



THE NEXT-GENERATION CENTRAL BANKING

Building a Digital Central Bank
for a Digital Age

SUMMARY

Central banks' key functions have remained largely unaltered since the first was established in the mid-17th century. These include: setting monetary and financial policy; acting as lenders of last resort; ensuring the stability of the financial system; and supervising the financial industry.

The pace of digitally driven change across the Financial Service Industry (FSI) has triggered central banks and regulators* to review their approach in supervisory and policymaking.

This series of articles will show that the time for digital central banks has arrived. This paper will demonstrate that the time for the digital central bank is now.

The fact is that central banks are not immune from the changes brought by digitisation. Those changes fall into four main areas:

* Although the regulatory functions of central banks vary, and in many markets a range of additional supervisory bodies have regulatory powers, the recommendations of this paper apply to all such authorities.

1. New entrants such as fintechs that have permanently altered the financial services' (FS) landscape;
2. New technology such as blockchain, artificial intelligence, cloud, quantum computing and analytics – much of which lacks definitive market standards;
3. Heightened and changed customer demands and expectations;
4. The growing sophistication of security threats, the volatility of global economy that comes with the increased volume of regulations, compliance etc. to ensure financial and economic stability.



Time of crisis emphasized the need of a resilient financial infrastructure underpin by a nationwide digital infrastructure as key enabler to ensure stability to the financial sector.

In short, central banks need to review their approach given that financial institutions are adopting new technologies, data is becoming more crucial and security threats are more pronounced. At the same time, those who are regulated expect a more consistent service.

To continue to meet their mandate – and to do it better – central banks must become digital regulators. That means focusing on four pillars and a strong foundation to build capabilities and stay relevant:

Pillar 1:

Harness the power of data to sharpen the surveillance of risks, strengthen financial oversight, drive regulatory compliance, and boost monetary and financial policymaking;

Pillar 2:

Enable and drive innovation internally and externally to promote a vibrant digital economy;

Pillar 3:

Drive efficiencies and develop a secure, resilient, future-ready infrastructure for both the central bank and the financial services sector;

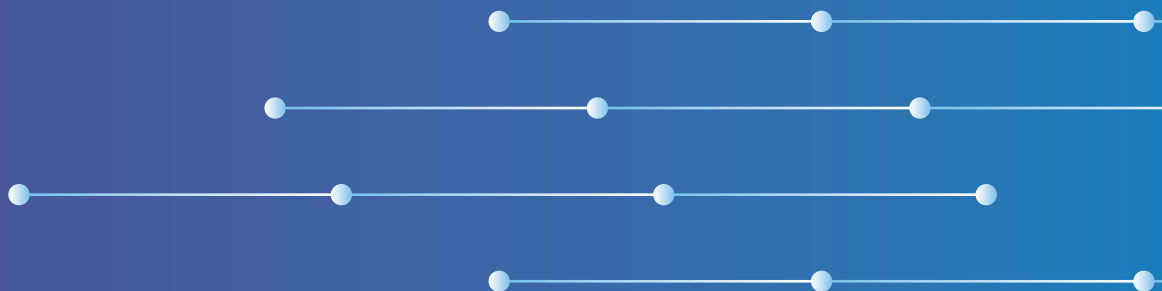
Pillar 4:

Improve communication and engagement with industry using more holistic digital services and two-way communications;

Foundation:

The four pillars won't function unless the central bank transitions its workforce for a digital future. Additionally, central banks must strengthen their internal delivery capabilities in terms of robust operations – such as leveraging automation and using lean processes – and help to transition the financial sector's workforce.

This paper outlines these five elements; subsequent articles in this series will discuss each element in more detail.



01 A WIDE – AND WIDENING – REMIT

Since their introduction in the mid-17th century, central banks have performed a range of crucial functions: managing states' currencies, money supply and interest rates.

Today, their remit runs in ensuring monetary and economic stability, acting as banker to the government and supervising financial markets. In addition to those core mandates, many are tasked with promoting economic growth while ensuring the stability of industry, particularly during times of stress.

At the same time, digital technologies have created new industries, upended established ways that financial services were run, and introduced market participants that have not previously been seen – such as the GAFAA firms.¹

¹ Google, Apple, Facebook, Amazon and Alibaba.



