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IIF Institute of International Finance

Realizing the digital promise

Transformation in an ecosystem of regulators, BigTech, FinTech and more

A paper from the Institute of International Finance and Deloitte

Summary

- COVID-19 has rapidly accelerated the need and desire for digital transformation on both the supply side and demand side, but financial institutions' ability to respond is defined by the external ecosystem they operate in
- Digital identity, cloud and advanced analytics are forming the building blocks of the digital automation revolution, but the governmental foundation still varies across countries and regions
- Regulators are increasingly seeing an important role for facilitating safe innovation, in support of their primary objectives of stability, consumer protection and fair competition
- With the financial services ecosystem extending beyond traditional institutions to encompass FinTechs, BigTechs and cloud providers, more collaboration is needed amongst these parties and with regulators, to drive efficient change and overcome knowledge gaps
- Data is becoming the common raw material, across sectoral boundaries, its volume and flow across borders continuing to grow exponentially; this presents new challenges for the intersection of traditional sector-specific regulatory mandates with those of privacy, security and competition agencies
- As the global regulatory landscape continues to increase in complexity, a framework is needed to allow for interoperability of data regimes in order to reduce friction and facilitate the (regulated) flow of data across borders

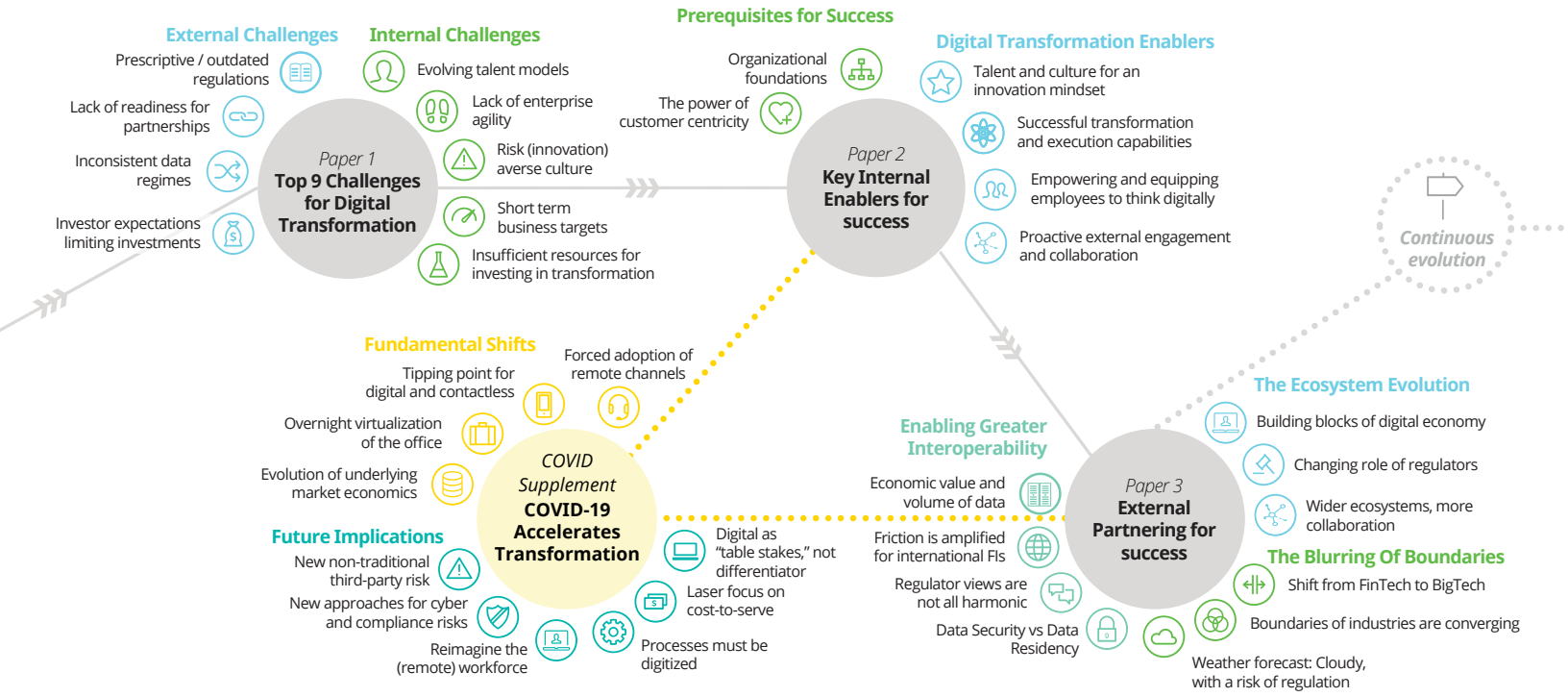
Introduction

The emergence, evolution and convergence of disruptive forces are continuing to shape the future of financial services. Ecosystems are disrupting traditional 'linear' value chains as greater interconnectivity and interoperability transform value chains into value webs. These trends have been further fueled by the emergence of COVID-19 which has led to a rapid acceleration of investment into emerging technology, ecosystem partnerships and alliances within financial services and beyond to meet the rapid shift in the business environment. Digital transformation is no longer only about efficiency but has morphed to encompass business model transformation as customer expectations are unlikely to ever return to pre-COVID-19 dynamics.

Over the past 18 months, the Institute of International Finance (IIF) and Deloitte have joined forces to explore digital transformation in financial services, looking at how financial institutions (FIs) can realize the digital promise. This series of reports has been developed from secondary research, facilitated discussion workshops and interviews under Chatham House Rule with more than 150 senior and C-suite executives, transformation leaders, thought leaders, investors, regulators and government officials to better understand diverse experiences and points of view on digital. It is complemented by comments made in the public domain.

