence technology can help replace part of the bank's legacy platform.

"Such partnerships are complementary," explains Ruault. "Sharing knowledge delivers a lot of value that could lead to the development of other products going forward." Cooperation works best when there is a common objective, but Ruault warns against aligning with FinTech companies where the primary motivation is financial. "It is vital that FinTechs are looking to bring something to the marketplace, rather than purely raising money," he says.

It is also important to be selective in terms of the projects that banks and FinTech companies choose to partner on. "We believe blockchain should focus on specific niche markets, at least for the time being, because there are cases where the legacy systems that exist today are already efficient," observes Ruault, pointing to consortia such as R3 where a number of of banks are concentrating their efforts, working alongside technologists to create a sense of common purpose and protocol around blockchain, or distributed ledger technology (DLT).

> **How quickly can regulators adjust regulations to adapt to a new world order of execution via 'smart contracts' and transactions in the cloud?**
>
> **David Rutter,** CEO, R3

Promising signs

R3 is a financial innovation firm that leads a consortium of over 50 of the world's leading financial institutions working in collaboration to design and implement commercial applications for the global financial markets based on advanced DLT. Consortia members collaborate with technologists and blockchain and crypto-currency experts at the R3 Lab and Research Center on a range of research and experimentation-led design and engineering projects aimed at advancing DLT.

The work of the R3 Lab covers a spectrum of bank requirements from issues surrounding identity and privacy, to security and scalability, through to interoperability and integration with legacy systems. Proponents predict that adoption of advanced DLT will enable financial transactions to be completed with greater speed, security, cost-efficiency and transparency relative to legacy solutions.

As the financial services industry moves toward validated and certified DLT in the cloud, questions remain as to how this will impact regulation. "The underlying issue is: how quickly can regulators adjust regulations to adapt to a new world order of execution via 'smart contracts' and transactions in the cloud?", says David Rutter, CEO, R3.

Initial signs are promising with regulators keen to engage and increase their understanding of the potential and limits of new technologies. This covers a broad spectrum, with some regulators actively engaged while others adopt a more passive stance, explains Charley Cooper, managing director at R3. Notably, he has met with over 100 regulators in the past year and is yet to encounter any significant resistance to DLT. Some have become active members of the R3 Lab and have been running experiments. And for those sitting on the side-lines? "They see the positive potential of the technology and are making no attempt to get into the mix and regulate it before they fully understand what it means and what they need to do," says Cooper.

And it's not just the FCA that sees the scope of technology innovation to upgrade the reporting process. "One of the things we are going to build through the financial ecosystem is shared services, where the expense of regulatory transaction reporting can be executed in the cloud and shared by the industry as a whole," notes Rutter. Client identity is one such area where a common utility that would allow banks to share know-your-customer data is seen as being of considerable value. "This is an area where blockchain could help," says BNP Paribas' Ruault. Regulators realise that the potential of shared services is huge in terms of efficiency gains, says Rutter, reducing the burden of regulatory reporting on individual firms and improving overall data accuracy.

Private and public participation in exploring and testing new technologies is being actively encouraged. A 'regulatory wiki' and a 'regulatory test-bed' have been created through R3.

> **We believe blockchain should focus on specific niche markets.**
>
> **Philippe Ruault,** chief innovation and digital officer, Digital & Innovation Lab, BNP Paribas Securities Services

"Regulators are in the process of getting into our Lab so they can run experiments with the private sector and learn from that," says Cooper.

Proof of concept

Significant progress is being made already. Earlier this year, the Bank of Canada ran an experiment with R3 around payments and digital issuance, prompting the Financial Times to report on the development of a digital version of the Canadian dollar called CAD-Coin. The project was a public-private sector collaboration, involving Bank of Montreal, CIBC, Royal Bank of Canada, TD Bank and Scotiabank, all of which are members of the R3 Lab.

A statement by the central bank explained that "the bank's goal in these projects is solely to better understand the technology first-hand", adding that the aim of CAD-Coin was to build a "wholesale interbank payment system" using blockchain technology. Senior deputy governor Carolyn Wilkins said the project was just one of several the bank was exploring, emphasising that other frameworks needed to be investigated and hurdles cleared before such a system "would ever be ready for prime time".

Nevertheless, the approach taken by the Bank of Canada is indicative of the high level of interest regulators have in new technologies and the pressing need to understand its far-reaching impact on the financial sector. In early June, it was reported that representatives from more than 90 central banks had gathered at the US Federal Reserve for a Q&A on blockchain and its potential role in finance.

Several other regulators yet to go public are actively running 'proof of concept' trials in the R3 Lab. Regulatory participation has moved from an informal arrangement to welcoming them into R3 as formal members. And it is free. There is no cost barrier to regulators joining R3. "We want to bring them in so they can get comfortable with the technology and provide feedback on what they think does and does not work," explains Rutter. "It allows them to sit alongside our members experimenting in real time on applications that will benefit both sides." ■

TO LEARN MORE ...

When RegTech meets FinTech: the day after tomorrow - How technology disruption intersects with regulation in securities
Tuesday 27 September – 10:15-11:15

BIG ISSUE DEBATE

Unfinished business

continued from page 1

during the implementation of the post-crisis reform programme, according to David Wright, partner at London-based business advisory firm Flint Global, and president of Eurofi, the financial services think-tank.

"I don't think there is any question that we have a much safer and stronger financial system today than we did eight years ago, but that doesn't mean all the problems have been resolved, and there are still pockets of difficulty in Europe where bank lending has been too heavily constrained," says Wright, who will be joined by fellow panellists Sergey Shvetsov, first deputy governor of the Central Bank of the Russian Federation, and Trevor Spanner, chief operating officer and group risk officer of Hong Kong Exchanges and Clearing.

Silver lining

Whilst the Financial Stability Board (FSB) has been overseeing a far-reaching programme of reforms to boost systemic stability, other aspects of the macro-economic and geo-political environment have imposed further constraints on the ability of banks to deliver established services on a sustainable basis. A weak and uneven recovery in the west has led to a prolonged period of low interest rates which provides little incentive for savings or investment by individuals or businesses, thus limiting traditional bank income streams. In parallel, the continued fight against financial crime and terrorist financing requires banks to increase their compliance technology expenditure at the same time as discounting future revenues from developing high-growth markets by de-risking their correspondent banking networks.

This gloomy picture of lower revenues and higher costs is completed by the growing presence of FinTech rivals that might yet provide a silver lining to the clouds currently casting long shadows over the banking sector. Agile FinTech firms might be focusing all their resources on product development while banks are weighed down by legacy and regulatory costs, but this relationship is becoming increasingly symbiotic as leaders in both sectors appreciate that they can deliver more value to customers together than apart. Moreover, the technologies that so inspire FinTech innovation - blockchain, APIs, machine learning and intelligent automation – hold real potential for banks to cut a swathe through their cost bases. In addition, the RegTech boom being fostered in a number of leading financial centres is reflective of the significant potential these technologies have to reduce the cost of compliance.

Up until March 2016, Wright served as secretary general of the International Organization of Securities Commissions (IOSCO), a position he had held from 2012. Before that he worked for 34 years at the European Commission in Brussels in a number of senior roles, including deputy director general for financial policy and markets.

Speaking ahead of today's session, Wright welcomes the progress that has been made over the past eight years in improving capital levels and bank resolution frameworks, particularly for the largest systemically-important institutions, but he expresses concerns over other components of post-crisis reform, including the overhaul of the over-the-counter (OTC) derivatives market.