Bankers today talk about the digitisation of financial services, the importance of ecosystems and the platform economy, leveraging data and analytics, and changing customer needs. In the same way, regulators must not only continue regulating FS players; they must support them in their change. That requires central banks to restructure their approach, services and operations to become digital regulators.

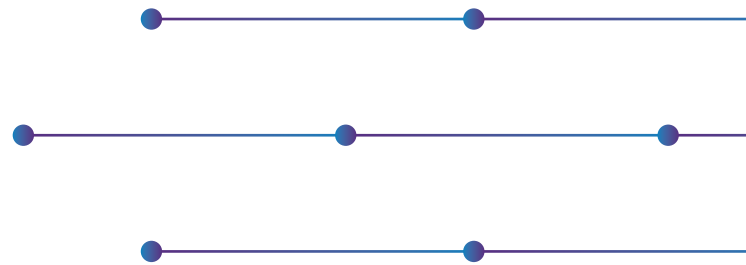
Core functions of a central bank

Broadly speaking, central banks have eight roles, with the first being banker to the government. This requires that central banks carry out the government's banking business, including holding its cash balances.

Their second is in currency management, including issuing currency and managing its distribution, and maintaining control over the volume of currency and credit. The right to issue banknotes was, for instance, at the heart of the Bank of England's foundation in 1694.²

Regulating and supervising financial institutions is another key function of central banks. They are also responsible for foreign exchange control and as lender of last resort, guaranteeing solvency and providing financial help to commercial banks if needed.

Success doesn't mean changing the current roles and services of central banks, but it does mean they must change how they execute their roles and provide their services as well as add new ones. While some have started down this road, many have a long way to go.



Additionally, they are custodians of a nation's foreign exchange reserves. Finally, in many countries, they are also the operator for the payments and settlements system.

As we shall see, the way they provide these functions needs to change if they are to ensure their efficacy in today's digital FS ecosystem.

² The history of central banks, *The Economist* (April 27, 2017). See: <https://www.economist.com/briefing/2017/04/27/the-history-of-central-banks>.

02

FINANCIAL SERVICES – ALL CHANGE

In recent years, the FS industry has changed profoundly, affecting the operating environment for central banks, regulators and infrastructure providers. We have identified four key factors that are both fast-moving and inevitable.

Firstly, the FS landscape is altering quickly, with a range of new entrants disrupting the traditional value chain, boosting competition and muscling in on bank revenues – for example:

- Alibaba’s Alipay has revolutionised digital payments in China and beyond by applying technologies including artificial intelligence (AI) and data analytics to provide customers with real-time, convenient, affordable and “always-on” financial services.
- Amazon Lending provides working capital loans to small businesses that sell on its platform.³
- A vast range of fintechs whose offerings cover the spectrum of the financial services value chain.



³ For more, see: <https://sell.amazon.com/programs/amazon-lending.html>



At the same time, emerging technologies – including the DARQ technologies: distributed ledger technology, AI, extended reality and quantum computing⁴ – are forcing established players to rethink how they offer products and services, and often to do so in the absence of definitive market standards.

These technological shifts have fed into evolving customer demands – the third factor – in which consumers expect convenience and an omni-channel experience from their bank.

The fourth and final factor covers the growing volume of local and global regulation to deal with a range of threats to financial and economic stability, including the growing sophistication of technology-related security threats, and other threats to the economic order including trade wars, health crises (with the coronavirus pandemic being the latest) and nations clashing over resources, such as the recent oil spat.

At the same time, data has become far more crucial to the FS industry – and much higher-volume. Additionally, financial institutions expect a more consistent service. For central banks to carry on meeting their mandate – and to do so better – they need to become digital regulators. This requires that they leverage new technology in order to enable market efficiency, regulate disrupters and those who are disrupted, revisit how they capture and use data, and construct an operating model that is agile and lean.

In this way, they can become more nimble and able both to anticipate changes and respond to them. The reality is that many of the institutions that central banks oversee are well out of the blocks in adapting to the digital economy. Central banks need to catch up.

