

Sibos Issues

sibos

WRAP-UP EDITION

The official newspaper of Sibos 2017 Toronto | 16-19 October

"It's all down to data"

page 4

Defence in the fourth dimension

page 8

A system at risk

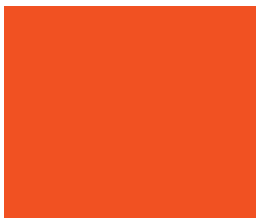
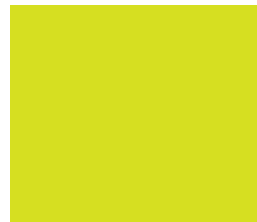
page 12

Refining the new oil

page 16

Ready for the real world?

page 20



sibos

SYDNEY

22 - 25 Oct 2018





Past, present and future

Dear Sibos 2018 delegates

It was a pleasure and a privilege to organise Sibos 2017 in such a dynamic host city as Toronto, and to participate in the celebrations of Canada's 150th anniversary. The Canucks' fusion of technology-driven innovation and their respect for the achievements of past generations found an echo in the discussions and panel sessions held around the Metro Toronto Convention Centre throughout Sibos week.

While delegates and speakers focused on the practical challenges for harnessing technology innovation to increase process efficiency and deliver customer value, there was also a clear recognition that existing capabilities and infrastructures would continue to make a critical contribution. Across payments and securities, there was a consensus that the leveraging of existing assets could provide a fundamental foundation on which to build the adaptive, customised and digitised services that customers now expect. As Javier Pérez-Tasso, SWIFT's chief executive for the host region of North America, memorably put it: "We should not throw the baby out with the bathwater".

As talk centred on service improvement and product innovation, discussions at Sibos also reflected the many other changes impacting banks, customers and the wider world in which we all live. Shifting trends in demographics, geopolitics, regulation and security formed the all-important backdrop against which commercial considerations and business plans must be developed.

Sibos will continue to take account of all these perspectives - looking both forward and backward, as well as inward and outward - as we contribute to the industry's growth and development. On a personal note, I'd like to thank all of those that have contributed to Sibos's success over the past five years and wish everyone well for the future.

Best wishes
Sven Bossu,
head of Sibos

Publisher: Sven Bossu, SWIFT ■ **Managing editor:** Alan Rowan, SWIFT

■ Sibos Issues is written and produced by Making Markets on behalf of SWIFT ■

Advertising contact: Stephanie Gerniers, SWIFT; stephanie.gerniers@swift.com; +32 2 655 4734

■ Printed by Innovative Print Solutions Pte Ltd

Legal notice: SWIFT © 2017 ■ Reproduction is authorised with acknowledgement of source. All other rights reserved

■ SWIFT, the SWIFT logo, Sibos, Accord, SWIFTReady, and SWIFTNet are registered trademarks of SWIFT.

Photographs feature SWIFT employees, customers and partners.



CONTENTS



PUBLISHER'S LETTER

Past, present and future
page 1

BANKING

Easing the pain points
page 34

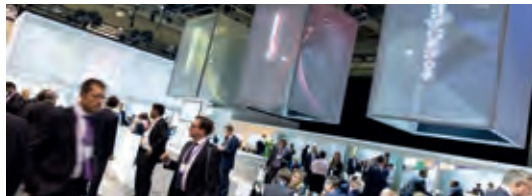


OPENING PLENARY

"It's all down to data"
page 4

SECURITIES

Onwards and upwards
page 37



CYBER-SECURITY

Defence in the fourth dimension
page 8

COMPLIANCE

Intelligent compliance
page 40



GEOPOLITICS

A system at risk
page 12

TECHNOLOGY

Friend or foe?
page 44



FUTURE OF MONEY

Refining the new oil
page 16

DISTRIBUTED LEDGER TECHNOLOGY

Work in progress
page 47

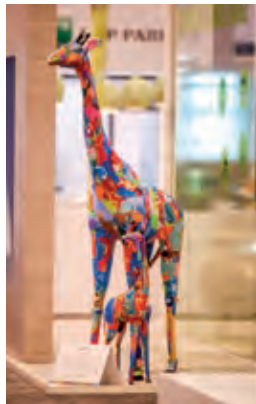


DISRUPTIVE TECHNOLOGY

Ready for the real world?
page 20

CLOSING PLENARY

The challenge of re-invention
page 50



STANDARDS FORUM

Right standard, right time
page 26

GAME CHANGERS

No direction home
page 53

INNOTRIBE

Innovation in practice
page 30

In the hunt for value, who's on your side?

As post-trade services become increasingly commoditized and margins ever slimmer, the hunt for greater value in our offerings becomes increasingly challenging.

As your organization focuses on trying to keep customers satisfied, offer more meaningful services and strengthen long-term relationships with your clients, it becomes increasingly essential to have a partner at your side who understands the real pressures you are under.

This is where **SIX Securities Services** comes in.

With our extensive experience in everything post-trade, we are perfectly placed to create solutions for you that reduce your operational complexity, your operational risks and your costs.

And if that's not real value for you, come and tell us what is. We can work something out for you.

Solutions for the future. Now.



Securities Services

“It’s all down to data”

In the aftermath of “the most disruptive and creative period ever seen in our industry”, Royal Bank of Canada president and CEO Dave McKay sees unprecedented opportunity for the banking industry.

Today’s financial services ecosystem often seems like the stuff of science fiction, with its focus on artificial intelligence (AI), cryptocurrencies, robotics, and thwarting cyber-threats. But the opening plenary speaker at Sibos 2017 in Toronto reinforced the vital role of banks by harking back to a simpler time, as represented in the 1946 movie, ‘It’s a Wonderful Life’.

“What Jimmy Stewart knows is that there are three fundamental parts to banking: we move money, we store and invest it, and if we get to store it, then we have something to lend,” said Royal Bank of Canada (RBC) president and CEO Dave McKay.

But while Stewart’s protagonist, George Bailey, could wait for the customer to come to him to discuss financial needs, observed McKay, the emergence of new technologies and public social networks has changed this dynamic. Today’s banks, he said, “will have to decide how they are going to compete to either bring clients into their existing channels or serve them in new channels. This may require a rethink of their core value strategies”.



It is these evolving business models that more than 8,000 delegates from nearly 150 countries came to Canada to discuss throughout Sibos week, as banks grapple with unprecedented geopolitical and regulatory uncertainty, coupled with the intense pace of innovation as the practical applications of disruptive technologies come into clearer focus.

Data differentiator

While all aspects of banking are undergoing significant shifts, McKay identified the money-moving space as having experienced the most rapid change in recent years, both in terms of heightened competition and an

increasingly fragmented landscape. So what will be the differentiator of the future?

“For banks, like every other business, the battleground will be data,” McKay said. “Whereas in the past banks needed economic scale to succeed, in the future they will also need data scale.” Strategic partnerships are one way to build this scale, but maintaining the trust and security of client data should remain paramount.

This is already an area of expertise for banks, McKay suggested, and as such they can maintain an advantage over ‘bigtech’ technology platforms as ‘coopetition’ and the sharing of data with other industries continues. “Every forward-thinking business today knows that future success will rely on



We have this unique opportunity, as an industry, to build our business from the customer in, versus the financial institution out.

Dave McKay, Royal Bank of Canada

Excited by potential

McKay also urged banks to embrace so-called disruptive technologies, such as AI and blockchain, noting the rapid progress from business case toward practical use.

“Blockchain could have an important role to play and could be the technology that

transforms money moving and money storing. We are realistic that the technology is still in its infancy, but are excited by its potential,” he said. “The opportunity to decentralise our record-keeping and remove third parties could significantly reduce friction, lower cost and increase the cadence at which we operate.”

RBC is exploring the technology’s potential via a number of initiatives spanning its personal, commercial and capital markets businesses. A blockchain-based shadow ledger for cross-border payments between the US and Canada launched recently, and on the first day of Sibos RBC announced

its ability to collect data, to transform it into knowledge and, from there, into value,” McKay said. “Banks have a tremendously powerful opportunity to help their clients - from personal customers and small and medium enterprises to large corporates - to collect, understand and gain value from their data.”

According to McKay, RBC is already using insights from data analysis to drive projects in which clients are invited to collaborate on product development. “We have this unique opportunity, as an industry, for the first time, to build our business from the customer in, versus the financial institution out,” he said.

GLOBAL TRANSACTION BANKING & SECURITIES SERVICES

WE OFFER YOU SHARP EXPERTISE TO SUPPORT YOUR BUSINESS

VISIT OUR WEBSITE FOR EXPERT VIEWS

sibos.societegenerale.com



BUILDING TEAM SPIRIT TOGETHER

Societe Generale is a French credit institution (bank) authorised and supervised by European Central Bank (“ECB”) and the Autorité de Contrôle Prudentiel et de Résolution (ACPR – the French Prudential Control and Resolution Authority) and regulated by the Autorité des Marchés Financiers (AMF - the French financial markets regulator). Societe Generale, London branch is authorised by the ECB, the ACPR, and the Prudential Regulation Authority (PRA) and subject to limited regulation by the Financial Conduct Authority (FCA) and the PRA. This material has been prepared solely for information purposes and does not constitute an offer from Societe Generale to enter into a contract. Not all products and services offered by Societe Generale are available in all jurisdictions. Please contact your local office for any further information. © Patrick Derewiany - FRED & FARID Paris



For banks, like every other business, the battleground will be data.

Dave McKay, Royal Bank of Canada

the co-launch of a pilot programme with JP Morgan and ANZ Banking Group, which deploys blockchain for global payments.

“We are watching the performance of all our blockchain pilots very carefully and are aware of the need to clarify legal, regulatory and security questions, including around the enforceability and reversibility of transactions,” McKay said.

What blockchain can do for money moving and storing, AI is well on its way to achieving in the lending and investing landscape, according to McKay. AI is something of a homegrown industry in Canada dating back to the early 1980s, thanks to computer scientist and cognitive psychologist Geoffrey Hinton’s work on neural networks at the University of Toronto.

“[Hinton] led a whole generation of Canadian-based AI pioneers who are at the cutting edge of research today,” McKay said. “RBC is helping to further develop this



AI helps to break down bias in many of the successful systems and processes we build.

Dave McKay, Royal Bank of Canada

position with the recent establishment of the RBC Research Institute, which is aimed at creating a place where PhD students can focus on world-class AI research into areas as diverse as healthcare, global warming and of

course financial services.” Such initiatives will benefit Canada’s entire financial ecosystem, help to retain local talent and maintain Canada’s trail-blazer role, McKay predicted.

In the nearer term, AI is currently being deployed in fraud prediction and asset management at the bank, and RBC has launched innovation labs in Toronto, Orlando and in Silicon Valley. The bank recently partnered with Israeli fintech firm Personetics on an AI-enabled cash flow and savings management product.

“AI really does help break down bias in many of the successful systems and processes we build,” McKay explained. “AI’s ability to



SWIFT connects the industry in a way no other organisation can.

Yawar Shah, SWIFT



The financial industry has been evolving, adapting, changing and innovating at breakneck speed.

Gottfried Leibbrandt, SWIFT

look for patterns in large datasets means that it does not have the bias that even the most experienced investment manager has and, in this way, it can look for patterns that the star manager might not have seen and, ultimately, drive a new source of value."

The new normal

Such partnerships with technology innovators are illustrative of a new normal, not just for RBC, but for the entire financial services landscape. More collaboration, he suggested, is changing the culture of banking. "The days when banks and fintechs looked at each other suspiciously as rivals are long gone," he asserted. "The relationship today is far more collaborative. More than ever we are using small, diverse teams and agile principles in our product development, often working directly with our clients. This approach encourages non-conventional thinking and has diversity and inclusion right at its centre. It is faster, more productive and in the endgame you get what you are looking for."

This change of pace is essential, even for an industry not previously known for its agility, due to the nature of the shifts being experienced in the wider economy and society. "One of the largest jobs for a CEO is to make sure you understand both the cadence of change outside your organisation and the cadence of change inside your organisation and adjust," said McKay. "I am personally passionate about encouraging an organisational culture at RBC that is increasingly fast-paced, nimble and client-focused. How we work is increasingly as important as what we achieve.

"In a world where barriers between industries are breaking down like never before, we have to learn from, act like and, increasingly, partner with other sectors and



we will have to think about the value and the value chains that we build for customers as distinct from what we do today and what we have done in the past," he added. "The competitor landscape may be far fiercer and more varied, but the opportunities, I really believe, are greater than ever before."

The next ten years

While McKay noted that this year's Sibos in Toronto marked a decade since the 2007 credit crisis, it was also worth reflecting on "the most disruptive and creative period ever seen in our industry". Nascent technologies from ten years ago - such as the iPhone, cloud computing, and mobile Google Maps - are now baked into the fabric of our daily lives. This "digitisation of our physical world", McKay observed, has radically changed client expectations - and it is up to the financial services industry to rise to the challenge with innovative, but secure solutions for the next ten years and beyond.

It was a sentiment echoed by SWIFT chairman Yawar Shah and CEO Gottfried Leibbrandt who took to the stage after McKay to welcome delegates to Sibos 2017 and, in Shah's words, "take a look at how SWIFT is critical and relevant in this dynamic world of fintech and rapid evolution".

Shah flagged a range of initiatives to underline SWIFT's ability to respond rapidly to client need, including its global payments innovation (gpi) service, designed to improve the speed, traceability and transparency

of cross-border payments. But he also emphasised the need for agility and innovation to go hand in hand with resilience and security, noting the timely roll-out of SWIFT's Customer Security Programme. "SWIFT protects its own infrastructure from the threat of cyber and helps you protect yours with common standards, critical information and effective tools," he said, adding: "SWIFT has scale and reach. It connects the industry in a way no other organisation can."

Taking up McKay's train of thought, Leibbrandt pointed out that much can change in even six years. As Uber was establishing itself in San Francisco and the value of a bitcoin ranged between one and five US dollars, SWIFT had yet to launch either its sanctions screening service or its KYC Registry, but just these two initiatives - part of an expanding compliance suite - have attracted almost 5,000 institutions to date.

The concept of real-time payments was largely unfamiliar in 2011, but a pioneering new instant payments platform - underpinned by SWIFT technology - is scheduled to go live in Australia in mere months. Similarly, TARGET2-Securities, the single pan-European platform for securities settlement in central bank money, was still in its nascent stages six years ago. It is now live and SWIFT carries 95% of all its message traffic.

"The financial industry has been evolving, adapting, changing and innovating at breakneck speed and we, at SWIFT, have tried to play our part," concluded Leibbrandt. ■

Defence in the fourth dimension

In the plenary room and across other dedicated sessions, cyber-security experts spoke in favour of a collective, comprehensive and multi-faceted approach.