"The fact that as much of the derivatives market as possible has been driven onto trading platforms and clearing houses is a positive development and the associated netting has certainly reduced the overall exposure in the system. But it's unfinished business – the trade repository project clearly hasn't worked, for example."

In addition to central clearing and trading on electronic platforms, the use of trade repositories was a central tenet of the G-20's 2009 commitment to reform the OTC derivatives markets. By mandating that all traded contracts should be reported to trade repositories, policy-makers had hoped regulators would be better placed to detect sources of systemic risk in the future.

> **"Every economy needs a strong banking system and regulators must play their role in maintaining it.**
>
> **David Wright,** president, Eurofi

Potential for innovation

But while the concept is fairly straightforward, trade reporting has been riddled with complications and cross-border inconsistences. As a result, regulators have struggled to reconcile the masses of data being reported and are not yet in a position to identify emerging sources of systemic risk as intended. These difficulties not only reflect the complexity of implementing new rules and monitoring systemic risk on a global basis, but also highlight the potential for technology innovation to find new and simple ways to address previously intractable problems.

"The fact that regulators still don't have at their fingertips the real-time data to judge whether there is an unnecessary build-up of risk in the financial system is a major concern," says Wright. "I think it would be very difficult to get it back on track at this stage, although some believe the best way to solve the problem would be through data derived from blockchain technology."

Cross-border conflicts are not unique to trade repositories, however, and have threatened to derail progress in numerous areas of financial market reform, including the resolution of failing banks, the recognition of clearing houses and the introduction of margin requirements for non-cleared derivatives.

"It's no use having global rules if the implementation and supervision of those rules is not effective," Wright warns. "If standards are implemented on a regional basis without proper cooperation between regulators, there are bound to be differences, and the consequence of non-cooperation will be a higher likelihood of crises in the future."

Level playing field

Inconsistently implemented regulation or competing regulatory priorities can pose challenges for regulators and banks alike. The latter have found it hard to reconcile new rules with continued service provision in some cases, scaling back their activities in certain markets and jurisdictions. As a result, non-bank liquidity providers have stepped up their operations significantly in markets that have been quick to implement post-crisis reforms (notably the US), particularly in interest rate derivatives and foreign exchange markets. For banks in these markets and others, the question is how best to harness new technologies and existing domain expertise as part of a refreshed value proposition. For regulators, the task is to ensure all market participants play by the rules, according to Wright.

"Non-bank liquidity provision may be a good thing for markets, but what is absolutely crucial is that regulators enforce a level playing field and don't allow lighter touch regulation for some non-bank institutions. Every economy needs a strong banking system and regulators must play their role in maintaining it," he observes. ■

TO LEARN MORE ...

Financial stability – The future of global finance
Tuesday 27 September – 11:30-12:30

Would you take investment advice from an algorithm?

#Technology

Initially designed to provide automated, low-cost retirement planning, robo-advisors are getting personal.

FinTech has not just shaken up the hallowed halls of the banking sector, but also the sometimes staid world of wealth management. Gamification apps and robo-advisors are infiltrating the space in which the traditional flesh-and-blood advisor once sat alone. US firms are ahead of the pack in deploying new technologies to achieve high investor returns at lower cost, but their European counterparts are hoping to close the gap.

The main drivers are the same – high costs and the onslaught of regulation in the wake of the financial crisis. Bankers might be feeling the weight of post-crisis regulatory burdens, but the pace and scale of reform has been scarcely less significant for wealth and asset managers. Increased regulatory costs have led them to turn to the latest technologies such as robo-advisor platforms or gamification – in essence, the application of game-design elements and game principles in non-game contexts – to become more efficient and reach new audiences.

> **Fund managers are looking at new distribution and advisory models.**
>
> **Nicolas Mackel,** CEO, Luxembourg for Finance

"Fund managers are under the same regulatory burden as banks and are looking at new distribution and advisory models," says Nicolas Mackel, CEO at Luxembourg for Finance, an agency that promotes and develops the country's financial services sector. "Before people went to a human for advice, but now there are robo-advisors for certain client categories. This is particularly the case with younger people who are more accepting of the technology than people over 50."

Capturing the imagination

The younger generation has historically been neglected by the wealth management sector, which is typically paid on a percentage of the assets managed. In the main, providers actively look for clients with deep pockets who have already embarked on building a retirement nest egg. This perhaps explains why in the US, for example, only 30% of financial advisors cater for clients under age 40, according to a survey by research firm Corporate Insight. It is far more lucrative to target the baby boomers, who possess 22 times more in assets than those below 35, according to the US Federal Reserve.

Capturing the imagination of the young, however, can be challenging. Millennials (born between 1980-2000) have grown up with social media – almost 90% check their smartphones within 15 minutes of waking – and are much more savvy about the application of digital technology than their older peers. However, as a study by Deloitte points out, they are not especially interested in money and possess "low-to-medium" levels of financial knowledge.

Start-ups are hoping to reel them in with video games which not only help these potential investors navigate their way through the complex and confusing world of finance, but also offer relevant advice on how to save for their future. This demographic has shown interest in robo-advice, but the technology has so far generated a larger following among people on the next rung of the age ladder.

The business is more entrenched in the US where pioneers such as WiseBanyan, Wealthfront and Betterment have launched businesses over the past eight years. They appealed to people who wanted an inexpensive retirement plan that offered a limited, straightforward menu of investment choices guided by algorithms, including the occasional portfolio rebalancing. Customers are asked to complete an investor profile questionnaire to provide details about their current financial condition, risk tolerances and overall investment objectives for retirement savings, for example, or a more short-term goal.

Jostling for position

The core robo-advisor product has evolved as the number and range of providers has grown. Michael Mellinghoff, managing director at TechFluence and a senior advisor and mentor at FinTech Forum, estimates that around 250 start-ups globally are jostling for position with an increasing and wide variety of US incumbents. Charles Schwab and Vanguard entered the fray in 2015 while Fidelity has also thrown its hat in the ring. "All large financial institutions globally are either already running automated investment advice solutions, working on one, or strongly considering their options," he adds.

Mellinghoff notes that in Europe there are currently around 50 automated investment solutions providers, with Germany boasting the highest number of robo start-ups, followed by the UK, where Nutmeg was the first company to debut its service. Globally, robo-advisors are estimated to account for around US$50 billion in assets under management, of which the US has a share of approximately 90%. Inflows are concentrated in very few hands with Vanguard's Personal Advisor Services accounting for a hefty chunk of US$30 billion. In contrast, Betterment has only US$5.1 billion, while Europe's largest player, Spanish-based Feelcapital, manages around €1 billion.

The European market is less mature than the US and is perhaps more diverse, with fewer pure-play robo-advisor platforms. "Most of the business models are hybrids, in which the value chain is not entirely automated," says Mellinghoff. "In many cases, the advisory part is automated, while the portfolio management is operated by humans. As artificial intelligence advances, one may expect new business models in which all processes are run by robots. These should also have an advantage in pricing."

> **Goal-based investing is the next stage of development.**
>
> **Paolo Sironi,** thought leader on wealth management and FinTech analytics, IBM

The Financial Times estimates that the market for funds advised by hybrid robo-human services will grow to US$16.3 trillion worldwide over the next nine years, as more banks develop in-house services or pair up with third-party automated investment platforms.