We have seen various objectives driving transformational agendas. Some firms are seeking to transform their business in order to better produce and deliver the services that customers want today. Some firms are attempting to predict the market trends of tomorrow, and to transform such that they will have the delivery capacities necessary for that. Some are seeking to transform themselves such that they develop greater flexibility – that they develop the capabilities and dynamism to be able to quickly adapt and reposition themselves as customer preferences shift.

Figure 1: Realizing the promise of digital transformation: The Series



Our series has examined FIs' challenges and barriers and what they can do internally to address those challenges as part of their digital transformation journey. However, certain challenges cannot be overcome by a single FI but require participants in the broader external financial services ecosystem – including regulators, policy makers, governments, investors, competitors and alliance partners – to work together in order to further unlock the value of digital. This paper explores the role of the external ecosystem, the key challenges it can help overcome, and the actions that would be required to do so.

"What any crisis does is it accelerates trends that were already happening. So, the acceleration of customer behavior to online and digital, the use of technology the acceleration of flexible working and hybrid ways of working, those have all been turbo-charged by a few years because of COVID-19."

Alison Rose, NatWest CEO[1]

"What has worked for Goldman is that we are very active as a partner, and one of our driving tenets is 'Look outside first.' We don't want to build everything ourselves; we definitely want to see more of the culture of innovation and how to enable that, and also participate and give back to the FinTech ecosystem, through open sourcing and others."

Atte Lahtiranta, Goldman Sachs CTO[2]

"The pandemic accelerated a 'winner take all' landscape and has added pressure on midcap banks"

former central banker

The ecosystem evolution

A business ecosystem describes a network of firms, which collectively produces a holistic, integrated environment that creates value for customers. We have heard throughout our conversations with industry executives how advancements in technology have radically enhanced the value that ecosystems deliver as their connectedness and interoperability have increased exponentially. However, the speed with which these ecosystems evolve also makes it inherently difficult to predict how value will be distributed across these 'value webs' and whether an organization has the right capabilities and talent to capitalize on this evolution.

Ecosystems offer an agile and efficient path to market for companies, providing optionality while the company learns how to go to market faster. At the same time, less capital is put at risk. Through building alliances and partnering with other ecosystem participants, companies can unlock more strategic paths, achieve modularity and collaboration, and test and learn with greater velocity through the use of external capabilities. But we have heard from participants that the external environment fostering these ecosystems is still immature and evolving – both from the perspective of regulators and financial service institutions.