Sibos 2017's first big issue debate took a deep dive into the many challenges around cyber-security and digitisation, both for the finance sector and the wider world.

Admiral Michelle Howard, commander of the US Naval Forces in Europe & Africa, defined the obligations of leadership in the rapidly changing landscape of the cyber domain. She

“

You have to understand how to operate, how to embrace new technology and then you have to lead the way in its employment.

Admiral Michelle Howard, US Navy



Security must be inherent in the design of new products and services.

Rohan Amin, JP Morgan

outlined the evolving threat surface over the history of the US Navy, explaining how the range of potential threats had expanded from a single dimension (enemy ships) to account for attacks from above (enemy air forces) and below (enemy submarines). For Howard, cyber is the fourth dimension, with the potency of the threat magnified by its ability to move at the speed of light.

Howard also talked about the need to adopt and utilise technology and the importance of the ongoing arms race in the war against cyber-security threats. "If we don't understand how this domain works, that it's going to be powerful, we will fail. You have to understand how to operate, how to embrace new technology and then you have to lead the way in its employment," she said.

A coordinated response

Howard was joined by Rohan Amin, global chief information security officer at JP

Morgan, and technologist and hacker Pablos Holman, for a debate that ranged across employee education, creating a culture of security, and how the industry can best move forward collectively to protect itself and its clients.

The accelerating digitisation of financial services and a flow of recent breaches - both within and beyond the industry - have put cyber-security high on the agenda of banks' customers, requiring a coordinated response from executives responsible for business and technology operations, said Amin.

"Trust today is about digital and cyber-security. Customers expect that in all of the interactions they have with you, from the products and services being made available to them, to how you innovate," said Amin. "It is important that the technology and the security teams are working closely with the business on the creation of new products and services, to make sure we are thinking about security from the very beginning, not

something that we try to bolt on a little later. It must be inherent in the design."

Effective defence requires an understanding of the nature of the threat. According to Holman, most cyber-attackers are driven by economic opportunity, typically presented by weaknesses in authentication or coding, which are hard to eliminate for complex and multi-dimensional firms with large attack surfaces. "A bank or big company has to make sure they are not the low-lying fruit. If you're being chased by a bear, you don't have to be able to run faster than the bear, you just have to be able to run faster than your friends," said Holman, who is currently working on a number of projects at the Washington, US-based Intellectual Ventures Laboratory.

But banks know from experience that a hit to one damages trust in all. So many and deep are the interdependences in the financial services sector that protection of the entire ecosystem is central to the



It's not a security problem; it's a risk management problem.

Pablos Holman, Intellectual Ventures Laboratory

protection of individual institutions and their customers. "When you consider the business processes that are systematically important, such as wholesale payments, that's not something that a single institution does on its own," said Amin. "It is an ecosystem and it is really important that you get the ecosystem together."

'Loose tweets sink fleets'

For Howard, those institutions that think they're faster than the bear have already tripped, and are likely to fall into the group that don't yet realise they have been hacked. "One of the things we have learned is that it's about the control of information, which can move very quickly. Everyone is connected," she noted. "In WWI there was an expression: 'Loose lips sink ships'. A few years ago, our folks updated it to: 'Loose tweets sink fleets!'"

A comprehensive approach to cyber-security should include detection, isolation and containment measures as well as prevention, panellists suggested. As Holman noted, anticipation of the cyber-attacker's next move is unlikely to be enough. "Attackers will always have more time and attention to waste on messing with your stuff than you do. You have to change your perspective from this notion of ensuring security in almost every environment. You can try, but you're not going to make things totally secure," he insisted. "It's not a security problem though; it's a risk management problem."

Banks should assume that they have been compromised, Holman added, and act accordingly. "If you set yourself up to manage the risk and manage the scenario when things go wrong, you will be vastly more resilient and in a much better position than if you try to make things totally secure," he said.

Agreeing that an all-out focus on prevention of cyber-security threats will most likely fail, Amin noted an increasing focus among banks on resilience and recovery. He said: "Sometimes we find that institutions have exclusively focused on preventive controls, but I think it is critically important that banks get comfortable with all aspects of what they're going to have to deal with when an attack comes."

Preparation, education, collaboration

Prevention may not be possible; preparation is. In the session, 'Cyber-security: Trends and implications in financial services', JP Morgan's global head of wholesale banking operations, Lester Owens, said that a proactive, holistic risk-based approach to cyber-security has to include

significant levels of client education, not just on cyber-threats, but covering both strategic and tactical responses. It must also include training and support for staff and collaboration with other banks.

According to Owens, measures introduced to support internal staff include the development of individual user profiles, implementation of software to prevent internal users from accessing fake websites, and use of fraud engine tools that allow for different types of anomaly detection.

JP Morgan also undertakes several types of cyber-security testing in league with other banks and is participating in SWIFT's Customer Security Programme (CSP), designed to support users in reinforcing their SWIFT-related infrastructure, help them prevent and detect fraud in their commercial relationships, and continuously share information and prepare against future cyber-threats. Owens said he found the programme very useful. "It allows you to take a step back and ask: what controls do we have in place that complement the CSP; and what can we improve on?" he said.

Information-sharing and implementing best practices will provide a key lynchpin in the future years, panellists observed. One cited example was the Financial Systemic

Analysis & Resilience Center, set up last year by eight US banks, with support from government and industry partners, to collaborate on a scenario regarding a major bank being impacted by a cyber-security incident, rendering it unable to execute payments. Six workstreams were formed – liquidity, customer strategy, operations, communications, governance, and indicators & warnings – to drive the most pressing issues. Said Owens: "Collectively, we held a table-top exercise last week, which was very positive in driving dialogue forward. We will continue to drive the workstreams to implement a consistent approach across the industry."

Inherent interconnectedness

In 'Are capital markets more secure than payments?', panellists discussed whether the digitisation of data in the securities industry has created potential opportunities for cyber-criminals. Although they concluded the securities industry is intrinsically different from the payments industry, the risks, and potential abuses of the system, are scarcely lower. As such, panellists agreed that data protection had to be a top priority.

Vuk Magdelinic, CEO of Overbond, a Toronto-based primary bond issuance

platform, said that multi-counterparty access to a central hub could help prevent data leakage; essentially proposing an operational solution, rather than a preventative approach, such as monitoring multiple hubs. But for Yves Poulet, chief technology officer of Euroclear, collaboration should be regarded as the industry's strongest weapon in the fight against cyber-crime. "Collaboration is absolutely key," he declared. "We're not in a competition situation; it's about the industry protecting itself against people who want to harm it."

Echoing Holman, Poulet further suggested that the inherent complexity and interconnectedness of financial market participants and infrastructure operators meant that weak links are all but inevitable. As such, protection from cyber-attacks depends on people as much as technology.

"Cyber-security is not only an IT issue," he said. "People are an absolutely essential component in protecting the company against cyber-threats. Apart from firewalls, anti-virus software and other measures, companies are dependent upon their staff. Good social controls, access management and cyber-awareness are key in the fight against cyber-crime." ■



Companies are dependent upon their staff. Good social controls, access management and cyber-awareness are key.

Yves Poulet, Euroclear



A system at risk

With the rise of nation-first politics in the US and Europe, industry leaders must work to preserve an integrated financial system.



We have to ensure that capital continues to flow.

Tim Adams, Institute of International Finance

Just as political leaders have to balance short-term political considerations - such as electoral votes - with long-term policy considerations, so too must c-suite executives balance short-term market fluctuations with long-term strategy.

But with such pressing near-term concerns, how can politicians and financiers

deal with the most vexing issues facing the planet, ranging from climate change and the removal of nuclear weapons to demographic shifts and the need for a strong and sound financial system? The struggle to deal with such profound and complex challenges is one reason for the rise of nation-first politics, from the US to Europe and the UK, which has the

potential to impact heavily on future trade and finance flows, threatening the growth and integration of the global financial system.

“History has shown us that nation-first politics are not good for the global economy or individual national economies. What we need to do - as businesses, governments and analysts - is to think about how we



“

Nation-first politics are not good for the global economy or individual national economies.

Tanvi Madan, Brookings Institution

make the case for globalisation again,” said Tanvi Madan, fellow and director of the India Project at the Brookings Institution.

While the twin political shocks of 2016 - the UK vote to leave the European Union and the election of Donald Trump as US president - remain the clearest examples of the rise of nation-first politics, more recent instances of populist unrest include the significant role played by the far right in 2017 elections across Europe - from France and Austria before the summer to Germany more recently - as well as the Catalan crisis in Spain following a disputed independence referendum on October 1.

End of an era

The fallout from these developments dominated discussion across several sessions at Sibos, with consensus being that we are living through unprecedented times, as multiple jurisdictions retreat from the

path of globalisation that has been followed for many years. As the UK prepares to withdraw from the EU and the US considers withdrawal from international organisations and agreements, the future of the global financial system looks uncertain.

“We’re seeing greater protectionism, localisation, fragmentation and balkanisation,” said Tim Adams, president and chief executive of the Institute of International Finance. “We see it in the regulatory discussions - it’s the end of financial globalisation; that great era that existed since the mid-70s.”

But while the Trump administration has certainly expressed willingness to retreat from international regulatory alliances and amend some of the provisions of the Dodd-Frank Act, radical finance sector reform does not appear to be high on the president’s ‘America First’ agenda.

“Financial regulation is not a top priority for the administration,” said Aaron Klein,

fellow and policy director of the centre on regulation and markets at the Brookings Institution, speaking in one of several other Sibos 2017 sessions focused on trends in financial regulation. “But there is going to be a pull-back of the US as a leader in global finance, because that leading role is antithetical to the concept of America First.”

While the leadership that the US has historically shown on key international bodies such as the Basel Committee on Banking Supervision and the Financial Stability Board could well be constrained under the Trump administration, the push towards Brexit will also see the UK lose its seat at the European negotiating table.

Game changer

A more limited role on the international stage for these two G-7 economies could be a game changer for the financial system, creating an opportunity for China, India and other emerging economies to gain in power and influence. As Sibos this year coincided with the Communist Party’s 19th congress in China, it presented the opportunity to consider the country’s future position.

“We can do nothing about China being a global player - this is part of life and we should welcome it, but at the same time we have to keep in mind that this is a



For corporations and banks, capital is a truly international phenomena - it can move overnight.

Heather McGregor, Edinburgh Business School

country that uses state aid and single party rule. [The Communist party] is the biggest political party in the world, and whether we want it to play a role in our economies is an open question," said Philippe Le Corre, senior fellow at the centre for business and government at the Harvard Kennedy School.

With the internationalisation of renminbi, the growing depth of talent in the country and its active participation in international institutions at a time when the US is stepping back, China is fast outpacing western economies on the international stage. The emergence of Shanghai as a financial centre also offers a possible alternative to London after Brexit. A poll of the plenary audience suggested Frankfurt, Singapore and Shanghai could all be well positioned to displace London in the future.

"This depends on how open China will become financially, whether the internationalisation of renminbi will carry on and whether the debt issue will be sorted out. Shanghai has the shape of a financial centre, but does it have the heart of a financial centre? I'm not sure," said Le Corre.

Hard choices

Beyond the possible displacement of London as a leading financial hub, the broader implications of Brexit for trade flows and financial integration were also highlighted, although Heather McGregor, executive dean of the Edinburgh Business School, suggested the potential fall-out may be exaggerated.

"It astonishes me that we're all spending quite so much time worrying about the secession from the EU of a small group of islands off the north coast of France with



particularly bad weather. For corporations and banks, capital is a truly international phenomena - it can move overnight - and I don't think Brexit will make very much difference at all," said McGregor.

But such optimism was not widespread, as both Le Corre and Adams expressed regret at the gradual move towards a 'hard Brexit', which could see the UK leave the single market without a strong trade agreement, London relinquish its role as a major financial hub and many banks move staff and resources elsewhere.

"I think we're going to get a hard Brexit, I think they're running out of time and I think all of our member firms are already starting to move people and operations. Industry leaders tell me we have about six months to finalise some sort of deal that allows them to make decisions that aren't immediate and capricious. Already the tone has had a deleterious impact on the business community," said Adams.

Financial market infrastructures, which typically operate across borders to mitigate systemic risk, also stand to be adversely impacted by any retreat from globalisation or deterioration of cross-border cooperation between central banks, regulators and market participants. Speaking in a separate panel on this topic, Paul Symons, head of government relations at Euroclear,

considered the specific challenges Ireland may face as a result of Brexit.

While Ireland will remain part of the EU, its economy is closely integrated with the UK, with a large chunk of its imports and exports flowing to and from the UK without tariffs or hindrance. The imposition of international tariffs would pose a major threat to Ireland's economy and the many corporations and institutions operating there, warned Symons.

"We [at Euroclear] have Brexit challenges as a market infrastructure provider for the Irish securities market. We will have to restructure in order to be able to continue to serve Ireland post-Brexit. But I also see some positive benefits from Brexit for the EU27, as they now really prioritise the development of a single capital market that can compete with the UK and the US," said Symons.

Silver linings

While some silver linings were uncovered during the discussions, the geo-political clouds over the financial system are unlikely to disperse in the near term. As the post-crisis reform chapter draws to a close, it will be the responsibility of both politicians and industry leaders to ensure that the next phase of the financial system's evolution is not hampered by the nation-first agenda.



China being a global player is part of life and we should welcome it.

Philippe Le Corre, Harvard Kennedy School

“We’ve seen a huge amount of de-risking because of regulatory cost, but if we want to see global growth and we want to see interconnectivity, then we have to ensure that capital continues to flow. What we see now is fragmentation and balkanisation in the global financial system. We need to run against that,” said Adams. ■

A large advertisement for Deutsche Bank's Global Transaction Banking (GTB) services. The background is a modern, brightly lit interior space with a blue and white color scheme. In the foreground, a woman in a dark blazer and light skirt walks towards the left, carrying a brown bag. In the background, two men in suits are walking towards the right, one holding a folder. The text 'Deutsche Bank Global Transaction Banking' is in the top left. A diagonal banner in the top right says 'See you next year in Sydney Sibos'. The main headline is 'Shaping your tomorrow, together'. Below it, it says 'For more information, visit cib.db.com or follow us on @TalkGTB'. A blue square logo with a white diagonal line is in the bottom right. At the bottom, there is a small disclaimer in fine print.