The personal touch

The US has already witnessed the formation of several partnerships, including four struck by FutureAdvisor since its acquisition by BlackRock last October. A recent deal with U.S. Bancorp Investments gives clients access to both the robo-advisor's automated investing platform as well as the bank's financial consultants.

"There is no one-size-fits-all solution," says Silvan Schumacher, CEO of Swanest, which plans to launch its robo-advisor and online broker platform in the UK and Belgium next year. "We are currently developing a system that offers the best of both worlds. The robo-advice out there is not customisable and you cannot personalise your investment strategy, and while online brokers may allow for a greater amount of personalisation, they don't offer much guidance."

The market can expect greater personalisation in the not-too-distant future. The pace of innovation in recent years suggests it is also only a matter of time before the technology and data is available that will enable automated construction of more customisable portfolios that better reflect clients' objectives and investment horizons. "Goal-based investing is the next stage of development," says Paolo Sironi, thought leader on wealth management and FinTech analytics at IBM. "The advances in technology and analytics will enable companies to personalise the experience and ensure that clients receive the relevant engagement and information." ■

TO LEARN MORE ...

Enabling investment management's next era: The rise of the robo-advisor
Tuesday 27 September
09:00-10:00

Interoperability key to real-time payments

Market Infrastructures #Payments

As national real-time payment schemes begin to deliver greater value, banks and market infrastructure providers consider cross-border collaboration.

In April, the European Payments Council launched its consultation on an instant payment scheme for the Single Euro Payments Area (SEPA), setting the clock ticking for the region's move to real-time payments. And while domestic payment systems are offering greater reach and value within member states, the need for greater interoperability to guarantee finality of payments cross-border is still posing a challenge to the industry.

For Pierre Petit, deputy director general for market infrastructure and payments at the European Central Bank (ECB), both payment service providers (PSPs) and infrastructures will be crucial to achieve 'instant payments' (i.e. real-time retail payments) in euro at a pan-European level.

PSPs are expected to adhere to the instant SEPA Credit Transfer (SCT) scheme and to adapt their internal systems to real-time payments processing. This will require significant technology investment for most, perhaps providing the groundwork for offering added value to end-users, for instance through immediate confirmation of payment. While the scheme only requires PSPs to notify payers if payments are not successful, it can be expected that confirmations of good payment will also be made available to both payers and payees.

Petit says, "Infrastructures are crucial enablers for PSPs providing instant payments. The Eurosystem expects the clearing industry to take a pan-European approach by adopting fair and open access policies and ensuring interoperability. As a market infrastructure provider, the Eurosystem could also consider enhancing its settlement services to help the industry achieve pan-European instant payments in euro."

According to Petit, banks and other PSPs will choose whether or not to offer instant payment services to end-users. Although adherence to the SCT scheme is voluntary, he expects a high take-up rate. As in other network industries, there is a need for a majority of PSPs to offer instant payments to their clients to fully exploit all the benefits. "The clearing industry should be ready to support PSPs willing to offer instant payments and to do so at pan-European level. Interoperability is a means to achieve reachability for instant payments in euro Europe-wide," he adds.

How soon is now?

Joanne Strobel, head of technical sales and payment strategy at the GFI Payment Services division of Wells Fargo, believes the move to real-time payments is inevitable. For her, the key question is: how soon can countries get their infrastructures to a place in which real-time payments can be realised? "Today's client expectations and user experience demand it – especially for Millennials and Generation Z who have grown up with wi-fi and expect everything to be available and easy. They expect their experience to be instant and they don't expect their payments to behave any differently," she says.

In the US, same-day ACH for credit transfers will be launched by September. Both domestically and internationally, says Strobel, real-time payments are about collaboration. In the US, there are 6,000 financial institutions and 6,200 credit unions, all with different capabilities – so getting to a ubiquitous real-time payments solution in the US will entail a considerable collaborative effort. "Interoperability is the key component. Lack of interoperability is something we as an industry need to overcome by way of a common or agreed-upon standard format, as well as a multilateral set of business rules and service levels that must be enforced, in order to get a global faster payments infrastructure."

While Strobel believes Europe is in a better shape because of SEPA, and its use of the ISO 20022 message standard framework, she notes that there are still remaining harmonisation and interoperability issues to be tackled. Globally, not all countries are using ISO 20022, she acknowledges, although in the US, the FedWire and CHIPS funds transfer systems are preparing to be ISO 20022-compliant by 2020. "SWIFT is headed in the right direction with its harmonisation efforts with market infrastructures. Ensuring the community adheres to a common standard of that format, is really going to be critical for interoperability," she adds.

> **"Interoperability is a means to achieve reachability for instant payments in euro Europe-wide.**
>
> **Pierre Petit,** deputy director general, market infrastructure and payments, European Central Bank

Strobel is also involved in SWIFT's global payment innovation initiative (gpi), which she believes will help facilitate interoperability and transparency for global payments as it brings together 77 banks globally to speed up end-to-end client cross-border payments. The first step has been to move to a common multilateral set of business rules and service levels, with collaboration initially centred on FIN standards. She says, "The reason we decided to start with the FIN structure rather than the ISO 20022 format is so we can get more banks and more countries participating in order to achieve ubiquity more quickly."

Cross-border challenge

Payments have already seen much innovation over the past decade or so, with national real-time payment schemes evolving to keep pace – more or less – with evolving customer expectations in an increasingly digitised economy. For George Evers, head of international product development for immediate payments at VocaLink, a UK payments processor, the ability of the payments industry to deliver real-time payments has already been proven at a domestic level. "Until now, the bulk of the focus has been on the 98% of payments that are domestic and making them faster and available 24x7, removing the need for cash," he says.

While common settlement is already in place in Europe, the technical complexity of meeting the demands of a real-time clearing platform and then interoperating across multiple, and slightly different, instances of that platform lies ahead. Evers believes there are two options available for interoperability in multiple currencies: an end-to-end multi-currency platform, such as the one provided by VocaLink, requiring multiple parallel settlement arrangements in real-time; or real-time payments supported by a scheme which manages FX the same way as current payment schemes, but as yet there is no one developing or delivering this capability.

Evers adds, "Customers are now talking about interoperability from their real-time payment platforms. From a technical perspective this is relatively straightforward. But from a model perspective, we need to consider whether there is going to be enough volume in connecting those platforms bilaterally or whether it would be better to create a hub that connects all real-time payment platforms, and then address the challenge of managing settlement risk within those platforms.

"This is really the area of complexity. Businesses and consumers are going to start to expect cross-border real-time payments. The industry has got to work through how it resolves settlement risk and liquidity management across the different platforms."

> **"Millennials expect their experience to be instant and they don't expect their payments to behave any differently.**
>
> **Joanne Strobel,** head of technical sales and payment strategy, GFI Payment Services, Wells Fargo

Reaching consensus

Evers argues that the industry needs to reach consensus on the most appropriate model for supporting cross-border real-time payments, exploiting the current freedom to innovate to meet consumer needs, before regulators issue a mandate.

The ECB's Petit suggests this is just one of many important decisions the payments industry must take collectively, as the market continues to evolve to accommodate users' habits, needs and expectations. "Real-time will become 'the new norm'," he says. "All payment instruments will be affected, not only credit transfers. In particular, the card industry will need to adapt. With the advent of payment initiation services offered by non-bank new entrants [under the upcoming second European Payment Services Directive, PSD2], competition will increase. To this end, relevant players will be called to co-operate, to strike the right balance between innovation and standardisation." ■

TO LEARN MORE ...