The building blocks of the digital economy

"There are a number of different building blocks that need to be considered to enable companies' digital transformation from the external environment," as noted by the chief innovation officer for a global, APAC-based insurer. And most of the participants in our study agree: cloud, advanced analytics and artificial intelligence (AI) have frequently been highlighted as building block technologies for the new digital economy and are essential in supporting the next version of business models.

Digital identity has emerged as another foundational building block for the post-COVID-19 digital economy, particularly for enabling individuals and enterprises to securely and easily prove their credentials while not over-sharing data. This is increasingly vital for small businesses who want to participate in an e-commerce-dominated economy, and it presents significant opportunity for banks and insurers to leverage and monetize their capabilities in protecting customer data and verifying identities to maintain a central position in customer relationships. Moreover, Rod Boothby, Global Head of Identity—Digital Platform at Santander told us: "digital identity not only allows more people to come into the formal economy but unlocks a whole string of services down the track." There is a clear business rationale, "If the banks want to maintain the customer relationship, they have to maintain log-in; and if they maintain log-in, they can control and protect their customers' privacy, and put themselves in a very strong strategic position.[3] Amidst the trend of *platformization* in consumer finance, many other participants affirmed that digital identity will be crucial to fully realizing customer-centric engagement models in the future.

> "There are a number of different building blocks that need to be thought about to enable companies' digital transformation from the external environment. They center around digital identity as a kind of fundamental building block"
> – Chief innovation officer at a large APAC insurer

Yet more work is needed to realize the benefits of digital identity for a more inclusive digital environment. One executive from a Latin American bank noted: "It needs incentives from the government to bring more people into the fold and promote them to use digital banking." Governments need to focus on making it more inclusive," another executive added in reference to more than 500 million people in the APAC region that currently are without a bank account.

Cloud also plays a pivotal role in this effort, as it has not only enabled business continuity and mitigated risk through the pandemic, but it is increasingly recognized as a critical enabler for FIs to deliver the personalized and instant services that consumers have come to expect from their experiences in other sectors such as entertainment, social media and health.

Participants of our study agree that a key consequence of the rapid digital adoption of 2020 is that the bar for customers' expectations has been raised. Where there was perhaps an inflection point in the pre-COVID-19 years where industry executives understood that the business risk of not moving to cloud outweighed the technical and operational risks of adopting something new, this has since become overwhelming. By late 2020, all conversations on digital transformation challenges and success factors have gravitated to cloud, as the new digitalized reality became more apparent, and as strategic preparations for the post-COVID-19 world have gained momentum. Aligning that strategic vision with regulatory expectations and the implementation journey is critical, as outlined in the Cloud and regulation box on page 7.

Cloud's value in underpinning sophisticated analytics is a further reason why it is no longer elective. Consecutive IIF surveys of FIs on their adoption of machine learning technologies across 2018-20 have highlighted the challenge of harnessing their many data sources and consolidating these into a single data lake.[5] Improved data management is central to harnessing the potential of AI and Machine Learning, which are increasingly critical for FIs in modernizing their offerings in the face of new competitors, and their risk management capabilities in the face of new criminal enterprises. This, regulators, executives and policy makers can all agree upon.

> One of the central paradoxes of digital finance is that in order to succeed, businesses will need to both a) achieve economies of scale and b) create customizable solutions for increasingly demanding consumers.[4]
>
> **Chris Brummer**
> Georgetown law professor, author and recognized thought leader in the space of financial regulation and global governance

The changing role of the regulator

In an increasingly interlinked, data-driven global financial ecosystem where the speed of change is fueled by transformative technologies such as AI and cloud, regulators face the difficult task of balancing the need to evolve at the pace of technological progress with their statutory objectives centered on preserving the integrity and stability of the financial system and protecting end consumers. Industry executives and regulators participating in our study acknowledge this is no easy task. Like banks, regulators also need to settle on their risk appetite toward innovation. As noted by an emerging markets central banker, "We need a change in the regulatory/supervisory mindset and to modernize our approach in order to determine the regulations that can relax, and those that are essential." The regulatory risk appetite is often heavily influenced by local values and attitudes toward change as well as the current government policy agenda and the overall risk (or benefit) perceived for the economy. For example, data localization requirements and the confinement of clients' data serve as barriers to unlocking the full potential of a data-based economy.