Deutsche Bank
Global Transaction Banking

See you next year in Sydney
Sibos

Shaping your tomorrow, together

For more information, visit cib.db.com
or follow us on [@TalkGTB](https://twitter.com/TalkGTB)

This advertisement is for information purposes only and is designed to serve as a general overview regarding the services of Deutsche Bank AG and any of its branches and affiliates. The general description in this advertisement relates to services offered by Deutsche Bank AG Global Transaction Banking and any of its branches and affiliates to customers as of September 2017, which may be subject to change in the future. This advertisement and the general description of the services are in their nature only illustrative, do neither explicitly nor implicitly make an offer and therefore do not contain or cannot result in any contractual or non-contractual obligation or liability of Deutsche Bank AG or any of its branches or affiliates. Deutsche Bank AG is authorised under German Banking Law (competent authorities: European Central Bank and German Federal Financial Supervisory Authority (BaFin)) and, in the United Kingdom, by the Prudential Regulation Authority. It is subject to supervision by the European Central Bank and the BaFin, and to limited supervision in the United Kingdom by the Prudential Regulation Authority and the Financial Conduct Authority. Details about the extent of our authorisation and supervision by these authorities are available on request. Copyright © September 2017 Deutsche Bank AG. All rights reserved.

Refining the new oil

Banks and fintechs are extracting new value from the world's expanding data reserves, both to develop new services and improve existing ones.

“

Data provides clients with insights into how to deploy their money, how to grow their business, and how to find new customers.

Ather Williams III, Bank of America Merrill Lynch



“Data is the key to the future. It is the digital oil that can power new services and drive strategic change,” moderator Carmel Crimmins, financial services editor, Reuters,

told delegates packed into the plenary room for this year's 'Future of Money' session, held on Wednesday morning. “Traditional banks know that they already sit on a huge treasure

trove of data,” Crimmins continued. “Right now, there's a very interesting scramble afoot.” Who is involved in this 'scramble'? Large banks, often hampered by legacy, are



Fintech 2.0 is where you try to use big data science to reimagine banking services.

Richard Koh, M-DAQ Group



working to utilise what they have in their own systems; fintech firms have developed data-drilling techniques and (in some cases) are going into partnership with banks; challenger banks aim to combine the nimble capabilities of a fintech with the services, reach and domain expertise of a bank. All three were presented for this big issue debate, but Crimmins noted absent 'friends' to counteract any complacency. "Google and Facebook are masters at refining, extracting, aggregating and selling users' data," she reminded her capacity audience. So began a session that was at once reassuring (the data's there; traditional banks already have it) and thought-provoking (we don't necessarily have the most effective tools for utilising it). We have to be aware of restrictions on use of our customers' data, but how most effectively can we leverage it to deliver new services and drive change?

Already, on Monday morning, Innotribe had given us a clue. Introducing the session, 'How does Facebook know you

better than yourself?', Ghela Boskovich, head of fintech/regtech partnerships at Rainmaking, home of Startupbootcamp, declared: "Identity will be your capital wealth in the coming years." In a discussion on the evolution of social media, ecommerce and marketing, Vladan Joler, director of Share Foundation, identified "surveillance capitalism" and the practice of 'nanotargeting' individual customers. Innotribe regulars came to the 'Future of Money' session knowing that the familiar injunction 'know your customer' now has a new meaning.

A data-rich world

The primacy of data was reflected in a poll in which two-thirds of the plenary audience asserted it was now more important than money itself. Ather Williams III, head of business banking at Bank of America Merrill Lynch, said it was not a matter of either/or. "We're less than a decade removed from a financial crisis that rocked

the world. The first question my clients' boards and CEOs ask is: where's the money?" Large non-financial multinationals ask about counterparties, risk and access, Williams continued: "That said, the data provides them with very interesting insights into how to deploy that money, how to grow their business and understand counterparty risk, and how to find new customers."

"For the fintech world, data is the currency of now," commented Richard Koh, founder and CEO of Singapore-based fintech M-DAQ Group. "Banks can collect a lot of data on businesses' and individuals' accounts. But there is the other part of our lives: offline and increasingly online. Banks are not collecting those data points." A credit score might indicate ability to pay, said Koh, but not willingness; an ecommerce platform operator will know, for example, that a customer has a pattern of returning purchases. "There are many small businesses in the world that can't clear a standard credit score," he explained. "But micro-loans can be

“

Banks may have the treasure trove of data, but they don't own it.

Megan Caywood, Starling Bank



given because credit data sourced from non-credit data can give us reassurance.”

In a data-rich world where nanotargeting of largely online customers is a viable strategy, willingness to pay is measurable. Banks' own datasets are thus incomplete, but can be augmented. Citing the Monetary Authority of Singapore's decision to allow regulated banks to invest up to 10% of their capital base in ecommerce and ancillary businesses (minority stakes only), Koh observed: “The regulators are seeing that the only way for a bank to do a banking job better is to collect data; one way to do that is from multiple online platforms, and they're allowing that to happen.”

Banking unbundled

In Europe, the most significant regulatory initiative related to the use of customer data is PSD2, the EU's revised Payment

Services Directive, which enables third-party service providers to access and aggregate data from incumbents. Due to come into force in 2018, PSD2 increases opportunities for challenger banks such as Starling Bank, described by chief platform officer Megan Caywood as “a tech startup with a banking licence”. Because it focuses on delivering retail current account services by mobile, Starling Bank has a presence on iOS and Android, but not the high street, and is building a multi-vendor marketplace for retail financial products, whilst harbouring plans to move into business banking.

Data and money are tightly linked, Caywood said, but ownership is the key point. “PSD2 shifts the view of data. Banks may have the treasure trove of data, but they don't own it. The customer owns it. By virtue of owning it, they can share it with whatever other company they wish.

Now, customers are getting easier access to the entire financial-services ecosystem.” Caywood referenced the “unbundling of banking” whereby challengers can target specific product areas within traditional banks' overall commercial proposition. “This disintermediation of banking will offer customers more choice, but it's a threat to traditional banks with their horizontal feature sets.”

The opportunity for challengers, Caywood continued, is to build out an easily scalable network-effect platform enabling any fintech (subject to due diligence and a compliant API) to bid in real time to service customer requirements. But variations on this strategy are open to traditional banks too. “We've had very explicit conversations with our corporate clients about what this means for them in Europe,” said Williams. “We've adopted a framework that we call the Ecosystem Orchestrator. Our role can be

helping them manage this. No CFO wants to manage 100 banking relationships; they really want to manage one."

No longer 'us and them'

Williams described a role for banks built around leveraging the open-banking architecture enabled by PSD2, but also offering consolidation to the client. "We already do that through notional pooling and other cash-concentration structures, but now we can more efficiently move and access money and complete transactions on our clients' behalf." Does this approach mark a change of attitude from traditional banks, Crimmins wondered, to the challenge from Silicon Valley? "I'd say we are more understanding of the challenge. Banks have pivoted from an 'us versus them' approach to a much more collaborative approach. We think of this as a partnership. The insights that can be brought in are amazing. This is not a zero-sum game," said Williams.

But will Silicon Valley's giants be satisfied with a partnership role? "Tech companies such as Amazon, Google and Facebook will increasingly move into financial services, probably focusing on payments first as we've already started to see. But I don't think any of the large tech companies will want to take on the risk and regulation of actually being a bank," said Caywood. Multiple other challengers will look to get into financial services, she continued, with a view to delivering services and driving revenue very differently from traditional banks.

Expanding on this theme, Koh predicted a step-change in the competitive landscape. To date, fintech 1.0 featured the use of information technology to make the processes of financial services faster, cheaper and better. "Now we have Fintech 2.0, which is where you try to use big data science and methodology to reimagine banking services. Something that wasn't possible or that may not be offered by a traditional bank or a challenger bank - we can now make possible through big data science," said Koh.

Know your customer

If the main panel discussion confirmed the ever-increasing importance of data in shaping the development and delivery of future financial services, an audience question on customer acquisition further underlined its role in helping service providers understand the diversity of customer preferences. "For us, the future is mobile," said Caywood. "We expected our early adopters to be the digital natives, but what we found is, our provision is age-agnostic, and it appeals across income categories. People want to be able to do things automatically and easily from their mobile."

But Williams suggested that the future of banking would still include branch networks. "What's Amazon doing now? It's opening branches," he said. Noting the role of face-to-face discussions for banks when acting as trusted advisers to the client, Williams declared: "At some point, most people will want to sit down and talk." ■

Covering all your needs for Instant Payments

In a world where 'instant' has become the new normal, payments need to become instant as well.

As a frontrunner in payments, equensWorldline has the unique capability to cover the whole value chain, from payment initiation to back-office processing, clearing & settlement, and channel solutions that directly benefit the end-customer. This way we are making European Instant Payments a reality.

Interested?

equensWorldline.com/instantpayments

equensWorldline

••••• a worldline company

Ready for the real world?

Artificial intelligence and other disruptive technologies can have a transformational impact on banking, but innovation must be aligned to customer need.



Banks face disruption from external parties, but also from their own adoption of new technology and the process of change. Managing this process requires a well-considered strategy that exhibits real awareness of what technology can and cannot do.

Speaking at the Sibos 2017 plenary session 'The growing significance of disruptive innovation and artificial

intelligence', Alex Manson, global head of transaction banking at Standard Chartered, said that, as banks embrace disruptive technology, they must avoid building solutions looking for a problem. With pressure to innovate in the face of competition and change in customer expectations, there is a risk that banks will follow the crowd before client needs and objectives are well understood.

"The definition of relevance is whether the customer cares," Manson said. "If no customer cares, your solution may well be new, but it is irrelevant."

One of the most transformative technological innovations - the application of artificial intelligence (AI) and machine learning - is inevitably surrounded by a lot of hype. If financial services providers are to gain real advantages from AI they need to



The culture of innovation has to be client-centric.

Alex Manson, Standard Chartered



filter out that noise in order to extract real value from technology.

“Today we see AI is the buzzword of the year, but I do believe it will fundamentally change the way we work and the way we operate,” said Axel Lehmann, group chief operating officer at UBS.

Lehmann noted that the timeframe for realising the promised returns and the potential cost/income ratio benefits of AI was not certain, likely between four to eight years to generate structural benefits, but suggested the technology could impact the business on two levels. First, it could enable the automation of more mundane, repetitive processes, thus impacting the scale of workforce necessary. Second, it would also change how more value-added work, which directly drives revenue generation, is conducted.

“It will go right into the core,” he said. “In portfolio composition, we may soon not only be trading on price discovery: it may be that predictive pricing is possible. The trader of today will not be the same trader in ten years; most of what a trader is doing today can be enhanced and done with technology.”

A fertile bed

The application of AI to banking processes depends upon the type of technology being used; the term can be applied to a wide range of smart systems, from ‘narrow’ AI which is designed to handle and automate very specific problems to more flexible predictive and cognitive systems.

Speaking at the session, ‘The impending technological revolution in fintech and artificial intelligence - Are you ready?’, Richard Nesbitt, president & chief executive officer of the Global Risk Institute, a Toronto-based research body, predicted that some of the more advanced technologies will not be a concern within the lifetime of most finance professionals. Yet the narrower applications available now are already incredibly useful for an enormous range of tasks.

“With narrow AI you can have self-driving cars; these are possible without general AI or super intelligence, and what that means for industry and banking will be quite profound,” Nesbitt said.

The increased electronification and digitisation of transactions and trading

in recent years is yielding exponential growth in data available to financial service providers. The capacity to easily record, monitor and review trades has applications that range from revenue generation to regulatory supervision to cost management. However the volume of data that is available, the speed at which it is produced and the way it records information do not make it easy for humans to process, even when visualisation tools are available.

“AI has been taking off for the last couple of years due to three things,” says Nesbitt. “Firstly, huge amounts of data are being generated and stored. Secondly, advanced hardware is allowing cheap storage of and access to that data. Finally, advanced algorithms allow machines to learn independently from their programming.”

Rules-based engines are currently used to identify patterns within data, to scale up the capabilities of teams within banks, however they are constrained by the strict application of those rules to shifting patterns in real world activity, such as the changing modus operandi of cyber-security threats. In contrast, noted Nesbitt, systems



Artificial intelligence will fundamentally change the way we work and the way we operate.

Axel Lehmann, UBS

at the more sophisticated end of the AI spectrum can be trained on a dataset to learn patterns that help process the big data sets found in finance, but can also follow variations in those patterns and adapt to changes within them.

The future now

To illustrate specific use cases within banking, Dermot Canavan, head of trade finance services product management at ING, and Marc Smith director at technology provider Conpend, presented a case study, 'Automated trade finance compliance screening using artificial intelligence', focused on use of AI to automate a previously manual sanctions screening


process. The system they developed captured data for analytics and audit, leveraging existing technology used by the bank for document management and optical character recognition.

The AI element improved several parts of the process, including document capture, which had proved challenging historically due to format variations. Conpend used the big data approach of taking all the raw data from the documents then applying algorithms that could select relevant data without creating a rigid template to match the layout. Once a proprietary engine captured and extracted data from the required fields within the trade documents, the system then interpreted the data and translated them into a common format.

The bank can then use the data to perform any checks necessary, processed via existing sanctions screening facilities. Machine-learning algorithms - acting in a similar fashion to a spam filter - are then used to assess the alerts raised, identifying false positives based upon the user behaviour. "In some cases that has reduced output down to zero, which allows straight-through processing," said Smith.

Disruption and defence

The Global Risk Institute's Nesbitt also highlighted the potential role of AI in addressing cyber-security threats, pointing in particular to the emerging threat posed by quantum computing, which is predicted



STET as one of the leading payment processors contributes to build the European payment landscape by providing the financial industry with innovative and efficient solutions:

- SEPA Pan-European Clearing and Settlement
- Cards payments switching and clearing
- Digital Hub Service
- Cards and IBAN Tokenisation
- Fraud Control for Cards and SEPA payments
- Mobile to IBAN Proxy database
- Single Window to TIPS and other CSMs

Delivering **more efficiency**
and security to banks

www.stet.eu

YOUR PARTNER FOR EUROPEAN PAYMENT PROCESSING

to enable processing at faster speeds than binary-based systems. These could be employed to unpick their cyber-security defences if banks do not invest in quantum cryptography and artificially intelligent defences. As increasingly powerful computing resources are made accessible via commoditised commercial models, including cloud accessible platforms, the ability of bad actors to deploy them for illicit purposes grows.

But employing AI can allow very rapid responses to cyber-attacks, said Nesbitt, where slight variations prove challenging for rules-based systems, helping to counter the speed at which such attacks can develop.

Recent technology innovations are already being used to tackle a range of specific challenges within banking, but at a strategic level they will also provide a way of helping businesses across the financial sector to achieve long-term viability and efficiency. For example, the application of disruptive technologies such as AI can make firms more resilient to operational risks by reducing the need for multiple semi-manual processes and parallel, but not integrated,

siloes, simplifying the current organisational models found within banks.

“Right now there are complicated structures with wasted code and wasted interfaces,” said Amber Case, fellow at the Berkman Klein Center for Internet and Society, Harvard University, speaking in Thursday morning’s plenary session. “Each new feature increases the complexity of the system and the surface area available for attack.”