⁴The Post-Digital Era is Upon Us: Are You Ready for It? Accenture (2019). See: https://www.accenture.com/_acnmedia/PDF-94/Accenture-TechVision-2019-Tech-Trends-Report.pdf

03

BUILDING A DIGITAL REGULATOR

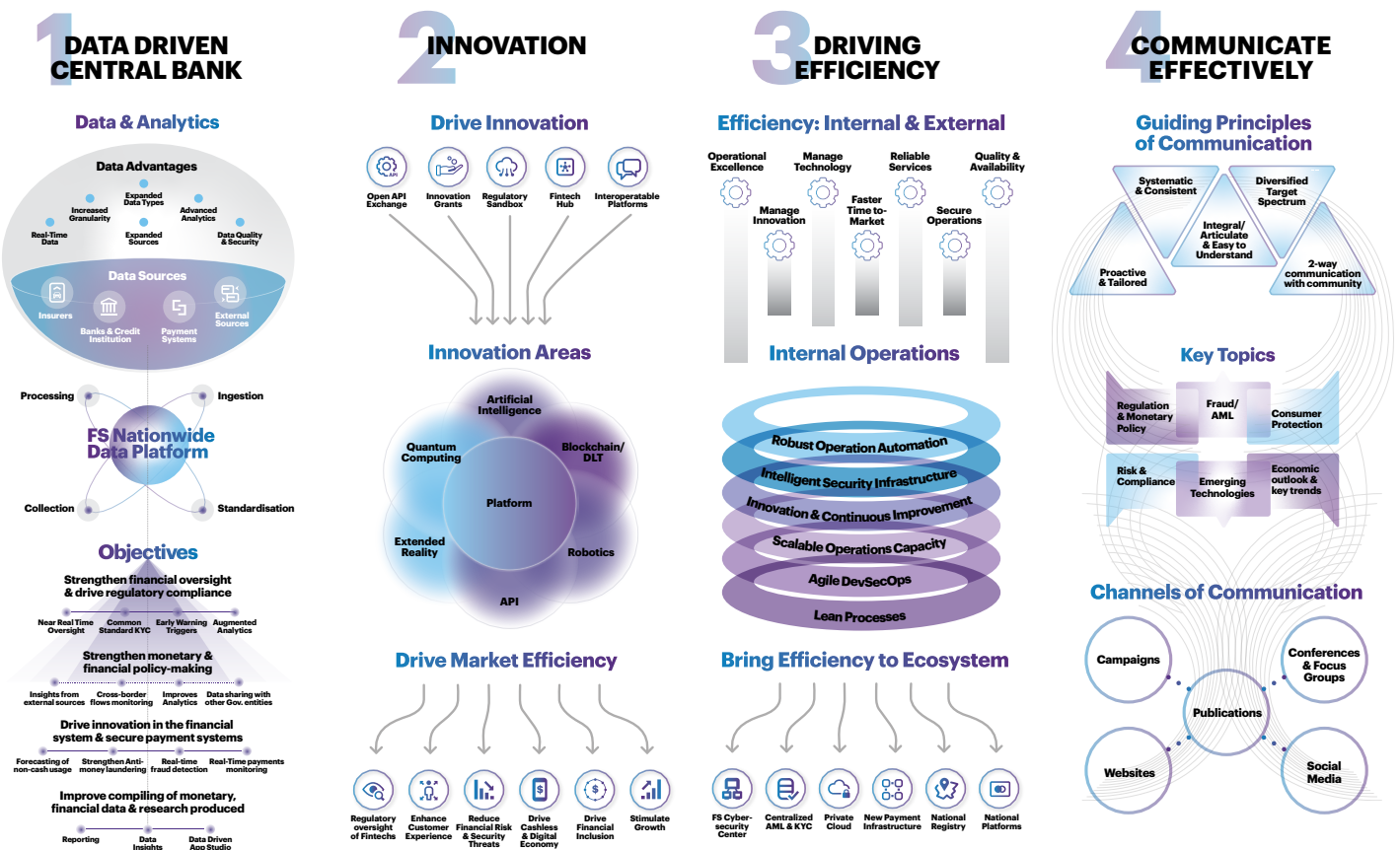
The digital economy requires major adjustments in majority of the central banks as to ensure they stay relevant in the digital economy. Making those changes will create next-generation central banks that can:

- Maintain economic stability and drive a growth agenda that benefits the overall economy and FS industry and their economies by anticipating change and responding to it better.
- Craft resilient monetary, financial and FS sector supervision policies that are collaborative, risk-based, performance-oriented and respond in real-time to changes in the economy and technology.

- Ensure clean, trusted financial systems by exercising supervision and regulatory controls in a proactive and collaborative manner.
- Protect the end-customer, and facilitate an efficient market and competition.