Following the global financial crisis in the early 2000s, there have been different approaches to innovation around the world. "Innovation in Europe was dead after the financial crisis. Europe's second Payments Service Directive (PSD2) and open banking really transformed that," according to one banking executive. "Regulators have moved from policing to also acting as enablers to digital transformation," another senior emerging markets regulator noted. Asia-Pacific economies, including Singapore, Hong Kong and Australia are some of the major countries that heavily invested in enabling innovation. For example, the Monetary Authority of Singapore (MAS) established its FinTech and Innovation Group in May 2015,[6] and the Hong Kong Monetary Authority established the FinTech Facilitation Office in 2016 to help coordinate between stakeholders and regulators and spearhead innovation in these markets.[7] In the United Kingdom, the FCA launched its FinTech Regulatory Sandbox initiative in 2015 for businesses to test innovative propositions in the market while regulators oversaw the development and implementation of tests to agree on bespoke consumer safeguards.[8] The Dubai International Financial Centre also launched FinTech Hive, the first

financial technology accelerator in the region, with Dubai Financial Services Authority joining the ecosystem to provide regulatory guidance for FIs and startups.[9] These regulations have also spurred "regulators' own desire to use advanced technology to supervise," as highlighted by an innovation leader at an APAC central bank.

> Regulators face the difficult task of balancing the need to evolve at the pace of technological progress with their statutory objectives centered on preserving the integrity and stability of the financial system and protecting end consumers.

But there were challenges as noted by a participant from a European nation's central bank. "FIs often felt overwhelmed by regulatory requirements, and it is fair to admit that some of those weren't well aligned… cyber security, General Data Protection Reform (GDPR), PSD2, data retention for AML to name a few." Additionally, most participants acknowledged that regulation was not always balanced. While FinTech charters and regulatory sandboxes in Europe allowed standalone FinTechs to (successfully) experiment with digital services without the full burden of supervision, a bank-owned FinTech was still subject to the full regulatory regime of the parent bank often prohibiting incumbents to move at the speed of new digital challengers.

But while the European banking sector was struggling to find its footing and innovation was noticeably absent, innovation from BigTechs was starting to accelerate in the United States. Regulators in the United States and many other countries took a more conservative approach tailored to the local circumstances in their markets.

Cloud and regulation

Throughout the latter half of 2020, the IIF and Deloitte held a series of virtual focus groups across the Americas, EMEA and APAC respectively with senior industry executives and with leading supervisors and officials. While both groups consistently agreed on the critical importance of cloud for viable business models into the future, and therefore the desirability for FIs to migrate more of their business to cloud faster, some alternate themes emerged as to the major challenges that slowed cloud implementations:

- Several industry leaders lamented a labyrinth of complex and often outdated regulatory requirements and approvals, creating barriers and slowing the rate of adoption
- Regulators affirmed their support for cloud adoption, noting that the implementation can be a technically difficult process, and that there may be a temptation (in senior technology roles with high turnover) to leave that for one's successor, while using the regulator as an excuse or scapegoat

One regulatory participant added "the typical tenure of a chief technology officer is two years, and it's easier for them to kick the cloud implementation off to their successor while blaming us." Conversely, the chief digital officer of a global investment bank observed, "There is a knowledge gap… we need them [regulators] to have enough time to learn. […] Cloud Service Providers (CSPs) need to set up a fund to give free cloud training courses to regulators."

In seeking to reconcile those views, we noted that the specific regulators we spoke to were typically heads of their agency, or heads of a unit, and sometimes heads of the agency's specialist innovation unit. We believe those senior officials all share the strategic vision and understand the imperative of cloud adoption for the ongoing viability of the firms that they supervise. However, that same level of understanding may not have yet reached some of the examiners that FIs deal with on a day-to-day basis in operationalizing their cloud journeys.