Replace and enhance

Allied to a customer-centric mindset, new technology can help banks avoid disruption from competitors, but they must also be careful not to disrupt their own organisations by changing too quickly. The effective adoption and integration of digital technologies which replace and enhance rather than mimic existing structures will be crucial, but the success of this effort will be dependent upon senior management imposing a strategy that manages changing process and culture.

“The culture of innovation has to be client-centric, it has to be focused on the

human,” said Standard Chartered’s Manson. “It has another element, which is the need to have the courage to discard certain current ways of doing things, as well as trying things that may not work: learning is not failure, learning is a success and we are encouraging this within our organisation, in day-to-day operations, but also in the way we engineer and the way we innovate.”

As we were reminded in the ‘Surviving disruption in financial services’ panel, adoption of new technology and adjustment of business models is not only about focusing on the human customer, but also addressing the people problems that can exist within a team.

“When you have four or five generations working together there are challenges,” said Paul Francisco, chief diversity officer at State Street. “How do you bring those generations together? A Millennial may think he or she is more prepared because they have easy access to information and technology versus someone in the firm with 25 years’ experience. Companies that are really figuring this out fastest get to market the fastest and that is a competitive advantage.” ■

“

Each new feature increases the complexity of the system and the surface area available for attack.

Amber Case, Harvard University





Image Credit: Destination NSW

Sydney Welcomes Sibos 2018

Welcome to Sydney, world-leading financial services centre and 'future-ready' economy.



25 years of consecutive economic growth



4th largest pool of managed funds globally



60+ international banks are headquartered in Sydney



Top 5 RMB hub



Deep and skilled talent pool and strong culture of innovation



8th strongest global FinTech hub



**New South Wales
Government**
AUSTRALIA

Right standard, right time

As we start to count the efficiency, interoperability and innovation benefits of ISO 20022 investments, is the time right to develop standards to support the new technologies?

It's been a long journey, but with major market infrastructures (MIs) from the US to Japan now committed to ISO 20022 for renewal projects, a clear sense of meaningful progress permeated the standards community gathered at Sibos 2017 in Toronto. "It's no longer about 'shall we do this', but about the details of implementation," said Stephen Lindsay, head of standards and innovation at SWIFT. Through the Standards Forum, MIs shared ambitions for systems renewal, integration and transformation across their markets, including a payments modernisation programme in Canada, revamps to FedWire and CHIPS in the US, and the European Central Bank's consolidation of TARGET2 and TARGET2-Securities (T2S), and its recently-announced TIPS instant payment settlement service.

Along with regulatory requirements (e.g. PSD2, MiFID II), standards can trigger change when "the status quo gets too painful", said Isabel Schmidt, head of institutional cash management, Americas at Deutsche Bank, citing the earlier example of the Single Euro Payments Area, which drove STP in the payments industry. Today, banks need to take advantage of the new infrastructure that MIs are creating. "In payments, we need to operate in an environment where the marginal cost is close to zero and focus on solving our customers' pain points," said Schmidt, suggesting that the areas on which banks will compete with each other and with fintechs will change dramatically.

The message from Toronto to service providers across the finance sector was clear: it is time to realise the benefits of a lengthy and costly standardisation effort. "We're



Rich data will provide valuable analytics for risk management, but our customers also want analysis of payment counterparties and flows.

Isabel Schmidt, Deutsche Bank



“

When do we converge and how do we keep from limiting innovation?

Brian Behlendorf, Hyperledger

seeing the tip of the iceberg in terms of the opportunity this offers,” said Janet Lalonde, director of modernisation at Payments Canada. “The real opportunity of ISO 20022 is from the increased data coming with the payment.” Deutsche Bank’s Schmidt agreed: “This rich data will provide valuable analytics for our risk management, but our corporate customers also want analysis of their payment counterparties and flows.” The increased availability of structured data via ISO 20022-based platforms is enabling product innovations that offer both cost benefits to providers and service benefits to users. In the US, for example, strong resistance to direct debits is being overcome by an ISO 20022-based real-time payments system which supports a new request-for-payment product to automate the request, settlement and reconciliation of retail payments.

As well as greater processing efficiency and product innovation, other internal benefits claimed for ISO 20022 environments include reduced code implementation and testing costs.

Linked eco-systems

Interoperability of platforms and eco-systems cross-border and cross-business is the ultimate promise of this far-reaching

standardisation effort. For Berthold Kracke, CEO of Clearstream Banking, the company’s T2S strategy follows “a radical vision, providing market participants with harmonised access to different liquidity pools via one single platform”.

Siegfried Vonderau, head of division for TARGET2/T2S services management at Deutsche Bundesbank, also argued that “broader, higher integration” is valuable to users, the industry and regulators, but warned of potential risks. “When, for example, the system can pick up disparate assets from different pools and tie them together 24/7, what tools will users need to help them manage that complexity?”

This sounds, perhaps, like a ‘first-world problem’ and assumes continued painstaking collaboration in pursuit of true interoperability. In Toronto, many representatives from high-value payment system operators were keen to learn from the almost two years of experience gained by HVPS+, a group of MIs and banks working to harmonise market practices for ISO 20022 HVPS implementations.

“Because many of us were in the process of determining our implementation timelines, we had the attention of our communities, and this helped us to move forward,” explained Gina Russo, assistant vice president in the

Wholesale Product Office of the Federal Reserve Bank of New York. Working on the basis of “not wanting to just implement like for like”, HVPS+ participants reached consensus on required enhancements, then published six core messages and a set of implementation guidelines to help MIs implement in a consistent way. One typical area of discussion has been how to include additional parties in the enhanced ISO 20022 messages.

Next year, SWIFT will begin a consultation process with the industry on possible migration of MT messages to ISO 20022, a move that would increase opportunities to transform business processes and enhance interoperability – for example, between SWIFT gpi-enabled correspondent banking payment services and high-value or domestic instant payments systems.

Driving adoption

Although much progress is being made, many challenges remain, such as the barriers to achieving widespread standards adoption across the value chain. ISO 20022 implementation can raise issues for large corporates generating payments through ERP systems. In the securities sector, Bernie Kennedy, senior business advisor in the group CIO office at Hong Kong Exchanges and Clearing, noted the difficulties of migrating small market participants onto new ISO 20022-based platforms in Asian markets lacking in third-party service providers.

“If we want to be efficient and avoid risk, we can’t let the ‘long tail’ hold us back,” insisted Alain Pochet, head of banking services, BNP Paribas Securities Services, suggesting smaller firms should outsource if not willing to make the internal investment needed.



Should regulators or infrastructures enforce the adoption of industry standards by smaller firms? The debate recurred across the week-long Standards Forum programme, with Pochet noting the role of the ECB as an infrastructure provider, acting as a catalyst for the integration of more than 22 markets through the T2S project.

“Regulators will [tend to] define timings and requirements - let’s keep this at an industry level,” warned John Abel, executive director for settlement and asset servicing strategy at the DTCC.

With PSD2 on the near horizon, the UK payments industry’s experience of the Open Banking initiative mandated by the UK Competition and Markets Authority is pertinent to the broader debate about standards adoption and governance. At both the European and UK level, a principles-based



regulatory framework has seen regulators stop short of mandating standards. “Only nine institutions were involved in the UK project, but it was difficult to get agreement because we were standardising competitive products,” said James Whittle, director of international standards and services at

Payments UK and chair of the ISO 20022 Registration Management Group. “Some sort of rule book will be required for PSD2 and we need to be thinking about who will provide that governance.”

Innovate or standardise?

With many across the finance sector looking to leverage emerging digital technologies such as distributed ledger technology (DLT) and application programming interfaces (APIs), the questions of how, and



“
By changing the way banks work with fintechs through open banking we can create brilliant new services.

Carlos Figueredo, Open Vector



“

Some sort of rule book will be required for PSD2 and we need to be thinking about who will provide that governance.

James Whittle, Payments UK

particularly when, to develop standards was also a key question for discussion. “Now that we have real production pilots, real engagement and real assets at play in DLT solutions, when do we converge and how do we keep from limiting innovation?” asked Brian Behlendorf, executive director of Hyperledger, the project founded by the Linux Foundation to foster open source collaboration on DLT-based initiatives across industries.

Richard Gendal Brown, chief technology officer at R3, the bank-owned blockchain development consortium, made a strong plea to avoid premature standardisation. “For the time being, trying to force standardisation between platforms misses the point. Since every participant who takes a node on a blockchain implementation has to deploy the same technology, if you think about that

from a network or freedom effect, then you have to use open source.”

SWIFT’s Lindsay agreed, with a caveat. “While underlying technologies are still evolving, the fundamental business models won’t change and data definitions such as provided by ISO 20022 are very helpful. Agreement on what is an equity, a bond or a payment is important.”

The UK’s Open Banking API was developed in just four months using ISO 20022 definitions and JSON (a data interchange format preferred by the World Wide Web Consortium for the development of web APIs). But ISO 20022 is a heavy standard, not immediately attractive to API developers. “We’re thinking about how to adapt our standards to make them more flexible and re-usable for the API environment, without losing

the interoperability benefits they bring,” commented SWIFT’s Lindsay.

Carlos Figueredo, CEO of Open Vector, was responsible for developing the Open Banking data standards transported by the APIs, so knows intimately both the challenges and opportunities that APIs offer and the importance of standards in supporting collaboration and enabling transformation. “This is the most exciting opportunity to really make banking customer-centric. By changing the way banks work with fintechs through open banking we can create brilliant new services,” he said.

Standards will play a critical role in supporting the next wave of innovation and transforming the banking industry. But generating consensus on timing and governance will be key to driving successful adoption. ■



Innovation in practice

Not only did Innotribe address the how, why, when, where and who of innovation, but also: what happens if you succeed?

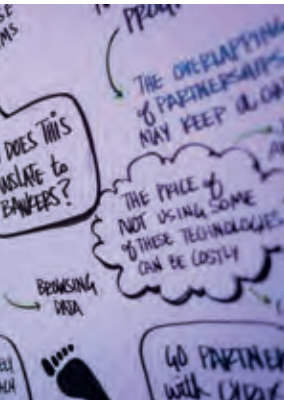
Innotribe's first innovation for 2017 was to bring a strong sense of history to the practical business of innovation. Just as London coffee-houses provided the backdrop for the British enlightenment of the 17th century, so the Innotribe space was explicitly designed to foster a sense of coffee-shop collaboration. There were two Jimmy Monkey coffee bars; we squeezed around tables for the sessions; while the other half of the space was laid out with sofas, chairs and tables for more relaxed contemplation. Throughout the week, with most sessions full to capacity, that other half buzzed with conversation. Whether

it was down to the coffee or exchange of ideas, Innotribe was the place to be in Toronto.

Positives and negatives

The practical business of the week was the 'how' of innovation. Key note speaker Admiral Michelle Howard, commander of the US Naval Forces in Europe & Africa, set the tone with an exploration of the journey of innovation. Taking inspiration from earlier generations of American pioneers, Howard cited commitment, stamina, connectivity and a willingness to 'travel light' among

the timeless factors that can contribute to success. While many of Monday's sessions focused on issues around data and identity (see Future of Money article) the process of innovation remained front and centre of the debate, notably in the afternoon session, 'Financial inclusion: increasing the pace', which highlighted the need to take account of inclusion when designing and regulating new financial systems and services in order to maximise their reach and societal benefits. Sir Tim Berners-Lee spoke on Tuesday morning, sharing his experience of innovating the world wide web and looking forward to



Nobody does the math on what's going to happen at scale.

Sir Tim Berners-Lee



You innovate because you want to improve the fundamentals of your business.

James Lloyd, EY

Alongside the 'how' of innovation, the session also posed the question 'when, if ever?' James Baker, editor, Lloyds List Containers, explained that the pace of innovation in shipping had slowed recently in part because it works as it is. Recession has been a driver of change, he said, but also pointed us to a number of barriers to innovation traceable to the human element. "The issue has not been the technology, but the culture. Much of this is out of the hands of the technology companies and even the shipping lines. Some of the problems come from the regulators, and many exporting nations have a penchant for bureaucracy," said Baker. Eager tech entrepreneurs pitching solutions don't necessarily start from an understanding of the issues in shipping, he added.

Innovation does not happen in a vacuum, Lloyd reminded us, but is driven by need. "You innovate because you want to improve the fundamentals of your business, improve your competitive position, make more money, reduce costs," he stated. In shipping and banking, innovation has become a priority due to changes in the underlying economics of the respective industries, but also because of very similar competitive challenges. "There's always a perceived threat that Amazon is going to start buying its own ships. There are high barriers to entry to shipping, but there's a perceived fear: everyone's still waiting for the kid in the basement to come up with some true innovation, something that changes the model," said Baker.

Hopes and fears

Fear might be a great motivator, but it is not necessarily conducive to generating positive outcomes. In 'Making space for innovation', Toni Townes-Whitley, corporate vice-president for industry at Microsoft, highlighted the mental space needed for innovation, identifying four requirements.

future innovation. On Monday, we had been told that that InnotrIBE was about 'yes, and' not 'yes, but', however Berners-Lee reminded us that innovators sometimes have to work against indifference, rather than negativity. "There was a paradigm shift with the web. Now, when you talk about clicking, everybody understands that a click could take you to a page on the other side of the world. Then, at the start of the web, you couldn't explain the potential of it; you could show somebody that you were going from one page to another, and they would say - so what?" he explained.

Berners-Lee went on to discuss the often ignored relationship between, as he put it, the individual space in which innovation happens and the rest of the world. "There is a phenomenon where people design something that seems like a good idea at the time, and it works, and nobody does the math on what's going to happen at scale." Taking the example of email - a welcome innovation that enhanced efficiency - Berners-Lee pointed out that nobody had thought through the impact of commercial motivation: spam. There can be positive consequences of innovation - the web led to Wikipedia - but these are not inevitable. "Nobody's done the math on social media, whether these will produce happy results," said Berners-Lee.

If you have an innovative idea, be prepared for indifference. If your idea

works, think through its possible knock-on impacts, negative as well as positive. In the Q&A, Berners-Lee expressed optimism, but not fatalism. Discussing the negative attitudes and hostilities that can manifest on social media, Berners-Lee acknowledged that some social-media structures can be conducive to negative expression, but said these online systems are designed by people and as such can and should be redesigned. He declared however, "We should not throw up our hands at humanity." Innovation can influence our behaviour, just as we can affect the progress and direction of innovation.

Assets and liabilities

To successfully master the practical application of innovation, we must factor in the human element. We were reminded of this in the session, 'Innovating in a high-stakes environment', which focused on the shipping industry. The theme of the day was how to handle legacy, sometimes seen in banking circles as a liability, rather than an asset. "It's not so bad having legacy, if it means you've kept going," said moderator and day anchor James Lloyd, Asia-Pacific fintech leader at EY, citing the accumulation of staff experience and expertise that legacy can include.