To succeed, central banks must adapt and evolve their structures so that how they operate and how they provide services fits the needs of the digital economy. Focusing on the following foundation and four pillars will ensure they can thrive in the digital era.

The diagram and examples quoted in subsequent sections are non-exhaustive and could vary between countries and geographies.



Workforce of the Future

Pillar 1: Harness Data

Central banks rely on limited data that is submitted periodically and that is prepared in summary form by banks and other organisations that they monitor. That makes the data historic by nature; it also makes the compliance process much more cumbersome, and means regulations are not as responsive as they need to be. Also, in an FS ecosystem in which a bank can, for instance, be both an insurer and a payments provider, it means data is often held in different silos.

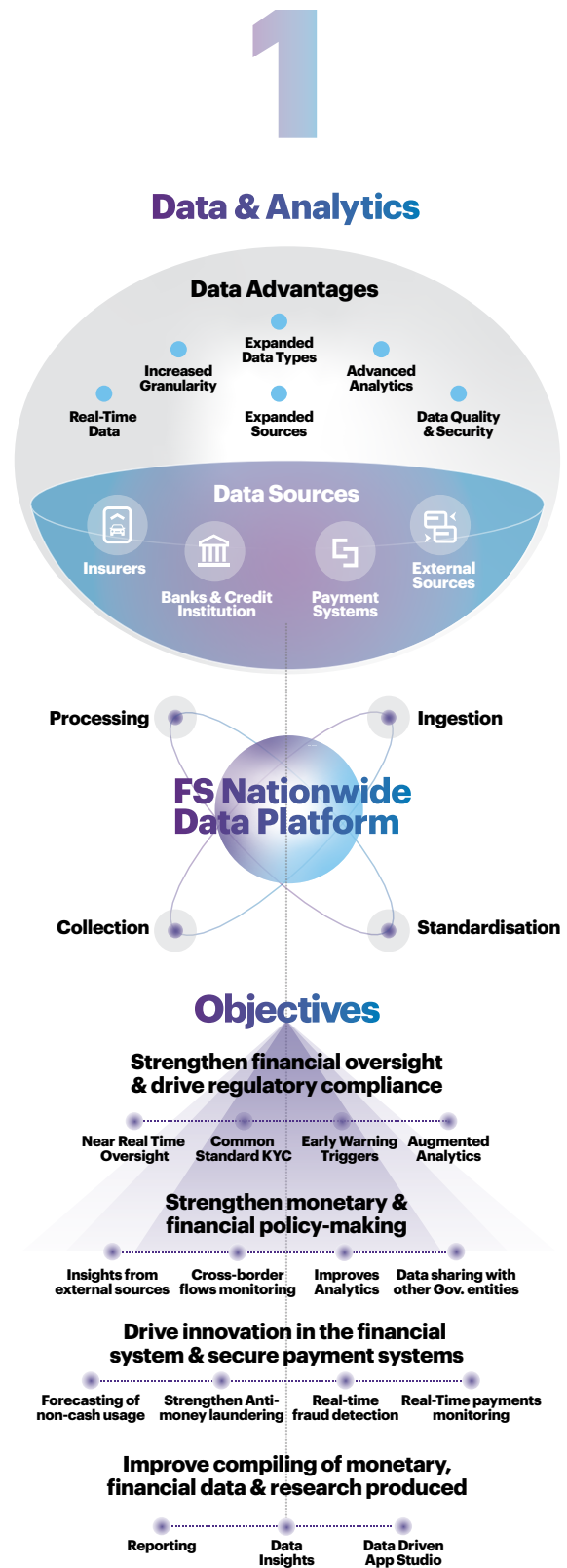
The solution lies in building a robust data platform. This platform would take in granular and near-real-time data from this full range of sources, including banks, insurers, payments providers and other players, cleanse it and consolidate this once-siloed data into a common platform. It would then process it automatically.

Doing so would generate more prompt and precise insight to drive sharper analysis in a range of areas (see chart): it would strengthen financial oversight and drive regulatory compliance; it would improve monetary and financial policymaking; it would boost innovation in the FS and secure payments systems; and it would improve how financial and monetary policy data is compiled, researched and produced.