Payments interoperability across communities and currencies
Tuesday 27 September – 10:15-11:15

Where is the real-time payments business case?
Thursday 29 September – 10:15-11:15

Utilities build momentum

#Data

As banks increase adoption, will financial crime compliance utilities take on an even wider remit?

The benefits of using industry utilities to manage financial crime compliance and know-your-customer (KYC) data have become more widely accepted in recent years. As such, banks are being urged to be more ambitious in their participation in such utilities to maximise potential efficiencies while supporting compliance effectiveness.

"We need to be more innovative with utilities, but one of the challenges we face is the fear factor that is often linked to innovation. We need regulators, banks and intelligence services to work together with the same objective of better managing financial crime risk," says Barbara Patow, global head of anti-money laundering at HSBC.

Sharing resources

The financial services industry has already made significant progress in sharing resources to meet financial crime compliance objectives, a key milestone being the launch of The KYC Registry in December 2014. Operated by SWIFT, the facility enables participating banks to avoid duplication of effort by sharing KYC data in a controlled environment, thereby mitigating risk and reducing costs. The facility announced its 2,000th customer in January and has recently surpassed 2,700 member institutions.

A number of utilities are now addressing a range of different compliance tasks and challenges. Their arrival has been welcomed as a step forward in efficiency by removing some of the 'hygiene factors' around data collection. However, some banks are still dealing with internal challenges that prevent them from sharing data with other entities.

"Most banks have recognised the value of sharing resources rather than having to do their own KYC due diligence on every individual counterparty, but it is taking time for utilities to gain traction, both with the banks and their underlying clients," says Matthew Russell, partner in the financial crime team at PwC.

Following the strategic decision to use a utility, banks will need to adjust to the operational implications in order to realise the full range of benefits. But once a bank has invested, the start-up time required to collect and contribute its own data, it can soon achieve efficiency benefits by consuming data from other institutions through The KYC Registry. The bank can then look to take advantage of the enhanced effectiveness resulting from the higher quality information and free up staff time to focus on analysis rather than data collection.

Before this, however, banks' operations and compliance teams need to commit and successfully engage with a utility. Relying on a third party to help deliver on a bank's regulatory responsibilities can require a big shift in culture, Russell explains.

"Operations staff have often been at the forefront of exploring the potential cost savings associated with utilities, but they haven't always taken compliance with them on that journey. In many cases, compliance staff will take some convincing and that's a process that may still need to be worked through," he says.

Encouraging adoption

Utility operators acknowledge that it will take time for banks to fully embrace utilities and are keen to engage with the industry to increase usage. Despite The KYC Registry's strong take-up rate, SWIFT remains focused on encouraging further adoption, and on adding new services. For example, users can now access Dow Jones 'negative news' content which makes up part of the risk-based approach to customer due diligence.

> **The use of utilities is gradually beginning to move beyond due diligence to other aspects of financial crime compliance.**
>
> **Matthew Russell,** partner, financial crime team, PwC

"We need to focus on making sure institutions feel comfortable adopting utility solutions. Typically there are many different players involved in a bank's client onboarding and KYC processes, so inevitably it takes time to connect the different workstreams and ensure the central ownership that is critical to integrating a KYC utility service into a bank's existing processes and operations," says Bart Claeys, head of KYC compliance services at SWIFT.

Moreover, banks' internal compliance programmes have typically developed over many years and these established processes cannot be changed overnight. Claeys says, "We are very confident, however, that utilities will ultimately deliver major cost and efficiency benefits and support greater transparency, particularly in regions where regulation is less stringent, compliance programmes are less advanced, and where de-risking is a concern."

And, while some institutions might still need to bring all of the necessary internal stakeholders on board to enable them to benefit from utilities, others are already looking to expand their scope beyond basic KYC and due diligence functions to derive benefits in other areas. HSBC's Patow believes there is a desperate need for greater industry cooperation on transaction monitoring and screening, even though sharing transaction-level data may be more complex than client-level data.

"The way transaction monitoring has been done in the past is ineffective because we have to filter through a large volume of noise to identify the relevant data. It is still early days, but we are looking at how we can leverage the successes in KYC and be more creative in transaction monitoring," says Patow.

Central to the discussions around transaction monitoring will be finding a way for utilities to respect and uphold the confidentiality of data and satisfying data privacy laws while also meeting regulatory and banks' own requirements. In the age of big data and highly sophisticated cloud-based technology, such challenges shouldn't be insurmountable, but it may take time before substantial progress is made.

"Both KYC and transaction monitoring are non-competitive areas for banks, so there is widespread agreement on the benefit of sharing intelligence. We need to work together so that we can realise the benefits and demonstrate the potential opportunities across financial crime compliance," Patow explains.

Future directions

Using a trusted third party to assist in the process of transaction monitoring may offer the opportunity not just to cut costs, but also to improve quality and effectiveness of banks' financial crime prevention and regulatory compliance efforts. Whereas an individual institution only ever has a partial view of a particular transaction, an independent utility has a broader view and may be better placed to detect and report suspicious activity.

"The use of utilities is gradually beginning to move beyond due diligence to other aspects of financial crime compliance and it does make sense to look at sharing transaction data so that a third party can get a better view of what activity might warrant investigation by authorities," says PwC's Russell.

> **We need to be more innovative with utilities.**
>
> **Barbara Patow,** global head of anti-money laundering, HSBC

For the utility operators themselves, there are clearly questions to be answered about the direction they will take in the future, not just in terms of the additional services they will offer, but also the extent to which they will choose to focus on specific functions or geographies as financial crime compliance requirements evolve.

To date, The KYC Registry has maintained a specific focus on correspondent banks and funds players, although SWIFT is engaging with other industry groups and utility providers to look at other areas of cooperation. While most utilities have focused on a particular niche up until now, some believe there is a case to be made for greater collaboration.

"There are multiple KYC utilities in co-existence, and this could remain the case over the longer term if each utility addresses different market segments. However, the benefits to the industry in terms of lower cost and greater efficiency could be amplified by increased interoperability and linkages between the different utilities. That should be one of our goals for the future," says Claeys. ■

TO LEARN MORE

Utilities: Reaching the tipping point?
Tuesday 27 September – 15:30-16:30

Real men stand up for diversity

#Diversity

Male executives are taking an increasingly active role in banks' diversity and inclusion initiatives.

A number of firms in the financial services industry are making strides on the diversity and inclusion front, but studies show that the overall pace is slow. The most successful firms are leading the way by driving changes throughout the organisation, getting senior male executives on board and linking bonuses to the appointment of women to top-level jobs.

Looking at the bigger picture, a report published in June by consulting firm Oliver Wyman – 'Women in Financial Services' – showed that only a slight improvement has been made since 2014 with women comprising only one-fifth of boards and 16% of executive committees globally.

The report, which analysed 281 financial services firms in 32 countries, found that women have the highest representation on executive committees in Norway and Sweden. At the current rate of progress it will take more than 30 years for female representation on executive committees to reach 30% in the financial services industry, the level at which research suggests a minority's voice starts to be heard.

The pace of change has been even more gradual for ethnic minorities and people with disabilities. This has led organisations such as UK-based Business in the Community to call on the UK government to apply the same focus to race as gender. A 2011 review of women on boards conducted by Lord Davies of Abersoch, a former banker and government minister, recommended FTSE 100 companies aim for a minimum of 25% female representation on boards.