Innovation doesn't just happen. You have to make space for it.

Toni Townes-Whitley, Microsoft

see the greatest increase," said Townes-Whitley, giving the example of Netflix's close focus on customer preference. "Digital feedback loops are going to be necessary for companies to accelerate."

Call to action

In a week centred on the 'how' of innovation, we were regularly prompted to also consider the 'who'. To thrive and adjust in a fast-changing environment, it's up to us to ensure our businesses are open and alert to innovation. In the session, 'Artificial Intelligence in plain English', Clara Durodié, founder and chief executive of Cognitive Finance Group, reminded us that the technology only expresses what we tell it to express. "Algorithms have parents," she said. But it was Townes-Whitley who gave perhaps the most direct call to action. "This conversation is around each of you making space in your personal lives, in your professional lives, in your organisations, to innovate," she said, closing her presentation with a comment that summed up the InnotrIBE week. "Innovation doesn't just happen. You have to make space for it." Over to you. ■

"First, you need quiet; second, you need to be internally focused, not distracted; third, you need a slightly, not overly, positive mindset; and fourth, you need not to be thinking directly about the problem." Setting aside an 'innovation hour' is less likely to be effective than simply being receptive when the best ideas come.

Townes-Whitley worked through a series of case studies - HM Revenue & Customs, Carlsberg, ASOS, thyssenkrupp - to illustrate the role of innovation beyond product development: in both the employee and the customer experience; in ensuring the

robustness of the core platform; and finally, in the business model. She also pointed out that methods of innovation pioneered by digital natives can and should be applied by all firms seeking to service customers in the digital economy.

According to Townes-Whitley, every company has at the core of its innovation process two digital feedback loops: signals from product and product telemetry; and signals from customers and customer feedback. "It is in the integration of these two loops, and the willingness to move in a viral fashion with this data, that we

**We provide
the data.
You make
the decisions.**

S&P Global
Market Intelligence

Get essential intelligence, faster.

At S&P Global Market Intelligence, we know that not all information is important—some of it is vital. Accurate, deep and insightful. We integrate financial and industry data, research and news into tools that help track performance, generate alpha, identify investment ideas, understand competitive and industry dynamics, perform valuation and assess credit risk.

spglobal.com/marketintelligence

Copyright © 2017 by S&P Global Market Intelligence, a division of S&P Global Inc. All rights reserved.

Easing the pain points

As innovative payments platforms begin to address end-user needs, banks and market infrastructures are firmly focused on future challenges.

Wholesale payments have not benefitted from the technology innovation to the same extent as many other business processes. In the banking stream at Sibos 2017, much of the discussion focused on how the industry is coming together to propel payments into the digital age.

Two years on from the unveiling of SWIFT's global payments innovation (gpi), the project has earned widespread industry support as a necessary step to address customer pain points in cross-border payments. The pace of widespread adoption will now depend on exploration of its potential by both banks and corporates.

"The level of transparency gpi brings to payments not only holds banks to account and makes sure they are delivering at every point in the value chain, but it also starts to become a risk mitigation tool for the corporate treasurer. It affords a level of interrogation of the payment process that never existed before," said Paul Taylor, global head of corporate sales and head of EMEA sales for global transaction services at Bank of America Merrill Lynch (BAML).

Live since January, SWIFT gpi aims to improve the speed, transparency and traceability of cross-border payments for the benefit of banks and their corporate and institutional clients. The first phase of gpi allows banks to provide corporate treasurers with a real-time 'in-flight' view of the status of their cross-border payments, including confirmations when payments have been credited to beneficiary accounts. Although in its early stages, over 120 banks globally, including many leading providers, have already signed up.



gpi affords a level of interrogation of the payment process that never existed before.

Paul Taylor, Bank of America Merrill Lynch

"This is a strategic priority for us. We have a lot of customers that are internationally active and they require services that can connect the dots across their supply chain. The more information we have on the

payment streams, the better we can serve our clients and the gpi structure gives us the information we need," says Soren Haugaard, global head of trade and supply chain finance at Danske Bank.



At some point we are all going to digitise.

Ruth Wandhöfer, Citi

traceability. Many market participants are cautious about their own future path.

"If a lot of users don't want any innovation, but they're complaining about fees and speed and lack of data reconciliation capability then they're unhappy users. Clearly at some point we are all going to digitise, but I think we need to look at the next steps as to how we can achieve change that really makes sense," said Ruth Wandhöfer, global head of regulatory and market strategy at Citi Treasury & Trade Solutions.

Pain points in the payments transaction lifecycle were fleshed out in multiple sessions across the banking stream of Sibos 2017, including one focused on the role of instant payments market infrastructures and correspondent banks in international payments. Leila Fourie, chief executive of the Australian Payments Network, summed up client expectations with reference to UK rock band Queen's anthem to immediate gratification, 'I want it all and I want it now'.

"That's a wonderful expression of where customers are at now - they don't just want it now but they want it all. Real-time payments on their own are not sufficient

Customer experience

The second phase of gpi will allow banks to immediately stop a payment, at any stage in the transaction chain, to exchange rich payment data, including details necessary for compliance checks and to bring end-to-end processing intelligence at origination to further increase the speed and predictability of cross-border payments and improve the overall customer experience.

As gpi momentum gathers, evidence also builds of a number of pain points for end-users arising from the pre-existing payments landscape. A current research project commissioned by the SWIFT Institute is expected to highlight dissatisfaction with the

high costs, slow speed and lack of complete data that render existing cross-border payments services sub-optimal. Transition to new services and platforms is a complex and delicate matter. The first phase of gpi runs on existing infrastructure, for example, while also leveraging the cloud to deliver payment



Real-time payments on their own are not sufficient to sustain us as a financial services environment.

Leila Fourie, Australian Payments Network





It's extremely important that all the banks sign up and commit to gpi.

Bart Verweij, Booking.com

to sustain us as a financial services environment. We have to have real-time anti-fraud measures, and real-time end-to-end digital customer solutions," said Fourie.

Australia is scheduled to move to real-time payments in the coming months, using a new infrastructure built, designed and operated by SWIFT that enables additional value-added services to be incorporated into the underlying platform.

"Real-time payments is today's issue, but I see a world in the future where real-time anti-fraud measures, big data and artificial intelligence (AI) are crucial drivers. Those customers that want it all and want it now expect that we as payments processors or financial institutions will read and interpret the dynamics in the market using AI and integrate them into their payments," Fourie explained.

Practical outcomes

Discussion of AI and blockchain has become a cornerstone of the Sibos agenda in recent years, but the path to practical application of such technology innovations to pressing industry problems has not always been clear. BAML's Taylor suggested this year was different, with problems and solutions beginning to align to a greater extent.

"We're seeing now that there is actually an interconnectedness and many of the problems may be solved by the technology. One of the most dangerous things we can do is to innovate alone - there is an underlying fear that we will come out with something which is not the standard that is applied across the industry. The more we can encourage dialogue, the stronger the outcomes will be," said Taylor.

For some corporate treasurers, however, the future potential of new technologies must play second fiddle to the ongoing and immediate need to solve fundamental problems, such as the tracking of payments and improving oversight of liquidity. As always, Sibos offered the opportunity for



corporates to discuss their challenges face-to-face with banking counterparts, albeit with the advent of gpi providing a more concrete vehicle for resolving their concerns.

Brooke Tilton, vice president of treasury operations at Viacom, owner of Nickelodeon and Paramount Pictures, expressed frustration at the time spent by her staff ascertaining whether funds have been received.

"When SWIFT started talking about a way to know if a payment was received by a vendor and to give us greater transparency into correspondent banking, we were really excited to be able to finally know if funds have been received. We spend an inordinate amount of time looking up payments and sending screenshots to people we've sent payments to," she explained.

Although gpi offers corporates the prospect of more certainty and transparency regarding transfers effected via correspondent banking channels, Tilton and other treasurers suggested that domestic payment systems - for high- and low-value payments - also had room for improvement.

As with any initiative designed to address the challenges of a multi-legged, cross-border value chain, the success of gpi will depend on its adoption on a global basis. Bart Verweij, deputy treasurer at Booking.com, suggested gpi might be more widely used if it becomes mandatory from a certain date.

"The main problem with international payments is not when I'm paying from Europe to the US, but it's when I'm paying from Europe to Zimbabwe or Kenya or other markets. If the last bank in the line hasn't signed up, the payment gets stuck with the latest correspondent and I still don't have the latest information. It's extremely important that all the banks sign up and commit to gpi," said Verweij.

Business case

Notwithstanding the question of adoption rate, the business case is growing for use of innovative, consensus-based platforms to address pain points in the payments process. Plans to integrate distributed ledger technology into gpi further suggest an evolving new paradigm in which banks build individual value propositions on the basis of common investments.

"We want to find ways that allow for an incremental improvement of the service over time. SWIFT gpi is the first step in what ultimately can be an incredibly powerful system that remains bank-centric and leverages the networks that are already in place. From a participation perspective, the investments are being made by the parties that are going to remain central to it over time," said Michael Bellacosa, global head of payments at BNY Mellon Treasury Services. ■

Onwards and upwards

The securities markets have undergone significant structural change in recent years, but market infrastructures and service providers maintain their appetite for new efficiencies.

How can the industry further innovate post-trade services to best serve evolving client expectations? That question was asked in a myriad of ways throughout the securities sessions at Sibos 2017 in Toronto. Depending on where the speaker sat in the value chain, it was answered just as differently.

For market infrastructure operators such as central securities depositories and central banks, especially in Europe, the focus in recent years has been on improving harmonisation, building scale and removing the decades-old Giovannini barriers to clearing and settlement efficiencies.

There is no greater example of this effort than the pan-European securities settlement engine, TARGET2-Securities (T2S). The initiative, first unveiled by the European Central Bank (ECB) in 2006, recently completed its fifth and final wave of migration and is now settling an average of about 550,000 delivery-versus-payment transactions per day. "It is a substantial volume of activity," said Marc Bayle de Jessé, chairman of the Market Infrastructure Board and the ECB's director general for market infrastructure and payments, in conversation with Lieve Mostrey, CEO of Euroclear, during a session on Tuesday morning.

"The economics of building one European market together are so strong. It will take longer than expected," said Mostrey, noting that service providers, including Euroclear, had developed offerings to help clients take advantage of the opportunities promised by the cross-border settlement.

"We are delivering an important piece of integrated market infrastructure for Europe with a harmonised framework around T2S, but it is not time to be complacent; we can do more," said Bayle. "Integration has not yet fully come, despite the fact that we now have the same tools and have defined the same standards together with the market participants." With many of the prerequisites now in place, the market is now ready to take the next steps toward greater harmonisation, he suggested. "We cannot say it is as natural to trade within a national market segment as between one place in Europe and another, because integration into a domestic European market is not yet fully achieved," Bayle continued.



It is not time to be complacent; we can do more.

Marc Bayle de Jessé, European Central Bank



It is important to keep our eyes wide open - we can learn so much.

Lieve Mostrey, Euroclear

Threats and opportunities

On the brink of a more integrated Europe, where did Bayle and Mostrey see the opportunities - and potential threats - for all players in this emerging securities market ecosystem?

The rise of national interests over international cooperation at the political level remained one barrier to progress, agreed the speakers. While both market infrastructure executives also put cybersecurity concerns firmly on the threat side of the ledger, they were less equivocal on the role of fintechs, previously characterised as competitors to securities market incumbents, but now increasingly seen as presenting an opportunity to fast-track the sector's understanding and deployment of new technologies.

This means that the securities industry, sometimes hampered in its efforts to innovate by legacy systems and siloed thinking, could benefit from embracing new technologies and partners - especially the oft-cited startup mentality embodied by many millennials in fintech - but Mostrey urged caution too. "It is important to keep our eyes wide open - we can learn so much," she continued. "Richness will come from dialogue. Newer views have the potential to bring a lot of value to the market."

Bayle reiterated that many digital technologies are still in their infancy, noting the ECB's joint role as regulator, catalyst for harmonised usage of innovation, and market infrastructure operator, which demands a primary focus on safety, security and efficiency. "As regulators, we are the authority in the market, and we should make sure that our capacity to regulate and act is not undone by new technology, either by new entrants that would not be properly overseen or regulated, or by our capacity to access information and data," he said.



Above all, Mostrey and Bayle agreed, market infrastructure providers must be able to guarantee resilience and robustness at scale and under extreme circumstances. No innovation - even distributed ledger technology, which is increasingly being implemented via pilot programmes across the securities ecosystem - can be allowed to put that at risk.

Increasing excellence

Another Tuesday panel provided a range of perspectives on the role of new technologies in improving securities market workflows, concentrating specifically on artificial intelligence (AI). Moderated by Diane Nolan, managing director of capital markets at Accenture, the session's panelists discussed the deployment of various AI-based technologies in the middle and back office, including robotic process automation (RPA) and text analytics, with application in areas such as document and contract processing and trade reconciliation.

Matt Davey, head of business solutions at Societe Generale Securities Services, warned on the limitations of RPA, which effectively replicates low-value manual workflows. "RPA has the effect of setting your legacy systems in aspic. It's very hard to make changes to those systems from that point, because you would disrupt the RPA that you put in on the top. It's something of a one-step move," he explained.

AI-based initiatives will only be as good as the data they consume, observed Sean Foley, CTO for worldwide financial services

at Microsoft. "Fundamentally, AI is about reasoning over large amounts of data. If you don't have high-quality data to begin with, the decisions derived from that data are going to be incorrect decisions with higher confidence."

Louella San Juan, global head of client technologies, Morgan Stanley, pointed out the potential of AI to increase the excellence of banks' processes and services "across the board". But she also noted, "Good thought and good judgment is a collaborative process, and AI is quite far from that. And that's what makes us unique as human beings."

With pros and cons absorbed, the panel's audience retained their enthusiasm for AI, with 63% asserting the technology had a future in their middle or back office at the end of the session.

Taming elephants

A key driver of market participants' interest in technology innovation - the changing economics of providing custody and securities services - was one of three 'elephants in the room' discussed on Wednesday afternoon, alongside regulatory pressures and geo-political shifts. Moderator Guido Wille, head of market development at Clearstream, tried to give equal weight to all three topics, it was the retreat from globalisation, and in particular the implications of Brexit, that most animated the discussion.

It is widely understood that UK-registered banks will need the correct European passporting arrangement to conduct business going forward across the Eurozone. As such, Rob Scott, London-based



Good thought and good judgment is a collaborative process, and AI is quite far from that.

Louella San Juan, Morgan Stanley

head of custody, collateral and clearing at Commerzbank, believes many organisations are currently seeking full regulatory approval to incorporate or reactivate licences in various appropriate locations.