There are good examples of central banks taking such steps. In late 2018, for example, the European Central Bank launched AnaCredit, a big data project that helps policymakers to understand in real-time what is driving economic behaviour.⁵ AnaCredit gathers information from euro-area banks that covers, on a loan-by-loan basis, the funding they have extended to companies – some 70 million exposures each month from approximately 4,500 credit firms.⁶

⁵ For more, see: https://www.ecb.europa.eu/stats/money_credit_banking/anacredit/html/index.en.html

⁶ ECB Looks to Big Data to Short-Circuit Crises, Toolbox finance (undated). See: <https://finance.toolbox.com/articles/ecb-looks-to-big-data-to-short-circuit-crises>



Source: Accenture

Pillar 2: Enable Innovation

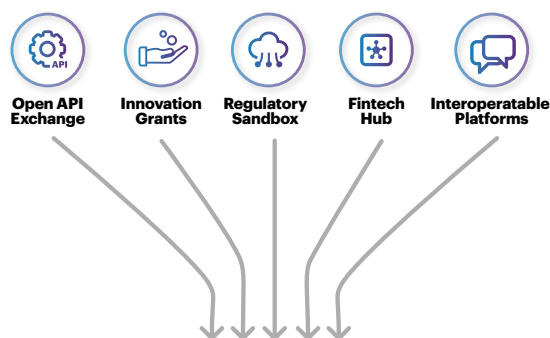
A key role of central banks is to enable and promote a vibrant financial sector. In this age of digital economy, the role is fast-evolving to cultivate new fintech entrants, to support banks and the broader FS community, and to promote cross-industry and cross-border collaboration. At the same time, central banks must leverage innovation for their own ends too.

In fulfilling this role, central banks should aim to run in parallel with fintechs and other innovators. Innovation grants are one useful way to promote innovation, but central banks can also ensure better industry collaboration and efficiency by involving themselves in establishing common services such as streamlining KYC compliance, setting up API standards or exchange, or simply devising clear viewpoints on notable areas so as to provide advice to banks.

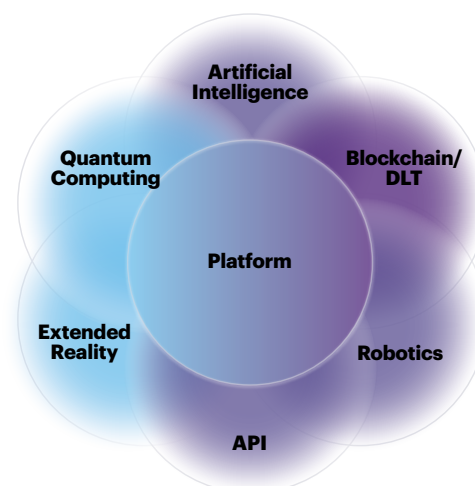
By driving innovation in areas like DARQ technologies,⁷ robotics and APIs, central banks can help the sector to be more efficient. This push for innovation would, for example, bring efficiencies in regulatory oversight, enabling seamless payment transactions, help customers enjoy better services, boost financial inclusion and lower financial risk.

2

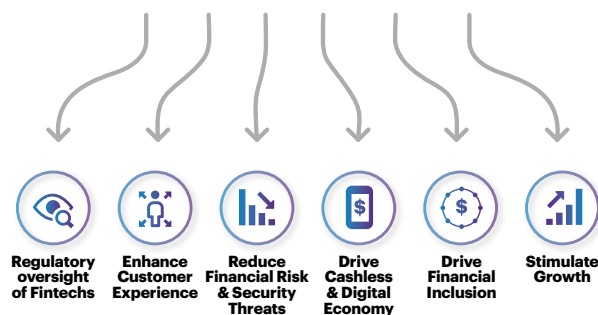
Drive Innovation



Innovation Areas



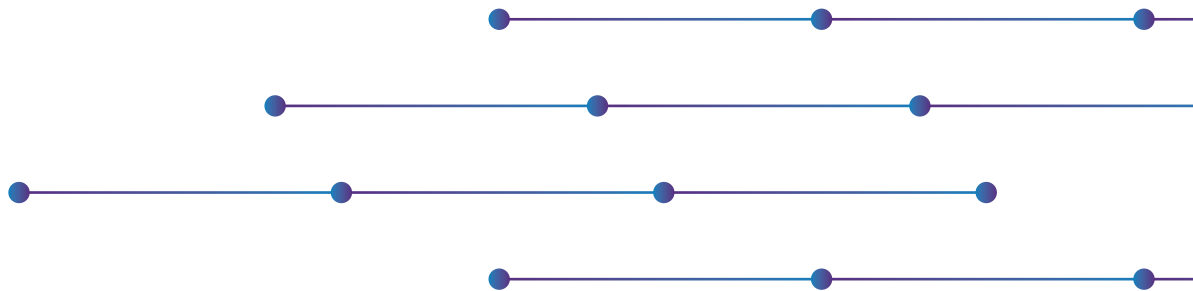
Drive Market Efficiency



⁷ The Post-Digital Era is Upon Us: Are You Ready for It? Accenture (2019), op cit.