"When you don't talk about it, the status quo doesn't change," says Elizabeth Lumley, director of global ecosystem development at Startupbootcamp FinTech. "Awareness should be embedded throughout the organisation because any business led by a homogenous group will lack diversity of thought and will ultimately create products and services that are just for one type of person."

Business benefits

Jennifer Boussuge, head of global transaction services, EMEA, Bank of America Merrill Lynch, says that greater evidence of the business-related benefits of diversity and inclusion has helped initiatives to gain wider support. "Historically, diversity and inclusion was seen as the politically-correct thing to do. But studies show it leads to better decision-making, innovation and services for our clients. If programmes are framed that way they will resonate with the male population."

Research from 2014 by Sylvia Ann Hewlett, Melinda Marshall and Laura Sherbin showed that financial services companies with so called two-dimensional diversity not only outperformed their peers, but were also far ahead on the innovation curve. Two-dimensional diversity covers inherent traits that a person is born with, such as gender, ethnicity, and sexual orientation, as well as external characteristics garnered from experience. The report, which looked at leaders that exhibited at last three of each type of diversity, canvassed 850 financial services professionals around the world and included interviews with more than 100 senior female and male leaders.

A report published last year by accountants Grant Thornton revealed that publicly-traded companies with entirely male boards were missing out on £430 billion of investment returns each year, while Credit Suisse research found that the average return on equity of companies with at least one woman on the board between 2006 and 2012 was four percentage points higher than those with no female directors.

In the financial services industry specifically, the firm noted that businesses with more diverse senior management

gained from having a more rounded decision-making process and avoided the sort of 'groupthink' – in which the established way of business is not challenged – and that played such a major role in the financial crisis.

Stepping up

One of the biggest challenges is getting men involved in diversity and inclusion programmes. Banks, however, have stepped up their efforts in recent years. "Men have an essential role to play in furthering the inclusion and diversity agenda," says Andrew Bester, group director of commercial banking at Lloyds Bank. "They can change the conversation and demonstrate action. We need to see more men who are role models for advocating change. It's everyone's job to ensure that talent is attracted, and retained, on true merit, regardless of gender."

Lloyds' 2016 Inclusion and Diversity strategy includes a firm commitment to continue existing activity and start a number of new initiatives that will specifically benefit women and men. "We encourage all of our colleagues, regardless of gender, to keep talking to us about how we can keep developing our inclusion and diversity strategy in the right way," adds Bester.

The bank has also launched a campaign – 'Inclusion: It's About Everyone' – to engage staff from across the business and to explain why it is placing such a strong emphasis on inclusion and diversity. "The work involves removing barriers (including perceived barriers) to career progression to ensure there is more diversity on shortlists," he says. "And that's beneficial for all roles, not just senior grades. This creates a more level playing field, and with it healthy competition, but in every case, the best person for the job, gets the job. It would be both unlawful and irresponsible to appoint unqualified people into roles to meet a target. "

As part of its efforts to encourage and empower a diverse talent pool, Barclays runs half-day leadership development days for all its managing directors and directors focused on unpicking unconscious biases. "We identify what they are and how it affects their decision-making processes. The aim is to make them better talent managers," says Mark McLane, global head of diversity and inclusion at the bank.

Barclays was the only financial services institution (among ten corporates) to be invited by the United Nations to be a HeForShe 'IMPACT 10x10x10 Champion' which aims to engage men and boys as agents of change for the achievement of gender equality and women's rights. The programme encourages them to take action against negative inequalities faced by women and girls.

"Diversity and inclusion should be part of the balanced scorecard alongside financial metrics used to evaluate performance.

Mark McLane, global head of diversity and inclusion, Barclays

Internally, the bank launched a 'Spectrum Allies' campaign, which has raised awareness of the role of non-LGBT (lesbian, gay, bisexual & transgender) employees in challenging homophobia, biphobia and transphobia, and educating others on the importance of equality.

C-suite support

Barclays established its diversity and inclusion strategy five years ago with five global agenda pillars – gender, LGBT, disability, multigenerational, and multicultural – in order to meet the needs of the entire network of diverse employees. The involvement of senior management and the integration of diversity and inclusion in staff performance reviews have underpinned the success of Barclays' strategy, says McLane.

"Diversity and inclusion should be part of the balanced scorecard alongside financial metrics used to evaluate performance," he says. "We have made

"Gender equality will benefit men"

Gender equality in businesses will benefit men as well as women, but first they must overcome a number of psychological obstacles, according to Professor Michael Kimmel.

Speaking at Sibos yesterday, Kimmel, distinguished professor in sociology and gender studies at Stony Brook University, argued that men have traditionally been unable to identify themselves in the gender debate.

"The problem is that men do not see themselves as part of the gender discussion. We cannot effectively promote gender equality with women and girls without engaging with men," he said, in his presentation 'Why gender equality is good for everyone – men included'.

"Most men do not realise they have a gender, and that is because privilege is invisible to those that have it," he said.

Professor Kimmel believes that once men realise that gender equality is not a 'zero-sum game', gender equality will benefit all. "Gender equality is the best thing that ever happened to men. It's the thing that is going to enable us to live the lives that we want. However, if we think that gender equality is about women, then women will lose."

A number of businesses have begun making the case to promote gender equality, including UBS which released its own paper in March this year on investing with a "gender lens". It found companies with a greater female representation in key leadership roles have the potential to increase profitability through loss prevention and strategic decision making.

Kimmel reiterated this case, highlighting the findings of consultancy firms Catalyst and McKinsey in which gender equality leads to increased job satisfaction, greater retention of staff, and reduces labour cost.

Michael Kimmel, distinguished professor in sociology and gender studies, Stony Brook University

"Women and men are coming out of university with key business skills and all wanting the same thing. They want to have great careers and be awesome parents," Kimmel added.

"We are no longer 'men are from mars, women from venus', we are all earthlings."

TO LEARN MORE …

Diversity and inclusion – The leaders' perspective
Tuesday 26 September – 15:30-16:30

progress, but it is at different phases depending on the market and geography. However, the most important thing is to ensure that the progress is sustainable and this requires a systematic approach."

Bank of America Merrill Lynch also has a well-established programme that provides training and holds senior staff accountable for building diverse teams and developing an inclusive environment. At the helm of its global diversity and inclusion council sits CEO Brian Moynihan. "It is very important that the programme starts at the top and it must be an essential part of the CEO and chairperson's overall goals," says Boussuge. "It cannot be a grassroots movement. When senior managers give 'town hall' talks about our results, an appropriate portion is dedicated to diversity and inclusion." ■

> **It is very important that the programme starts at the top. It cannot be a grassroots movement.**
>
> **Jennifer Boussuge,** head of global transaction services, EMEA, Bank of America Merrill Lynch

Join the club

#Innotribe

With so many competing for investment, find out where the leading FinTech hotspots are in your region and around the world.

Countless cities, regions and countries are bidding to join the 'FinTech hub' club, hoping to reap rewards by bringing start-ups, their customers and investors together in a collaborative and innovative melting pot. While there are many factors that can help to convince a critical mass of FinTech firms to set up shop in a particular location, three stand above all others in determining a hub's credentials: entrepreneurial talent; an open-minded government that supports innovation; and the ever-important capital needed to fund that innovation.