Whilst the scale of any exodus from London remains uncertain, Jyi-chen Chueh, head of custody services at Standard Chartered, identified a shifting of gravity in response to the growth of a local affluent middle class in Asia, the Middle East and Africa. "I think there is additional demand that is not necessarily taking business out of London or the US, but is actually creating a bigger pie," he said.

Time for a rebrand?

Attracting - and retaining - diverse talent in the securities markets' vital back-office functions was the topic of one of the final panels in a packed schedule at Sibos 2017. That diversity is good business is no longer up

for debate, agreed the speakers. It's a proven performance enhancer according to many studies, including one UK-based paper cited by former Barclays executive Hayley Sudbury, founder and CEO, WERKIN, which reported a 3.5% EBIT rise for every 10% increase in gender diversity on the senior executive team.

Such studies make the case for increased demand for talent from a wide range of backgrounds, but what about supply? The panel also agreed that the back office suffers from an image problem, which could dissuade millennials. "Let's rebrand this and make it more exciting. That is half the battle in attracting the right talent," said Sudbury,

whose firm uses technology to support and develop mentoring programmes.

"We can learn from the fintechs," said Thomas Zschach, chief information officer at CLS, which provides risk mitigation and operational services for the global FX market. "It's about agility and working for something with purpose and flexibility."

At the end of a week that had demonstrated the sector's capacity for reinvention and appetite for further technology-driven change, Martina Gruber, executive board member, Clearstream Banking, and Goran Fors, acting head of investor services, SEB, suggested the current pace of change made a compelling case for a career in securities services. "There are so many challenges ahead of us," said Gruber. "T2S can change the world, [and] there is no better place to be. Let's move the back office into the new era." ■



There are so many challenges ahead of us. Let's move the back office into the new era.

Martina Gruber, Clearstream



Intelligent compliance

Financial crime compliance experts call for a smarter approach, built on technology innovation, information-sharing, risk-based policies and common sense.



The challenge that bedevils the industry is the gap between technical and effective compliance.

Alan Ketley, Bank of Tokyo Mitsubishi UFJ

The challenges of moving beyond purely 'legalistic' compliance with financial crime regulations were high on the agenda in the opening session of Sibos 2017's compliance stream, 'Counter-terrorist financing - Are we really stopping the bad guys?'

The quantum leap in compliance requirements since 9/11 has led to banks spending much of the past 15 years implementing processes to adhere to laws passed to starve terrorists of funds. In many respects, these efforts to close off the financial system to terror financing have been successful. As panellists noted, ISIS cannot use the financing techniques that supported Al Qaeda.



The increased incidence of lone wolf attacks, funded by small sums, channelled via legitimate means such as student loans, reflect the increased difficulties facing terrorist organisations, but also represent a new challenge to banks, regulators and law enforcement agencies.

“From a public policy perspective, the greatest utility is in understanding the use of the financial system in the formative steps of a lone-wolf attack. There is more value in building up intelligence on suspects, than refusing to permit a \$30 van rental,” said Mark Gem, head of compliance at Clearstream and chair of the International Securities Services Association’s financial crime principles working group.

Measurable objectives

But the emergence of new threats – including cyber-security attacks by state actors – underlines the reality that success is temporary but the need to improve

defences permanent. Moreover, whilst responding to new modus operandi, banks are under pressure to improve both the cost-efficiency and effectiveness of their compliance efforts.

“The challenge that bedevils the industry is the gap between technical and effective compliance. Banks can execute perfectly on well-written policies and procedures. But if they’re looking in the wrong place, they’re not being very effective,” observed Alan Ketley, managing director for anti-money laundering (AML) strategy at Bank of Tokyo Mitsubishi UFJ.

In a field where success is hard to define other than as the absence of failure, should we change our KPIs, asked moderator Kavita Maharaj. “How do you assess in real-time activities that are likely to look strange with the benefit of hindsight? In sales, I had a sales quota. In compliance, we report. US and European banks file two million suspicious activity reports every year, but Europol estimates that

“

Banks are using sophisticated analytics to tune their models for matching purposes.

Vikas Agarwal, PwC

10-12% of those from European banks are progressed,” said Ketley.

This core challenge threaded through a varied two-day programme. For an industry in which measurable results are essential, the difficulties of calculating a return on investment in compliance staff and technologies are frustrating. This problem is all the more acute when those investments run collectively into billions, with little prospect of a reduction.

But while cost is a factor, effectiveness of compliance efforts was always front of mind for panellists. Thus, measurable objectives, improved skillsets, new technologies, risk-based strategies and increased information-sharing were common themes across all sessions.

Divergent signals

Speakers recognised that a shift to a more targeted, risk-based approach to financial crime compliance demanded greater information-sharing between banks, regulators and law enforcement agencies.

In ‘The future of financial intelligence sharing’, panellists discussed the potential offered by an emerging form of public-private sector collaboration: financial information-sharing partnerships (FISPs). First developed in the UK, six FISPs are now in operation (Australia, Canada, Hong Kong, Singapore, US and UK), with most G20 countries planning to follow suit, according to Nick Maxwell, head of the Future of Intelligence Sharing Programme at the Royal United Services Institute.

Essentially voluntary forums, FISPs facilitate increased dialogue and information-sharing between major banks, regulators and law enforcement agencies, to deepen collective understanding of current and emerging threats, albeit with

their precise terms defined by national legal frameworks. While asserting the scope for FISPs to help banks better tailor their efforts, Maxwell identified five priorities for their sustained development: leadership and trust; legislative clarity; governance; technological and analytical capability; and adaptation and evolution.

Maxwell placed particular emphasis on the importance of political will, both in terms of resources and legislation. "With the introduction of the new European General Data Protection Regulation - which has extra-territorial implications - regulated entities are being given divergent signals by policy makers," he said. "We should not incentivise data protection without a conscious understanding of how it will affect the financial crime regime."

While other panellists raised similar concerns over the difficulties raised by data protection regimes, Clearstream's Gem noted that Europe's Fourth Anti-Money Laundering Directive represented a shift from a rules-based to a risk-based approach.

Risk-based approach

In parallel with efforts to improve effectiveness, banks are looking for enhancements across process, people and technology to improve best practice. In 'Future trends in sanctions - can automation, artificial intelligence (AI) and outsourcing resolve inefficiencies?', Lorraine Lawlor, director of sanctions governance at Wells Fargo, called for process overhaul to reflect the complexity

and effort involved in screening against regularly updated sanctions lists from multiple governmental entities.

"We still need to be screening our transactions and customers, but I do think we need to rethink how we're doing this," she insisted. "I think sanctions compliance is turning more into an AML model. The two disciplines are merging. It's a due diligence issue: Do you know your customers, and what are the risks associated with them dealing with someone you don't want them to be dealing with? We need to have a truly risk-based approach rather than today's catch-all approach."

New technologies have potential to reduce current inefficiencies, according to Vikas Agarwal, principal in the financial services risk, regulatory and financial crime technology practice at PwC, citing three prime examples.

"First, banks are using sophisticated analytics to tune their models for matching

purposes; second, they are using machine learning to improve data quality, by learning from mistakes at the front end, as well as enhancing matching in foreign languages by taking a less linear approach; third, we see more automation of the research inherent in the due diligence process," he said. "This doesn't replace staff, but increases the speed of decision making."

But AI take-up may be slow until both regulators and the industry are more familiar with it. In a poll, more than four in ten of the session audience said complexity and expertise issues would prevent their use of new technologies in compliance, while panellists flagged concerns over model validation by regulators.

Lawlor said the US Office of Foreign Assets Control did not take a prescriptive approach to the methods used to comply with sanctions policy, but nevertheless recommended that technology should maintain a supporting role. "I can see



Sanctions compliance is turning more into an AML model. The two disciplines are merging.

Lorraine Lawlor, Wells Fargo





how some questions could be answered by machines, but I'm not sure I'd want to rely on one to make a decision on a highly complex transaction."

Industry initiative

Alongside the technologies that individual banks might deploy to improve compliance effectiveness and efficiency, collaborative initiatives were also discussed. In 'Fraud and cyber high alert', panellists favoured industry-led measures, such as SWIFT's Customer Support Programme, over regulatory responses to new threats.

"I view CSP as a bilateral system that allows counterparties to evaluate each other. It empowers organisations to think about their counterparties and their risks," said Jerry Perullo, chief information security officer at Intercontinental Exchange, Inc.

"Initiative has to come from the industry," added James Freis, chief compliance officer at Deutsche Börse Group. "Regulators should be asking firms about the steps they are taking, but if they become prescriptive

in their requirements, we become too focused on checking boxes."

A further example of industry-based approaches to protecting banks and their clients is the work of the Wolfsberg Group. Having recently updated the group's correspondent banking due diligence questionnaire in response to evolving regulatory expectations and industry practice, three representatives participated in a dedicated session.

Tracy Paradise, executive secretary of the Wolfsberg Group, said the new questionnaire had been de-duplicated, revised and rationalised. "But the fundamentals haven't changed. The questionnaire sets a standard for the kind of information that banks need to obtain to undertake risk assessments."

Further, panellists hoped that the Wolfsberg Group's effort to standardise due diligence processes between correspondent banks would be of value beyond its current membership and their counterparties. "We've set out the benefits of consistent standards to utilities. If utilities adopt the questionnaire, that will contribute to reducing costs," said Paradise.

“

If utilities adopt the Wolfsberg questionnaire, that will contribute to reducing costs.

Tracy Paradise, Wolfsberg Group

Beyond compliance

The industry's ambition to be effective beyond compliance in the fight against financial crime was also evident in the session, 'AML and assurance'. Ostensibly focused on the role of regtech, the discussion also reiterated the need to recruit and support skilled staff.

Patricia Sullivan, head of financial crime compliance in Europe and the Americas for Standard Chartered, said her bank was trialling machine-learning tools to accelerate repetitive information-gathering tasks, thus freeing up more time for analysis. But she also noted the need for staff to develop new skills, for example to trace cyber-enabled crime proceeds. "Hiring for that skill set - e.g. knowing how to understand digital identification, mapping bitcoin back into fiat currency - is very challenging, although we have had success hiring from the military," she said.

Although technology can reduce both false positives and administrative burdens, Sullivan suggested these efficiencies were secondary to the improvements in effectiveness that would be achieved through a clearer understanding of law enforcement priorities.

The desire to go beyond compliance was palpable from the first session to the last. As Clearstream's Gem observed: "We remain far too quick to rely on a thin veneer of legality to demonstrate that a given high-value transaction is perfectly ok, when your mother would tell you it is not. As long as we continue to define obligations narrowly and systemically, and ignore larger intent, we will continue to fail." ■

Friend or foe?

As regulation encourages greater competition, banks are exploring new relationships with fintechs, while keeping a close eye on bigtech.

The fight for customer wallet is taking on new levels of ferocity as fragments of banking are taken on by financial technology (fintech) and big technology (bigtech) firms. At Sibos 2017, this battle was apparent on both technological and cultural levels, across many of the presentations and panel debates.

Although the threat of disintermediation from business lines has been a concern for financial services players for some years, recent product offerings by large digital businesses have made the challenge more real. Apple's June 2017 announcement of a peer-to-peer (P2P) payments feature and Facebook's expansion of its Messenger P2P payment system overseas may be limited to users of their ecosystems, but the scale and reach of bigtech firms means their moves into the financial services space are being carefully monitored by incumbents.

"I take those announcements really seriously," said Paul Camp, head of cash and trade for financial institutions at HSBC. "I will caveat that by saying I do not think those firms want to be regulated like banks, but I take them seriously."

Competition from non-traditional sources is matter of policy in many major markets. The European Union's second Payments Services Directive (PSD2) and the UK's Open Banking Initiative, due to come into effect from 2018, both mandate use of standardised open APIs to facilitate access to bank customers' transaction and account data.

These APIs will allow third parties to access customer data held by banks, acting as payment initiation services providers (PISP) or alternatively account information service providers (AISP), if they are given permission by the customer.

"Do you feel there might be an open season for US banks coming into your space?" wondered a member of the audience at the panel debate, 'API in financial services: The key to the future?'



APIs are the building blocks for a digital strategy.

Saket Sharma, BNY Mellon

"It's not just the banks," said Damian Richardson, head of payments strategy and innovation at the UK bank NatWest. "There are a variety of firms that could take advantage of APIs, but likewise UK banks could also use PSD2 APIs for use in their cash management strategy in Europe for

example. It is early days and we will see how it develops."

Hearts and minds

Customer-centric banking has long been a mantra for the industry, driven by customer-

“

Fintech is no longer a threat and bigtech is causing a greater disruption.

Elisabeth Rochman, Hewlett Packard Enterprise

relationship management systems in the late 1990s but always challenged by product-led, siloed technology architecture. In particular, data had to be re-aggregated from multiple systems in order to provide the banks and the customer with a consolidated view of their relationship.

Through APIs, both banks and third parties should now be able to offer a far higher level of service, and also go one step beyond existing aggregated services by capturing a customer's entire portfolio of assets and transactions across institutions.

"APIs are the building blocks for a digital strategy," said Saket Sharma, chief information officer for treasury services technology at BNY Mellon. "Traditionally banks have developed APIs largely for internal applications and use, not exposing them externally. By now extending APIs outside the firm, BNY Mellon is moving beyond an application-centric approach to a solutions-centric - and ultimately customer-centric - approach, focusing on capabilities and adding real value to the end-user."

One risk is that bigtech or fintechs are more able to deliver new services than the banks. Their ability to innovate with technology and derive value from data potentially allows them to quickly identify opportunities to sell services, and to develop better services than banks. However, there are doubts about the capacity for smaller tech firms to scale up their offerings.

"The window of opportunity that fintechs had during the period from 2006 to 2015 has mostly closed," said Andrei Kirilenko, director of the Centre for Global Finance and



Technology, Imperial College Business School. "The large financial institutions survived the crisis, digested regulation and built an enormous war chest at zero interest rates. You can see that the rhetoric around fintech has changed from disruption and revolution to collaborative outcomes."

Many banks are already taking advantage of this strategic change by partnering with fintech firms to deliver truly customer-centric service.

"There is a good match," Elisabeth Rochman, financial services chief technologist at Hewlett Packard Enterprise, noted. "Banks have millions of customers, but need to deliver better customer experience. Fintechs offer great customer experiences but don't have those customers. As a recent report from the World Economic Forum (WEF) stated, fintech is no longer a threat and bigtech is causing a greater disruption."

Bigtech won't have it all their own way, Rochman suggested, noting that banks have customers' trust while bigtech have a conflict of interest in becoming banks.

The emerging picture

However, true partnership between providers also hinges upon a cultural shift that will enable user experience to reflect customer demand. Bigtech platforms such as Amazon, Facebook, Uber and Etsy provide an intermediary service between buyers and sellers, drivers and passengers, readers and writers. In contrast, the traditional competitive environment determines that banks only push proprietary products and services.