The Monetary Authority of Singapore (MAS) is a leading example of a central bank that both regulates and enables innovations by collaborating with the industry to cooperate in areas such as blockchain and digital currency – with its Project Ubin being a standout example.⁸ The Bank of England is another – providing a regulatory sandbox where fintechs and banks can trial solutions prior to bringing them to market,⁹ for instance, and investigating whether it should create its own digital currency.¹⁰

A third example is provided by the collaboration between the Saudi Arabian Monetary Authority (SAMA) and the Central Bank of the UAE. This saw the two successfully complete a proof-of-concept on Project Aber, which assessed the feasibility of a common digital currency.¹¹



⁸ For more, see: <https://www.mas.gov.sg/schemes-and-initiatives/Project-Ubin>

⁹ For more, see: <https://www.bankofengland.co.uk/research/fintech>

¹⁰ BoE seeks input into CBDC plans, DigFin (April 7, 2020). See: https://www.digfingroup.com/bank-of-england-cbdc/?mc_cid=88ac28dc15&mc_eid=54b330776f

¹⁰ <https://www.bankofengland.co.uk/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design-discussion-paper>

¹¹ See, for example: <http://www.sama.gov.sa/en-US/News/Pages/news29012019.aspx>

Pillar 3: Drive Efficiency

Central banks must look to drive efficiencies both externally and internally. On the external side, many are working to strengthen the foundations of the financial sector, including in areas like payments and settlements infrastructures, cyber-security, and centralised anti-money laundering (AML) and know-your-customer (KYC) systems.

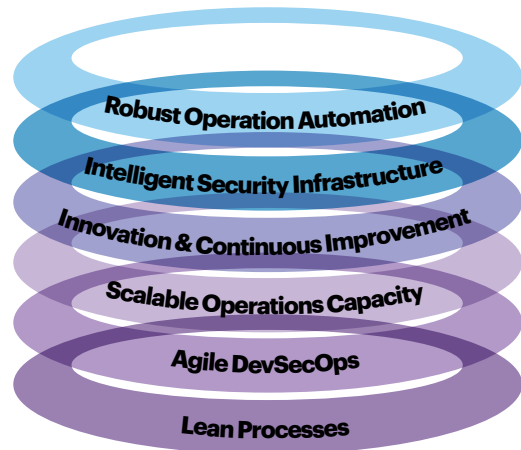
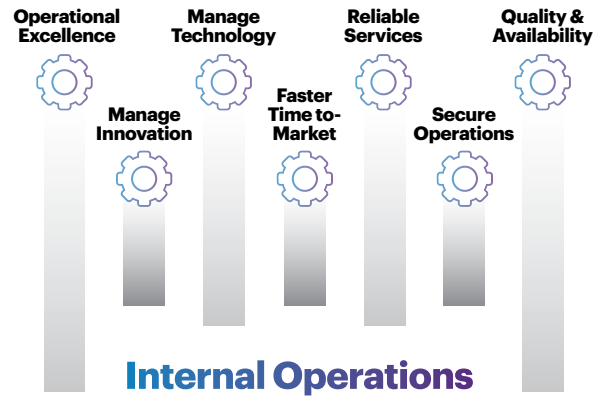
Such work is essential to counter the increase in security threats and the sophistication of financial crime, as well as to meet the increased demands of consumers and the industry. And while it is crucial that central banks ensure a resilient and secure infrastructure for financial markets, the systems underpinning them must also be future-proofed so that they can work with new technologies and solutions.

Some countries are establishing industry-wide cyber-security operations' centres to ensure that a minimum level of cyber-security controls is in place across the industry. At the same time, innovative infrastructure, such as intelligent industry-wide KYC or AML platforms, would elevate compliance in ensuring a clean and healthy FS industry.