To help delegates to distinguish between these fast-growing centres of excellence for entrepreneurs, Innotribe is providing an hour-long platform each day of Sibos 2016, enabling leading lights from the FinTech sectors in Switzerland, EMEA, the Americas and Asia-Pacific to share their ambitions and activities. Today, Sibos Issues explores some of the stories behind the hype.

The one to watch?

In today's era of greater transparency between banks, customers and regulators, the FinTech sector enables Switzerland to continue its tradition of innovation and customer service in the banking and finance sector.

In October 2013, Switzerland signed up to exchange data with 60 other countries – in support of global efforts to stamp out tax evasion and money laundering. The move could have made Switzerland's position as a leading financial centre vulnerable to offshore rivals, but a combination of flexible government policy and ready industry expertise is positioning Switzerland strongly for FinTech growth.

> **"Canada may need a government-funded FinTech centre that showcases Canadian FinTech talent, supports inclusive innovation and helps Canadian start-ups.**
>
> **Christine Duhaime,** founder, Digital Finance Institute

"FinTech is the new opportunity for the future in Switzerland," says John Hucker, founding president of Swiss FinteCH, an independent association at the heart of the country's FinTech industry, which is striving to create an ecosystem to leverage Switzerland's potential.

Hucker says the emerging strengths of the Swiss FinTech sector are being boosted by the government's growing interest and involvement. "The government is now establishing meetings to discuss things like blockchain and crowdfunding – and this is happening in a country where the government typically takes a 'hands-off' approach," he explains.

Alongside proactive government support, the Swiss FinTech scene received an injection of CHF10 million from national telecommunications provider Swisscom, in June this year. Swisscom says its 'FinTech fund' will "advance targeted investment in promising FinTech start-ups and collaboration in innovative digital banking services".

In looking to the future, Switzerland is not forgetting its past, however. As home to a large number of private banks and wealth management firms, Switzerland has a thriving robo-advisor sector – including InvestGlass, whose CEO, Alexandre Gaillard, spoke in yesterday's 'FinTech hubs – Switzerland' session. Unlike US robo-advisors, which are competing with incumbents for market share, Swiss FinTechs like InvestGlass are working with established providers to provide new services to clients by exploiting big data and artificial intelligence.

"The industry here is moving in the right direction and we are certainly the one to watch in terms of innovation in financial technology," says Swiss FinteCH's Hucker.

Building momentum

Toronto is home to over 13,000 tech companies – ranging from start-ups to global leaders – offering and delivering solutions to the financial services industry, according to the Toronto Financial Services Alliance. One of the greatest factors in Canada's competitive edge is the low cost of labour, utilities, telecommunications and property compared to high-profile financial centres such as New York and London. The official stance on supporting its development as a FinTech hub seems positive, but cautious.

> **"The Swiss government is now establishing meetings to discuss things like blockchain and crowdfunding.**
>
> **John Hucker,** founding president, Swiss FinteCH

Canada's competition bureau launched a FinTech study earlier this year, aimed at advising regulators and supervisory authorities on how to ensure regulation doesn't impede innovation or competition. As it stands, however, the government has no firm policies to encourage or aid start-ups in the FinTech sector, although opinions differ as to the steps the government should take.

> **"The Netherlands excels in payment and trading innovation.**
>
> **Don Ginsel,** founder, Holland FinTech

In a recent speech, senior deputy governor of the Bank of Canada Carolyn Wilkins noted the pace and scale of FinTech innovation, observing, "Financial institutions, including Canadian banks, are working hard to test and adopt new technologies and adjust to new trends." Wilkins also called on the authorities to "support innovation, but the bar will be high, especially for core financial services, and appropriately so".

The Canadian FinTech industry itself is becoming increasingly coordinated and vocal. Canada's second annual National FinTech Conference was held in August in Toronto; in April the FinTech Association of Canada was formed to support the country's FinTech ecosystem and promote the sector both nationally and internationally. A major driving force behind the association is the Digital Finance Institute, a think tank focused on the development of the next generation of financial services. Founder Christine Duhaime will be speak on Canada's behalf in tomorrow's 'FinTech hubs – Americas' session.

Duhaime believes that official support is critically important to the future development of the FinTech sector's potential in Canada. Writing in the recently published 'FinTech in Canada' report, she asserted: "It appears that what Canada may need is a government-funded FinTech centre that showcases Canadian FinTech talent, financially supports inclusive innovation and helps Canadian start-ups to create innovative financial technology that the world buys, rather than the reverse."

Hot on the heels

The Asia-Pacific region has seen huge growth in the FinTech sector over the last two years, with activity spread across several different hubs. Whilst a number of cities and regions in fast-developing markets – India, China and south-east Asia – are all making strong claims, there is also significant FinTech investment and uptake in Asia-Pacific's financial centres: Singapore, Hong Kong, Tokyo and Sydney.

According to Markus Gnirck, one of the speakers in 'FinTech hubs – APAC' on Thursday, each region has different dynamics, consumer needs and behaviour, and technology infrastructure. Gnirck is something of a veteran in FinTech hub circles, having founded Startupbootcamp FinTech in London before bringing the FinTech accelerator concept to Singapore. In February, he founded tryb – a company which invests in transformative financial technology companies –and strives to boost FinTech in Asia.

For Gnirck, Singapore is top of the list when it comes to having the resources and capabilities to be a leading FinTech hub. "Singapore has a tremendous amount of traffic, in terms of capital, talent and knowledge. In Asia generally, capital markets are very liquid as banks are over capitalised," he observes.

Gnirck points to the proactive role of governments and regulators in developing Asia's FinTech hubs, compared to a more 'arms' length' policy taken in some

> Singapore has a tremendous amount of traffic, in terms of capital, talent and knowledge.
>
> **Markus Gnirck,** co-founder, tryb

western countries. Regulatory sandboxes, initiatives and incubators are present in several Asian countries, encouraging FinTech hubs to thrive. Referring to Singapore specifically, Gnirck observes: "The government is forward thinking, and under a lot of pressure to drive FinTech in the region."

Singapore in particular is hot on the heels of London and New York, looking to dethrone those centres to become the world's FinTech hub, but the pre-requisite mix of talent, capital and government support would appear to be present in a number of hotspots across Asia-Pacific.

Could do better

The European FinTech market is currently dominated by London, with an estimated 42% of FinTech funding driven through the UK in 2014. The Netherlands accounted for 21% in comparison, according to statistics from Holland FinTech. Founder Don Ginsel – an alumnus of both Deutsche Bank and ABM AMRO – says the aim of Holland FinTech is to build on the Netherlands' strategic position to accelerate its potential as a FinTech hub. "The Netherlands contains a relatively large number of Fintech companies (around 400), and we excel especially in payment and trading innovation," he explains.

As well as the Netherlands' strong links into European and global business and finance channels, Ginsel points out that the country already boasts significant expertise in some of the most exciting areas of FinTech activity, including distributed ledger technology.

Moreover, the Dutch ministry of finance recently appointed Willem Vermeend – a professor of economics and former minister for social affairs and employment - as its first official FinTech ambassador, as part of plans to further advance the development of its FinTech sector. Initiatives including innovation hubs and sandboxes are already in place in the Netherlands, but Ginsel believes the government could do more to support the sector. "Especially marketing-wise, the Netherlands could do better and look at how London is positioning itself in FinTech to the outside world," he says.