"That mindset has changed a lot," said David Watson, head of digital cash products at Deutsche Bank. "If someone else can deliver a part of the value chain better than I, and provided that I am comfortable that the experience will benefit my client, I am happy to provide 80% of a service, and bring in a startup to offer the other 20%, and have us all talk together."

According to Watson, Deutsche Bank is already offering products and services from other banks, fintechs and non-

“

Start-ups can't wait for months while we onboard them.

Umar Farooq, JP Morgan

banks, through its portal, on the basis of client demand. This level of interaction between banks and fintechs is welcomed by both sides, but hurdles to long-term relationships remain.

Investment by banks into fintech firms can strengthen the smaller partners, but there are risks of cultural clashes that can terminally damage working relationships. If fintechs and banks are to join together effectively, banks must ensure they can embrace their partners without smothering them.

"I'm not keen on investment from the banks, because they become more focused on the state of the fintech company than the state of innovation that company is delivering," said Pamela Pecs Cytron, CEO, Pendo Systems. "Small companies need to reach beyond the banks and get investment from venture capital funds."

Banks are quick to point out that partnerships can be rewarding. As Cytron acknowledged, "There are companies that need the backbone of a major bank to help them grow." Equally, existing bank onboarding and procurement processes often need to be adjusted to better suit the needs of both parties.

“

The rhetoric around fintech has changed from disruption and revolution to collaborative outcomes.

Andrei Kirilenko, Imperial College Business School



"We're not perfect, but we have worked hard to reduce our onboarding time to a matter of weeks, because start-ups can't wait for months while we onboard them," said Umar Farooq, head of digital channels, analytics and innovation for treasury services and head of blockchain for the corporate and investment bank at JP Morgan.

The end game

Many bigtechs already have scale and advanced technology to meet bank customer needs effectively, including the big data analytics capabilities to offer customised services on a global basis. To match or

surpass their rivals, banks will have to adapt their business models to deliver a truly positive customer experience.

To avail themselves of the most innovative technologies, banks are likely to have to partner with fintechs at some level. Integrating those offerings into their own - either through partnership, investment or acquisition - will be challenging unless banks can adapt their culture and processes to support their smaller partners while allowing them to continue to innovate.

Open APIs can help with this process and be both the trigger for competition and a facilitator of integration between financial services firms in order to help banks evolve into digital organisations, but ultimately the change must be a cultural one, led by the c-suite. ANZ Banking Group CEO Shayne Elliott, for example, has been very public about his desire to create a fully digital bank.

Leigh Mahoney, head of wholesale digital transformation, digital banking at ANZ Banking Group, noted his CEO's commitment.

"This has to be led from the top," said Mahoney. "The leaders have to live and breathe it." ■

Work in progress

Enthusiasm for blockchain's potential to drive new efficiencies remains undimmed, as a growing number of initiatives tackle practical obstacles.

After the bubble that formed at Sibos 2015 in Singapore, blockchain got something of a reality check at this year's Sibos in Toronto. From proxy voting to corporate actions, collateral management and bond issuance the list of potential use cases for blockchain are growing. But in terms of scale, best practice, governance, standardisation and strong business cases, there is still much work to be done.

When blockchain - or, more generically, distributed ledger technology (DLT) - is mentioned in a financial services context, issues of security and regulation quickly follow. In the session, 'Blockchain in the cash and securities settlement space: utopia or reality?', Dirk Bullmann, an adviser on fintech and market infrastructure to the European Central Bank, highlighted the bank's priorities regarding use of new technologies in critical financial market infrastructure. "What we offer as a service in Europe is the backbone of the financial sector. It supports the implementation of monetary policy and the functioning of the euro money market. Our services therefore have to meet the highest security standards and high efficiency standards. We came to the conclusion that blockchain is not yet ready for prime time, and at the moment cannot be an option for us," he said.

Growing up fast

Blockchain's promise to cut out the middlemen may have its attractions, but many practical obstacles to the adoption of blockchain-based platforms and solutions must be addressed. Monica Singer, who left her job at the South African central securities depository (CSD) earlier this year to take up the position of creator of opportunities at blockchain technology developer ConsenSys, says these problems will be solved, and much faster than many



“

The adoption economics are difficult despite the fact the technology can bring benefits.

Tom Casteleyn, BNY Mellon

think. "Once you have seen what a car looks like, you don't want a faster horse," she said.

Some concerns around adoption of blockchain in the securities markets are more intractable than others. The development of delivery versus payment (DVP) functionality on distributed ledgers, for example, is still in its infancy at present. As such, migrating an equity market onto a blockchain-based settlement platform without the sophisticated netting

capabilities of existing settlement systems to mitigate risk would entail much higher levels of liquidity.

Tom Casteleyn, head of product management for custody, cash and FX at BNY Mellon, voiced doubts over the economics and timescale of securities settlement migration. "If you really want to move to a blockchain-based environment, you have to create distributed ledgers initially in parallel with the legacy framework and then at



The real value to DLT is what you can build around it.

Carolyn Wilkins, Bank of Canada

some point migrate them. But until you've completely moved everything over you'll have two systems in parallel, resulting in twice the cost, none of the efficiencies and a timeframe which is, for me, just impossible to imagine. After all, we've just taken 10 years to move to T2S. The adoption economics are difficult despite the fact the technology can bring benefits," he said.

Casteleyn also asserted that the utopian ideal of a single point of access to a universal blockchain-based CSD was neither practical nor desirable. "If we wanted one CSD in the world today we could do that, but there are good reasons why we don't. Post-blockchain, I see the role of the global custodian as linking blockchains together and making sure there is interoperability between them."



Exploring potential

In 'Blockchain and payments: Lessons learnt and future prospects', Carolyn Wilkins, senior deputy governor at the Bank of Canada, outlined the central bank's exploration of blockchain's potential, including a new initiative with Payments Canada and stock

market operator TMX Group to develop a DvP securities settlement platform using DLT. The proposed platform is the third phase of Project Jasper, the earlier stages of which focused on clearing and settlement of high-value interbank payments via distributed ledgers.

"If anyone knows the pain that's involved in that settlement process now, you will know there could be big efficiencies. One of the things that we learned is that the real value to DLT is what you can build around it," said Wilkins.

On the same panel, Manish Kohli, global head of payables and receivables at Citi, outlined the bank's blockchain-related investments, initiatives and pilot projects, but added: "We haven't seen so far how our products and solutions can get embedded



There are questions that we still need answers to.

Manish Kohli, Citi



Blockchain can have a phenomenal impact in terms of removing borders and having immediate access to collateral globally.

Bernie Kennedy, Hong Kong Exchanges and Clearing

and transformed to move money on DLT at wholesale and commercially scalable levels, rather than as a proof of concept. There are questions that we still need answers to and we're working with industry players and regulators on these."

In the session, 'Blockchain - From use case to business case in the securities markets', a call was made for standardisation across DLT projects by Bernie Kennedy, senior business adviser in the group CIO Office at Hong Kong Exchanges and Clearing. "DLT can only change things if we standardise on some basic levels. From a market infrastructure standpoint, there is no point in implementing technology if we are not following the same standards. It's got to look and feel the same where it can," she said.

Nevertheless, Kennedy was encouraged by the potential efficiencies that DLT could bring to cross-border collateral management. "It's been one of the costliest pains for the industry," she said. "Blockchain can have a phenomenal impact in terms of removing borders and having immediate access to collateral globally. If this works we've really cracked something."

Building momentum

To add to the sense of momentum, Liquidity Alliance, a group of CSDs, outlined its DLT-based prototype for cross-border mobilisation of securities collateral during Sibos. While offering a network, a possible solution for cross-border collateral transfers using tokenisation (although not a settlement system), LA Ledger is



still evolving and addressing the legal and regulatory aspects of moving collateral across borders on distributed ledgers.

The platform behind Russia's first blockchain-based debt issue - a RUB 500 million tranche of MegaFon corporate bonds launched in early October - also uses tokens. Although the paper issued is tokenized, only the ownership rights and securities are stored on distributed ledgers. Sergey Putyatinskiy, CIO and board member of the National Settlement Depository, the Russian CSD, said: "The ownership, instructions and transactions are in the blockchain but then we integrate with our core accounting system. Without changes in regulation, we can't avoid such an integration. We also need to consider the risks of doing too big a step at once, as we are talking about one of the biggest Russian issuers. The next steps of evolving the system will possibly include the functionality for settlement and payment."

As more initiatives take shape, there is a growing need for regulators, market infrastructure operators and banks to come together to agree a governance model for DLT-based platforms, according to John van Verre, global head of custody at HSBC Securities Services. "If you believe in one version of the truth, my question is: can somebody give an example of a piece of technology that has never failed? We need to have a mechanism to agree how you

rectify and resolve issues. These types of questions are still on the table in order to get the maximum potential from the technology."

Safety first

Security and governance issues were examined in greater detail in Thursday's session, 'Does blockchain technology alleviate security concerns or create new challenges?' Blythe Masters, CEO of Digital Asset Holdings, a developer of blockchain-based systems for a number of financial market infrastructure operators, said security considerations were a pre-requisite to building solutions to the specifications of highly-regulated clients with a track record in operating systemically consequential platforms.

"A security criterion, or series of them, has always been the starting point, not the ending point, of the system design we have been working from," she said. "We are not trying to fit a blockchain into a regulated structure. We started with a regulated infrastructure and designed something that has blockchain-inspired components."

While all panellists agreed that distributed ledgers did not necessarily introduce new security concerns for financial institutions that are already highly regulated and experienced in managing operational risks, the need to work closely with regulators was strongly stressed across all sessions. ■

The challenge of re-invention

As the curtain fell on Sibos 2017, Microsoft CEO Satya Nadella encouraged the industry to set “audacious goals”.



The ability to create more economic opportunity rests on the ability of this industry to continuously reinvent itself.

Satya Nadella, Microsoft

After a week in which technology and, in particular, data had taken centre stage, a vibrant Sibos 2017 was brought to a close with a discussion on their role in the future of the finance sector, between Microsoft CEO Satya Nadella and SWIFT CEO Gottfried Liebbrandt.

Nadella has become synonymous with the commercialisation of cloud computing and artificial intelligence (AI), having piloted Microsoft's successful Azure platform and services, which now plays a leading role in the firm's strategy. Revenue from Azure – which allows firms to store, test and run applications from Microsoft data centres – rose 97% year-on-year, according to fiscal Q4 2017 results released in July, with overall revenue from the firm's commercial cloud offerings soaring to US\$18.9 billion.

As such, the Microsoft boss is well placed to comment on the potential for banks and other financial service providers to leverage new technologies, to support new business models and value propositions.

While insisting that we should not underestimate the technological or cultural challenges involved in digital transformation programmes, Nadella nevertheless suggested that renewal through the application of technology innovation is critical to the long-term future of the industry. Equally, the future of the global economy is dependent on the renewal of the finance sector.

"The ability to create more economic opportunity in the world rests on the ability of this industry to continuously reinvent itself. To quote last year's Nobel prize-winner for literature, Bob Dylan, either you are busy being born or you are busy dying. We choose to really reinvent ourselves," he said.

"Back to our roots"

Nadella acknowledged that Microsoft had also had to face the challenge of re-invention once it closed on the realisation of the vision of its founders Bill Gates and Paul Allen to put a personal computer in every home. To renew the firm's sense of purpose, Nadella re-examined Microsoft's earliest products, before reaffirming its core mission of creating technology to enable others to create more technology. "We went back to our roots, which was to think about the tools that we can put into people's hands, so that they can go solve some of the computational problems that have not been solved," he explained.

Alongside this sense of a core purpose or mission, Nadella added, long-term success also depends on continuous renewal by setting and reaching new targets. "One audacious goal is to build a universal quantum computer. Today, that sounds crazy, but I am sure we will get there. We are already investing in building AI and cloud, where we have audacious goals," he asserted.



The key challenge with AI is getting your data estate in order.

Satya Nadella, Microsoft

Business reinvention and renewal would not be possible however, said Nadella, without a culture that supports change and innovation. To reinvigorate Microsoft's 'learning' culture, Nadella borrowed from the work of Stanford University professor of psychology Carol Dweck, whose book, 'Mindset: The New Psychology of Success', focuses on the central idea that someone with a learn-it-all approach will ultimately do better than someone who believes they know it all.

"We have taken that notion of growth mindset as the cultural metaphor that we use internally to at least have a discussion around how we become a learning organisation. It is a challenging one because, in some sense, this is a journey or a transformation that will never be complete," admitted Nadella.

Hard yards ahead

The right mindset and a core vision are prerequisites for success in an uncertain and fast-moving but increasingly digital economy. They are, however, insufficient in their own right, suggested Nadella. The

hard yards must still be tackled, inch by inch if necessary. Partly due to the highly-regulated nature of the industry, banks and fellow financial service providers are typically fast-followers of technology innovation rather than its very earliest adopters. This means the finance sector can leverage the work of pioneers, but much hard work remains to adapt new technologies to its own particular processes, services and customer expectations.

AI is a prime example, suggested Nadella. "The key challenge with AI is getting your data estate in order. There is no way that you can really have AI without having data," he said. "Ask yourself: what is the ground truth you have in terms of data and the monotonic improvement that you see in your AI creation?"

Being able to understand the need for change and what it takes to execute change are critical to the development of the digital sensibility needed to thrive in the emerging environment, Nadella added. "In terms of that sensibility, there is a lot of talk around AI, but unless and until you truly understand what it means to get data in shape so

that you can do AI, you cannot be cool by association," he explained. "You have to do the hard work to build your own capability in some of these hard things."

While innovation brings opportunity, banks know from experience it also brings risk and unintended consequences. Prompted by SWIFT's Liebrandt, Nadella acknowledged that cyber-security is "the topic of our time". In the continuous fight against cyber-attacks, Nadella emphasised the importance of using the most current patches and upgrades available from vendors to keep ahead of the cyber-criminals. Equally, we must assume they will always find a way in, making network segmentation and isolation crucial to efforts to detect and shut down an attack as soon as possible.

"One of the fundamental challenges of cyber-security is not just the protection but the operational security posture that you have. It is really an intelligence game. You cannot get fit by watching others go to the gym. You have to exercise every day," he observed.

Implementing innovation

The challenges of implementing innovation and business change in a security-conscious context were a central theme of the Sibos 2017 summary provided by SWIFT deputy chairman Stephan Zimmerman and Javier Pérez-Tasso, SWIFT's chief executive for the Americas and UK region, ahead of Nadella's discussion with Liebrandt.