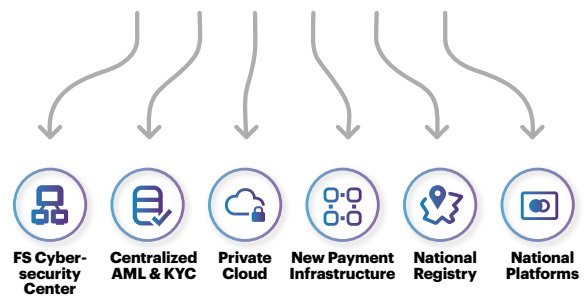
Lastly, driving external efficiencies involves assisting FS firms with ideas that make their operations more streamlined, such as by promoting the usage of cloud services and AI. When it comes to improving internal efficiencies, the solution lies in structuring the central bank's IT so that its systems can deliver robust and automated operations, secured and scalable infrastructure, DevSecOps, lean processes and scalable capacity.

3

Efficiency: Internal & External



Bring Efficiency to Ecosystem



Source: Accenture



Pillar 4: Communicate Effectively

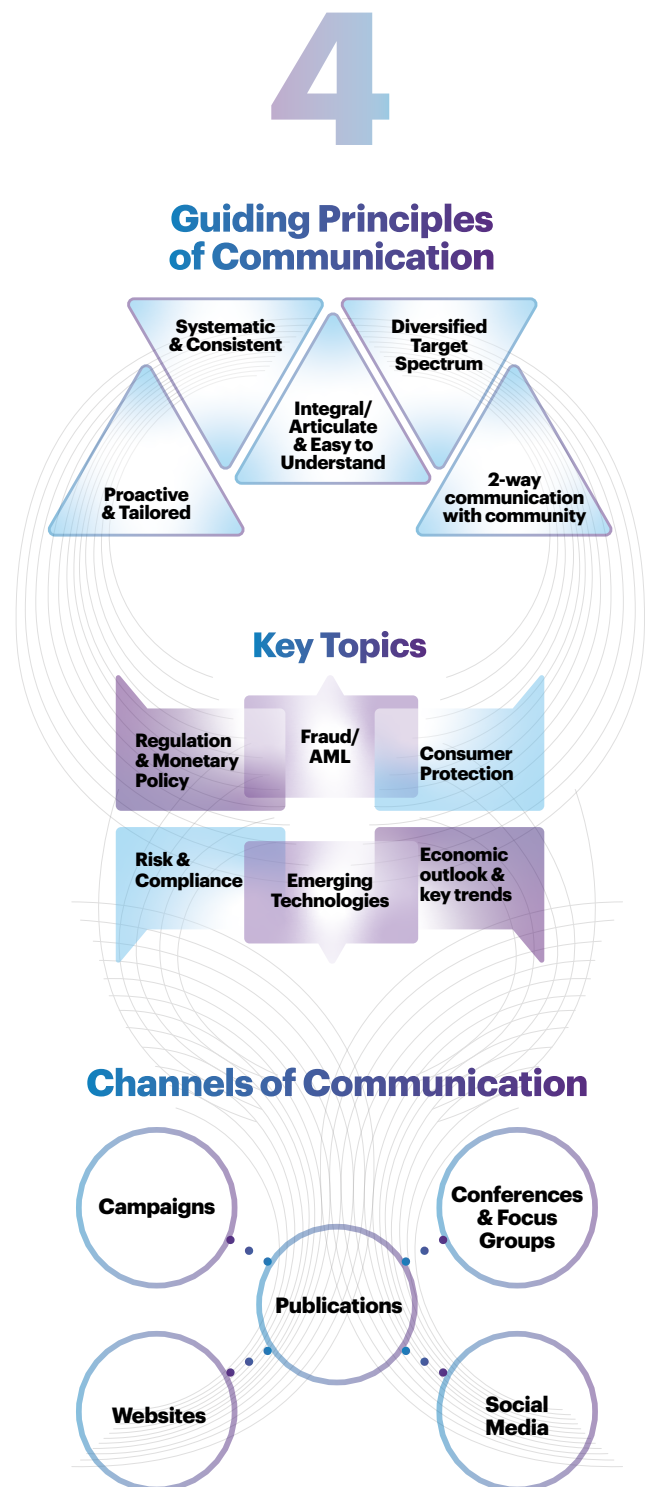
The communication and collaboration pillar also has an internal and external component – as well as a strong data element. Central banks need to communicate well internally so that all components of the organisation are well-informed and equipped to understand new technology, trends and markets, and can therefore collaborate and regulate them.