Further, Holland FinTech's summary of the current challenges asserts: "Current regulation and legal framework do not cater to various new FinTech applications and lack clarity. Regulatory supervisory authorities are short on knowledge and coordination, and decisiveness is therefore lacking."

While there is rivalry between FinTech hubs, there is also collaboration, in recognition that the sector globally faces the same challenges and has similar needs. In August, the Global FinTech Hubs Federation was launched by Innotribe and Innovate Finance to help foster FinTech innovation globally, and is currently backed by FinTech associations from more than 20 countries. This has to be good news for those looking to deploy the latest technology innovation to improve financial services: wherever you are in the world, there is likely to be a support system close at hand to help bring your vision to market. ■

TO LEARN MORE ...

FinTech hubs – EMEA
Tuesday 27 September – 12:45-13:45

FinTech hubs – Americas
Wednesday 28 September – 12:45-13:45

FinTech hubs – EMEA
Thursday 29 September – 12:45-13:45

No silver bullet

#Standards Forum #SWIFT Institute #Blockchain

Distributed ledger technology may contribute to solving securities processing challenges – but won't solve them alone.

> **The bringing together of shared ledger technology and cryptography techniques has served to reinvigorate the discussion.**
>
> **Alistair Milne,** professor of financial economics, Loughborough University

Interest in distributed ledger technology's application in financial services shows no signs of abating any time soon. New ventures continue to secure funding, even as existing market participants seek to join consortia that are aiming to use the technology to solve a range of issues facing the industry. One area of particular focus has been the world of post-trade securities settlement. In an effort to separate hype from reality, the SWIFT Institute commissioned a research paper from Michael Mainelli, chairman of finance sector-focused think-tank Z/Yen Group, and Alistair Milne, professor of financial economics at Loughborough University. Through an extended series of interviews, supplemented by two working group sessions, the authors sought to distil the views of nearly 80 different institutions, including governments, central banks, commercial banks and financial technology companies.

As the paper notes, the components of what the authors refer to as mutual distributed ledgers (MDL) are not new. Rather, as Milne comments, "the bringing together of the shared ledger technology that was first looked at by financial institutions at the turn of the century and the cryptography techniques that have been around for 40 years or so, has served to reinvigorate a discussion about how shared ledgers could be used in financial services where a number of potential benefits are easy to see." Certainly, industry participants are excited about the potential, but as practitioners with substantial experience of labyrinthine financial processes, they are also aware of the complexities involved. If the potential gains from using MDL for securities settlement are to be realised, there must first be a "coordinated and widespread change in operational processes across all the major public markets" which will in turn "require a substantial reengineering of these arrangements", the paper highlights.

Delayed by design

It is not just settlement processes that are involved. There is a great deal of activity that takes place between trade and settlement, most noticeably in the area of financing and risk analysis. Matters such as agreeing the legality of the transaction as well as its details, while also dealing with exceptions, are important elements of the work that needs to be done. Delayed settlement is a design choice based on core market structures. As the authors point out, those that believe the securities markets can move straight to T+15' (settlement 15 minutes after trade) are either naive or simply do not understand how markets actually function. Indeed one of the important insights emerging from the paper is the fact, as Milne notes, "efficiency of settlement through use of MDL capabilities is independent of the time between trade and settlement." Conflating the two elements in constructing an MDL solution may simply make it less likely that a solution will be implemented. Near real-time settlement incurs costs as well as benefits for market participants.

The authors highlight some other interesting research results within the paper. In general, most financial markets professionals working with MDL technology have assumed that any applications would almost certainly rely on 'permissioned' rather than 'permissionless' ledgers. While the paper confirms this hypothesis it also notes that MDL allows not only precisely defined but also flexibly controlled access to data. This means that permission is not a simple binary construct, but rather can be offered through configuration of a wide array of possible scenarios related to access and administrative privileges. The 'permissioning' environment is therefore a complex, but critical, component of any design.

The research also made clear that while MDL would facilitate the confirmation and reconciliation process, it would not entirely obviate the need for some kind of central authority. Specifically, market participants need to be able to confirm that assets being traded actually exist. This in essence requires a notary function which cannot be eliminated from the overall trading and settlement process. An environment in which there is no reliance on any single central 'authority' entity is simply not practically possible.

Excess inertia

In terms of the practical application of MDL, the paper makes reference to the concept of 'excess inertia'. This is a well-known phenomenon under which market participants fail to implement new processes or technology that would be beneficial for all, simply because no individual firm is willing to initiate the process for fear that others will not follow. At present, as the authors note, the costs of current business practice are high. However, the effectiveness of an MDL solution to post-trade settlement and reconciliation remains unproven. In such a situation there is significant risk that excess inertia will prevent any one, or even a small group of market participants deciding to move forward, if they are unsure that others will follow. Excess inertia may well mean that even if the benefits are clear no progress will actually be made. That may help explain the relative enthusiasm among interviewees for looking at MDL applications in markets such as repo, where current post-trade processes are fragmented and where industry infrastructures are less developed.

Many successful developments involving industry-wide collaboration and cooperation have come as a direct result of regulatory intervention. In the case of MDL, it is not clear to the authors that regulators fully understand the extent to which new technologies, especially those which result in common data standards, can help achieve their regulatory goals. Clearly an immutable record of transactions in sequence reflecting all trading in a particular security would make detection of insider trading and other forms of market abuse considerably easier than it is today. It could also make proof of actions more straightforward for regulators to demonstrate. The paper points to a number of initiatives by regulators in smaller markets who are supportive of MDL solutions, precisely because they would assist in exercising their responsibilities. This is contrasted with the experience of reporting of OTC derivatives. In this arena, new reporting rules have imposed significant costs on the industry while yielding little that is actually useful to regulators.

The authors conclude that shared ledgers have long been recognised as having potential beneficial application in financial services. MDL capabilities remove some of the previously noted problems with shared ledgers, encouraging firms to look at the advantages once again. However, the paper is clear that there are many challenges facing broad adoption, not least the challenge of potentially needing to radically alter some of the core processes and procedures that impact the settlement process, but which are not part of it. While senior executives may be hoping for a silver bullet to deal with cost and risk pressures, MDL on its own seems unlikely to be able to supply it. ■

TO LEARN MORE …

Divergence in finance - Big bang blockchains or boring lowly ledgers?
Tuesday 27 September – 15:30-16:00

On the drawing board - The role of standards in disruption, with Professor Michael Mainelli
Tuesday 27 September – 09:30-10:00

SWIFT leading community action against cyber-risks

#Cyber-security

New steps unveiled to help you, your counterparties and your community.

> Hygiene is required for cyber-prevention – but is by no means sufficient.
>
> **Gottfried Leibbrandt,** CEO, SWIFT

As an already busy Sibos 2016 week got underway on Monday, cyber-security – and SWIFT's Customer Security Programme (CSP) – took centre stage as one of the major topics of the week.

At Monday's opening plenary, SWIFT Chairman Yawar Shah and CEO Gottfried Leibbrandt brought the CSP right to the hearts and minds of customers as they set out to provide an update on the programme and explain how it can help you, help your counterparties and help your community. "The security experts tell us the threat is going to get worse," said Shah.

> Through the Customer Security Programme, SWIFT is helping you to take action.
>
> **Yawar Shah,** Chairman, SWIFT

First, you

Securing your local environment is the most important thing you can do, Leibbrandt told Sibos delegates at the opening plenary: securing the physical set-up of your local SWIFT-related infrastructure and putting in place the right people, policies and practices are critical to avoiding cyber-related fraud.