Whilst welcoming front-end innovation, as represented by API-based connectivity, for example, both Zimmerman and Pérez-Tasso noted the efforts of banks, market infrastructure operators and SWIFT to innovate at the underlying interbank infrastructure level, in order to leverage the industry's tangible assets, including strong governance, security, resilience, operational expertise and global reach. "I do not think that we need to throw the baby out with the bathwater here," remarked Pérez-Tasso.

Zimmerman highlighted SWIFT gpi as an example of the industry using existing assets - in this case SWIFT's trusted, secure network - to support innovative new service



Start-ups and fintechs offer opportunities not only in prevention, but also in detection, forensics and remediation.

Javier Pérez-Tasso, SWIFT



Risk is going to stay with us.

Stephan Zimmerman, SWIFT

propositions, initially in the correspondent banking space. But he also pointed to the importance of remaining secure whilst innovating and evolving services. "Risk is going to stay with us," he admitted.

Observing that the ongoing roll-out of digital banking services inevitably increased the entry points available to cyber-criminals, Pérez-Tasso warned against complacency, but applauded the industry's many initiatives to minimise information security risks, noting in particular the growing momentum behind SWIFT's Customer Security Programme.

But he insisted that innovation and security need not be conflicting forces in the finance sector, and could in fact be mutually-reinforcing pillars of progress. Evidence of an increasingly coordinated approach among banks could be seen in the number of cyber-security experts attending business meetings around the Sibos 2017 exhibition hall, said Pérez-Tasso. "The growing number of start-ups and fintechs leveraging new technologies, such as AI, machine-learning and deception technologies, offer opportunities to help not only in prevention, but also in detection, forensics and remediation," he added.

Age of enlightenment

Despite the security challenges of the digital age, banking is a network industry in which efficient connectivity to clients and counterparties is fundamental to the ability to deliver value and to drive down risks. Microsoft's Nadella complemented the "enlightened views" of banks in the payment sector in using open APIs as part of their efforts to develop digital platforms on which to build new service propositions.

"Hopefully all of you are walking away [from Sibos 2017] with the inspiration to continue the hard work of transforming yourself, knowing that this is not going to be a single-quarter or a single-year journey," Nadella concluded. As the SWIFT community looks ahead to Sibos 2018 in Sydney, the generational shift toward a digital future is gaining momentum. ■

No direction home

Of the multiple sources of disruption shaping the future of finance, four were highlighted in this year's SibosTV 'Game Changer' interviews.

Sibos 2017 told us a lot about the past, present and future of the banking industry, with the Innotribe and SWIFT Institute streams in particular focusing upon the challenges that lie ahead. For almost a decade, Innotribe has stood out on the leading edge of innovation, identifying the trends that will re-shape the industry and the society it serves, while the SWIFT Institute's Sibos programme has fuelled collaboration and understanding between academia and the practitioners of the financial world. This year, two speakers from each stream were asked to provide a little more insight into their chosen areas of expertise in the daily 'Game Changers' slot on Sibos TV.

The SWIFT Institute's 2017 programme showcased three pieces of research - all funded by the Institute - into the nature of the cyber-security threats to the finance industry. Based on recently-published working papers, the presentations were aimed at supporting firms' cyber-security strategies, specifically focusing on: gaining a better understanding of the actors behind cyber-security threats; improving information-sharing mechanisms about cyber-threats; and establishing a common terminology for use by industry stakeholders.

Quantum's threat

Alongside these well-received presentations, cyber-security was also the theme of a popular talk given by Dr Michele Mosca, co-founder of the Institute for Quantum Computing at the University of Waterloo, who highlighted the cyber-security risks attendant in the development of quantum computing, and the need to develop new cryptographic tools to safeguard communication and information systems as quantum technologies come into wider use.

Because quantum computers can explore almost infinite configurations at the same



This represents more than a dent in our cyber-security defences, it's a crumbling of the foundations.

Michele Mosca, University of Waterloo

time, they can get to the answer to certain problems commensurately quicker. This can accelerate the development of new drugs or materials. "But they can be equally fast and effective in breaking down the cryptographic foundations of our cyber-security systems," said Mosca, who forecasts a minimal time lag between the positive and negative applications of quantum computing. "This represents more than a dent in our cyber-security defences, it's a crumbling of the

foundations." As such, the cryptography tools underpinning our cyber-security defences need to be adjusted or replaced to ensure safety in the quantum era.

Mosca suggests it might take a decade for the quantum threat to become manifest, but asserts it will take roughly that long to design and deploy the tools needed to defend effectively against it. As such, firms need to act today, developing an understanding of the potential impact



“

Over the next few years, you'll see a US administration that does not believe in its role as a global financial regulatory leader.

Aaron Klein, Brookings Institution

and the defensive measures needed, then drafting a roadmap to quantum safety for discussion with relevant stakeholders.

As well as firms individually assessing their vulnerabilities, Mosca calls on firms to work collectively with the industry and regulators to develop a framework that will allow for fast and effective integration of new cryptographic primitives (or algorithms) into existing systems as they become available.

“We need to design agile systems that we can upgrade to a new crypto primitive very quickly,” he said. “It doesn't have to be disruptive; just make it part of your regular cyber-security IT upgrade lifecycle. Decide when you want to upgrade to quantum-resistant technology and discuss it with your vendors. Doing it methodically and preparing early will be the cheapest option. If you rush the construction of your foundations, they will be fractured and

flawed, and will provide fertile ground for hackers for many years to come.”

Dodd-Frank's demise?

As well as sessions reflecting the industry's heightened concerns over information security, the SWIFT Institute's Sibos 2017 agenda encompassed many other key issues, few if any more important than the future direction of financial regulation. Based on campaign pledges, many expected US President Trump to overturn aspects of the 2010 Dodd-Frank Act, passed after the global financial crisis to prevent another systemic collapse and mitigate the impact of individual failures. So far, Trump has proved a little more cautious in office.

As Senator Chris Dodd's chief economist and later deputy assistant secretary to the US Treasury, Aaron Klein has an intimate

knowledge of the act, as well as the levers of US financial regulation. Klein suggests Dodd-Frank has worked “pretty well”, citing higher bank capitalisation, closer risk-reward correlation, and new tools to allow failing institutions to wind down safely.

Now fellow and policy director of the Center on Regulation and Markets at the Brookings Institution, a Washington DC-based think-tank, Klein says Dodd-Frank's fate will depend on its contribution to economic growth. “Trump regards finance as a means - not an end - to achieving higher growth,” he said.

Although the US Treasury has conducted a review of Dodd-Frank, its powers to change the direction or pace of regulation are limited to trimming around the edges. More authority lies with the independent regulators, where the administration has been slow to make

appointments. Led by Trump's perceived priorities, the policy agendas of regulators will be focused on measures - perhaps slowing down or rowing back existing rules - to increase growth within their core areas of responsibility. "It's going to be a lot more idiosyncratic than comprehensive or holistic," said Klein.

Another factor that increases the likelihood of Dodd-Frank being left largely intact, says Klein, is the lack of public or political appetite for change. The majority of the US public is either happy with Dodd-Frank or believes it was too lenient. Meanwhile Congress is not expected to break from precedent. "America tends to legislate about banking only after a crisis," says Klein. "But we are seeing modifications and narrowing of scope and creation of loopholes. We'll see lower levels of enforcement, fewer and lower fines, and a rolling back from practical implementation where the pain of regulations exceeds their benefit."

Whilst some might struggle to discern a distinct Trumpian influence on domestic financial regulation, Klein says the president's 'America first' message ensures a change of tone on the international stage. Following decades of consensus on the long-term benefits of the US taking a leadership role, including on financial matters, he expects a more US muted approach to regulatory coordination. "Over the next few years, you'll see an administration that does not believe in its role as a global financial regulatory leader, led instead by its own narrow self-interest."

Finance's salvation

Founder and chief executive of consultancy and investment firm Cognitive Finance Group Clara Durodié specialises in applying the benefits of artificial intelligence (AI) to the challenges faced by financial institutions. Leveraging her background in

asset management and her research toward her PhD in neuro-science and AI, Durodié advises firms on the adoption, selection and implementation of AI systems, with a view to driving business efficiency and customer value.

Speaking to SibosTV, she admitted there is little consensus on the definition of AI, even among computer scientists. Instead, Durodié focused on practical applications, asserting: "We need to look at AI in terms of the tasks that it can do. Through that lens, we can define AI as the theory and development of systems that are able to perform tasks which normally would require human intelligence". Common tasks include decision-making in uncertain conditions, speech recognition and visual perception, but the breadth of use cases is expanding rapidly, as tools learn and evolve based on the data they consume.

Durodié perceives AI's potential benefits to financial service providers in terms of both tactical and strategic outcomes. AI-based

“

AI is the modern-day alchemy of business growth.

Clara Durodié, Cognitive Finance Group





There is no universally agreed mechanism of exchange for deciding value of personal data.

Bianca Lopes, Bioconnect

finger authentication. But Lopes says digital and physical identity should not be conflated with authentication, despite their linkages.

Indeed, identity is an evolving and thus hard-to-define concept in the digital age, with many of us managing multiple online identities (for example on LinkedIn and Facebook). Increasingly, these identities and the data that comprise them are also valuable commodities that can be bought and sold, not necessarily with our knowledge. "Identity is an ever-changing thing, not just a set of credentials or biometrics," said Lopes. "It's what can connect humans to technology. It's powerful and inclusive, but requires education. Identity doesn't live on the top of the stack of technology; it's foundational in infrastructure as well as strategy delivery."

Banks and other commercial entities have an interest in using and verifying digital identities to enable authentication for access to services, but there are many other aspects to our digital identities, says Lopes. "The role that identity can play is not restricted to security or convenience, but in truly enabling a fully personalised experience, like when someone knows you so well that you don't have to say anything," she observed. To get to this stage of evolution, there is a pressing need for education. "We give up personal data that is part of our digital or physical identity, but there is no universally agreed or regulated mechanism of exchange for deciding the value of that data," said Lopes.

In this context, could there be a future role for banks as custodians of customers' digital assets? Lopes certainly anticipates the emergence of a stock exchange for data in the future. "In the same way that banks taught us about and built services around stocks and bonds, fiat money instruments, etc, maybe they or others will play a role in the education and management of your data assets," she said. ■

applications can help banks achieve a greater degree of service personalisation, increased process efficiency, better decision-making and more valuable insights through their ability to consume and interpret data more effectively, faster and at significantly greater scale than by human staff or existing systems.

More fundamentally, Durodié believes the widespread application of AI into banking processes and services could make a substantial contribution to the industry's efforts to reestablish trust among customers and investors, which, she noted, remains a challenge in the aftermath of the global financial crisis. "Trust is the beginning and end of everything we do in financial services. AI can help us do our work better, but also help us to get closer to customers to rebuild that trust we have lost in some sectors," she said.

Whilst some in the industry wrestle with the challenges of grafting new technologies onto legacy platforms and infrastructures, Durodié suggested failure to grasp the nettle could have severe consequences. "Do you want to invest in resources that will bring long-term benefit and keep your business going for many decades to come?" she posited. "Or would you rather not spend that

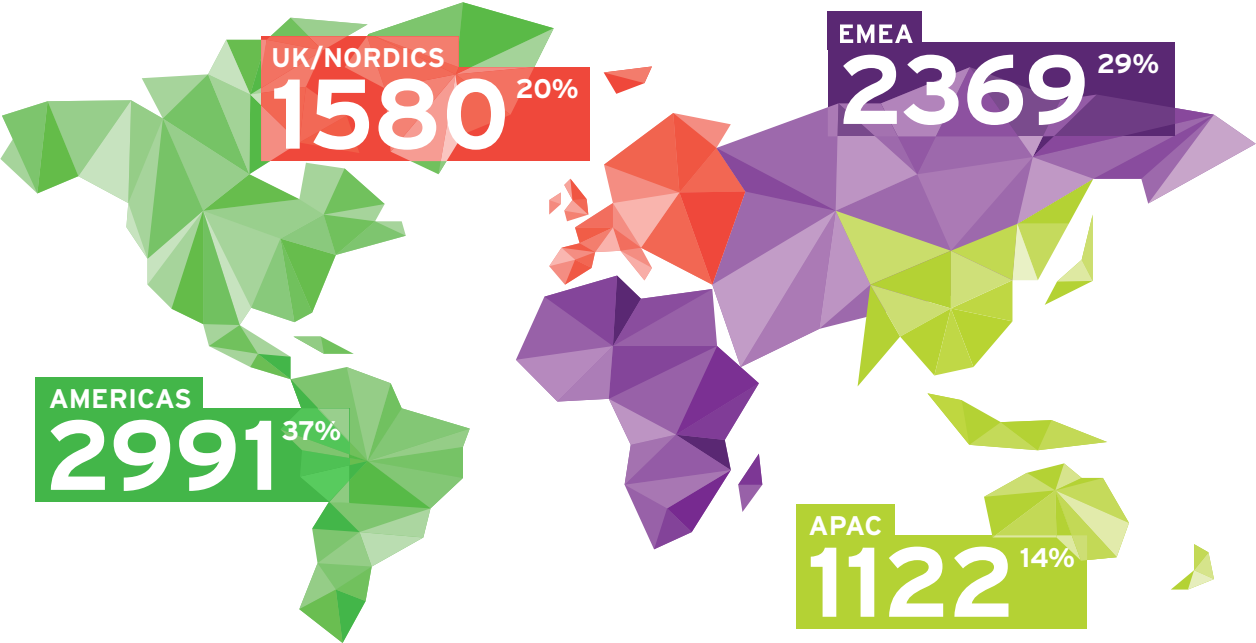
money and put your business, shareholders and employees at risk? Every day of delay in adopting this technology may cost a week or a month of catching up when laggards finally decide to invest," she said.

Far from putting bankers on the scrapheap, Durodié argued that the increased efficiency and insight that AI systems can bring to the processes across the front, middle and back office, will be the key to growth and thus new employment opportunities. "AI is the modern-day alchemy of business growth. Boards of directors must have the vision to understand where this technology is going, in order to have the time to retrain employees to become a 'digital' workforce," she explained.

Data's custodians?

Our fourth game changer - Bianca Lopes, chief identity officer at Toronto-based biometrics firm Bioconnect - is a specialist in digital identity, a subject discussed throughout the InnotrIBE stream at Sibos 2017, and during Wednesday's Future of Money big issue debate. Bioconnect uses its expertise in biometrics to enable face, voice, eye and

Sibos 2017 Toronto in numbers



400+
SPEAKERS

250+
SESSIONS

187
EXHIBITORS

149
COUNTRIES



170
JOURNALISTS



30
MEDIA SPONSORS



40,000
EUR DONATED TO THE
SKETCH FOUNDATION



Your Global Partner.
Your Reliable Bank.
您的环球金融伙伴



ICBC

中国工商银行

您身边的银行 可信赖的银行

www.icbc-ltd.com