Externally, the FS ecosystem expects prompt, transparent and consistent communications from the regulator with respect to risk and compliance, regulations and monetary policy, fraud and AML, consumer protection, emerging technologies and the economic outlook.

Central banks also need to implement digital services and collaborate for improved internal and external functions. Singapore’s Digital Government Blueprint, for example, is designed to ensure that citizens’ and businesses’ transactions with government will be “easy, seamless and secure”.¹²

In so doing, they will benefit from digital services that are customer-centric and that provide omnichannel services, which reduce manual processes. In the context of central banks, this refers to the regulatory processes and services for the financial sector and financial institutions.

Additionally, central banks should employ a range of channels to communicate – whether that be tactical campaigns for immediate needs or for the long-term. Such an approach should follow a hybrid communications strategy that uses their website, campaigns, conferences, social media and publications. Regardless of the medium chosen, they must follow key communication principles (see chart).

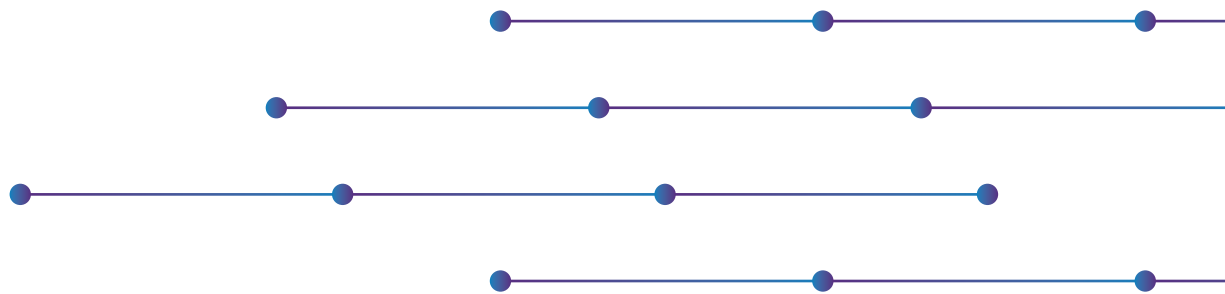


Source: Accenture

¹² For more, see: <https://www.tech.gov.sg/digital-government-blueprint/>

What counts is how they engage. In the same way as banking customers expect an omnichannel yet consistent message from their bank – not dozens of missives on a range of subjects – so banks require the same from their central bank. The challenge for central banks is how to deliver that information to those it regulates in a consistent way and in a digital format.

The final aspect is to highlight the importance of two-way communication. This approach must include steps to ensure proactive collaboration, which should be dialogue-based and able to incorporate feedback – for example, leveraging social media analytics to understand the key FS topics that are generating broad interest and of potential risks. On a related note, the Covid-19 pandemic has highlighted the importance of two-way communication, and the need for central banks to be more approachable so that end-consumers can lodge complaints; currently there is limited capacity with few channels. Having reliable two-way communications with the community would allow central banks to hear concerns and react immediately.



Foundation: Build the Workforce of the Future

All organisations need well-trained staff who can carry out their roles and responsibilities. That is doubly true for central banks starting along the digital track, because if they can't implement this foundation, then they won't be able to build the four pillars.

Additionally, the broader FS ecosystem, being a service industry, relies on having the right people with the right training in the right positions. And it requires that skills keep pace with advances in digital technologies, including leveraging technology to increase productivity and efficiently regardless of locations.

It is also necessary that the industry can identify skills gaps as well as roles that are obsolete, and ensure those staff can get the skills needed for the digital age. The transformation of bank branches in the coming years, for example, will see the role of tellers change significantly, providing the opportunity to shift to a more product/sales-related role as they expand their knowledge and experience.

If the workforce of today's FS ecosystem does not prepare to become the workforce of the future, the financial system itself could be undermined – which is why central banks must consider how they can help those whom they regulate to take action now.



CONCLUSION

Central banks that can build capacities across these four pillars and the foundation will emerge as the digital regulators of tomorrow: empowered by data, leveraging new technology to enable market efficiencies, able to regulate disrupters and those who are disrupted, and boasting an agile and lean operating model.

In the next article, we will take a closer look at the first pillar: how central banks can employ a data-driven approach to support policymaking and their supervisory activities.



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