Many of the necessary tasks are the equivalent of basic hygiene: securing credentials, multi-factor authentication, firewalls and anti-virus technologies, applying security patches and latest updates to software. "Like medical hygiene this is both easy and hard," said Leibbrandt. "My medical friends tell me that it is possible to drastically reduce deadly hospital infections if doctors wash their hands for two minutes before operating. And yet only half of them do. These are doctors, they know the facts, real people are dying, and still they don't comply."

"Through the CSP, SWIFT is helping you to take action," said Shah, as he explained how SWIFT would be announcing plans to introduce a set of core security standards that all customers must meet to secure their local SWIFT-related infrastructure. "The SWIFT board unanimously endorsed the next stage of the CSP on Saturday, when they approved new mandatory security requirements and an assurance framework; three objectives, eight principles and 27 controls."

Leibbrandt went on to detail how SWIFT will require customers to provide detailed self-attestation against the 16 mandatory controls. SWIFT will ask selected customers to back this up through internal and external audits. And SWIFT will make the compliance status of each customer available to their counterparties. "Your correspondents will be able to check whether you washed your hands for dinner, so to speak," he said.

Second, your counterparties

Companies do not operate in a vacuum and all financial institutions are part of a broader ecosystem. Even with strong security measures in place, attackers are very sophisticated and you need to assume that the worst may happen. That's why it is also vital to manage security risk in your interactions and relationships with your counterparties.

"As with epidemics, hygiene is required for cyber-prevention – but is by no means sufficient," continued Leibbrandt. "Your environment may still get breached, so you need to put strong detection measures in place to safeguard against that. This is why we recently launched Daily Validation Reports for our customers, as a secondary backup check on transactions to prevent and detect fraud."

Firms with high cyber-security standards may still be at risk if a counterparty's defences have been breached, resulting in suspicious traffic being sent over SWIFT. This is where SWIFT's Relationship Management Application (RMA) comes in, as well as additional controls on incoming instructions, and clear mechanisms to stop suspicious payments. SWIFT's Relationship Management Application enables you to control access. "Using the RMA, we all choose who we do business with over the SWIFT network. Equally, once you cease doing business with an RMA counterpart, you can terminate that RMA relationship. And you should," said Shah.

Market practice also has an important role to play in handling counterparty relationships, which is why SWIFT is facilitating discussions to develop a common understanding between sending and receiving parties of the warning signs that should lead to payments being investigated, and of how suspicious payments should be stopped.

Third, your community

As Sibos reminds us every year, the financial industry is truly global - and so too is cyber-risk. "What happens to one company in one location can easily happen to another elsewhere," said Shah. "That's why we need our customers to 'share and prepare'. Share the details if you are compromised and prepare by learning, for example through the threat intelligence and Indicators of Compromise (IoCs) that SWIFT publishes."

If the worst happens, it is vital to let SWIFT know there is a problem and that we all share relevant information with each other. This will help SWIFT's dedicated Customer Security Intelligence team to limit the community impact by sharing anonymous IoCs and by detailing the modus operandi used in known attacks.

SWIFT is providing regular updates of this nature through its Security Notification Service to which all customers can subscribe. SWIFT can also provide compromised customers with some diagnostic support, and advice on how to restore systems to get up and running again. In cases of suspected customer fraud, it is important to act fast and take decisions in real time.

The second community principle 'prepare' is just as important, as Stephen Gilderdale, head of the Customer Security Programme, explained during the subsequent session on SWIFT's Customer Security Programme held in the SWIFT Auditorium. "SWIFT will do everything possible to inform you of relevant cyber-intelligence, and we will continue to expand our information sharing platforms to do so. We are also engaging with vendors and third parties to secure the wider ecosystem – but we also expect customers to prepare by acting on the information and security updates we provide, and ensuring that they meet mandatory security requirements for their SWIFT-related infrastructure, which we will enforce closely. "

During the SWIFT Auditorium session, Gilderdale was joined on stage by Adrian Nish, head of cyber threat intelligence at BAE Systems, and Todd Inskeep, principal at Booz Allen Hamilton. Nish outlined the threat landscape, while Inskeep gave insights into the development of the core security standards, which take into account the latest intelligence on known cyber-threats and incidents, and which have been reviewed by external industry experts and assessed against industry standard frameworks and best practices.

With a cyber-security big issue debate today and a second CSP session in the SWIFT auditorium on Thursday, and much more besides, there is plenty of opportunity to learn more about how SWIFT can help you, help your counterparties and help your community to address this threat. To learn more visit www.swift.com/csp. ■

Meet the innovators (part one)

On stage at Innotribe this morning – and all week at Innotribe's satellite FinTech hub (B80) – three of Africa's most promising FinTech startups will be on hand to share their insights about innovation in Africa – and explain their plans for the future. They're the winners of Innotribe's second annual African Startup Challenge, and they bring a wealth of valuable experience to share with Sibos delegates.

The three winners are: South Africa-based Hello Paisa, which provides a low-cost international money-transfer solution for remittances; the peer-to-peer lending platform The Sun Exchange, also from South Africa, which enables investors to fund solar-energy projects globally; and from Cameroon, WeCashUp, a mobile phone-based cross-border payments platform. "The Innotribe startup competition has been a unique experience. My team and I received everything we need to become a world class startup," says Cedric Atangana, CEO and co-founder, WeCashUp.

Innotribe's African Startup Challenge was held in conjunction with SWIFT's African Regional Conference. Participants received intense coaching and feedback from the Innotribe team before the three winners were selected. The theme of the conference was 'Facing Global Challenges', which made it an ideal place for innovators seeking to drive forward the further economic development of their continent. By coming to Sibos, they are looking to develop their services and models further through discussions with banks and other FinTechs – so don't be shy. (For part two, read Sibos Issues tomorrow) ■

Blue team show their Sibos smarts in quiz victory

Michael Mainelli, executive chairman of City of London think-tank Z/Yen Group (left, fists raised), led his team to victory yesterday afternoon in 'A Question of Finance', the second-ever Sibos quiz show.

Hosted for the second year by comedian and PR guru Julia Streets, the quiz took place on the SWIFT stand and saw the two teams, each comprising an academic and two finance professionals, battle it out through eight rounds of questioning.

With questions ranging across a variety of topics – including Switzerland, Sibos, financial affairs and the SWIFT Institute – Mainelli's team took the lead early on and kept ahead despite of a late fight-back from the opposing red team, led by Bruce Weber, dean of the Lerner College of Business and Economics at the University of Delaware.

Reflecting the technology innovation seen across the Sibos exhibition floor, 'A question of Finance' featured an upgraded set of buzzers this year, as well as real-time statistical analysis that awarded the fastest trigger finger recognition to Mainelli's team-mate Damien Petit, head of payments operations at the Royal Bank of Scotland.

At the close of play, Mainelli's blue team finished with 65 points, leading Weber's red team with 48 points, thanks both to fast reactions and superior knowledge. To find out the secret of their success, watch them talk about their victory on Sibos TV today. ■

Geneva welcomes back Sibos

Sibos has made its presence felt far beyond Palexpo, with Geneva's famous Jet d'Eau and Mont Blanc Bridge reflecting the conference's return to the Swiss city for the first time since 2002.