This knowledge gap is not unique to regulators, however. Several senior bankers and insurers agreed that while their executive committees and chief risk officers embraced cloud's pre-eminence in their strategy, others involved in approving and adopting new processes and new third-party relationships were not always familiar with the new technology or its role in the firm's future. The knowledge gap (and the need for continued education) is a shared issue for FIs and their regulators alike.

Concurrently, many industry leaders have also cited concerns about cross-border regulatory discrepancies, where disparate requirements have impeded cloud adoption for businesses than span across multiple jurisdictions. This also compounds concerns with data localization, and is described further in the section entitled Cloud-the need to focus on data security vs data residency, which is found later in this report on page 17.

Wider ecosystem, more collaboration

As the ecosystem widens beyond just financial services, there is a natural need for regulators to catch up with the pace of change and draft regulations that are in sync with the landscape. To achieve this, many executives we spoke with felt that regulators need to drive constant communication so that they are drafting guidelines in consultation with the industry and other stakeholders and appropriately considering specific use-cases and burning issues (e.g., activity-based vs entity-based regulation). Put simply in the words of a senior executive at a Middle Eastern central bank: "A collective effort is needed."

This perspective has been echoed by many executives and policy makers we spoke to. As laid out by one of the speakers at our roundtables, a leader in the APAC RegTech community, it's important to have an open, collaborative mindset and to work together with industry to identify what are the key issues from a regulatory and supervisory perspective. "Incumbents mistake regulatory scrutiny for regulatory objections. We scrutinize them a lot, ask them a lot of questions if moving from legacy tech to cloud, but we would ask the same questions of a new virtual bank," highlights a senior manager at an APAC regulator. Fortunately, at the domestic level we are beginning to see regulators around the world take steps to prioritize communication and collaboration among stakeholders, resulting in the development of regulations that are more grounded in reality and successful outcomes whereby emerging technologies such as cloud are increasingly prevalent in the ecosystem and facilitating digital transformation. More work needs to be done, but progress is being made. 'Moving to cloud requires a more collaborative approach to business models' notes the chief data officer at an African bank. This view was mirrored by regulators and CSP we spoke to who increasingly are engaging directly instead of via a FI. In conversation with one of the largest cloud providers globally, the importance of collaboration was specifically highlighted as a means to address misconceptions and to help shape cloud policies. "It is Day 1… setting context in these early days is everything," one senior CSP executive and former banker noted during the conversation. Proactive collaboration can allow CSPs to be in a position to advise FIs and regulators on cloud transformation to avoid being viewed as an extension of the very institution's regulators are seeking to regulate.

"Things are moving so impossibly fast… it is difficult for regulation to keep up. It's very hard to set liquidity and capital standards during a crisis, where you need to see when the dust settles. But for innovation, when will the dust settle? When will the speed of change slow down?"
– retired US official

"Regulators' role has evolved, with a bigger responsibility in enabling and encouraging innovation and supporting innovation, while balancing in with safety and soundness."
– emerging market central banker

"Regulators are realizing it is impossible to use traditional technologies to supervise. Regulators have a keen desire to use new technology and RegTechs have spurred more innovation than anything else."
– an innovation leader at an APAC central bank

"The core problem, though, is that both Apple and Google (with Chrome) are using their market power to advance privacy, but that just happens to be self-serving. Policy comes with trade-offs. GDPR has the same problem - it was great for Google and Facebook. So, the privacy regulators and the competition regulators are going to spend the next decade arguing about this (in the United Kingdom the CMA and ICO are now trying to collaborate)."

Benedict Evans, a respected consultant and independent analyst[10]

While collaboration between regulators and industry stakeholders at the domestic level is vital for digital transformation, there is also a great need for cooperation amongst regulators internationally given the nature of data and the future global economy. "[Success will] require collaboration between regulators and industry, but also regulators and regulators," as noted by a retired US official. Regulatory collaboration across jurisdictions, however, is proving to be challenging. Inconsistent data regimes and regulation continue to be barriers to digital transformation and digital divides are deepening in some ways. This view is also shared by Deputy Governor Pan Gongsheng of the People's Bank of China (PBOC) who said that finding the right balance is "...not an easy task. We need to try hard and work together."[11]

For example, participants of our study highlighted that many governments have been limiting market access for digital products and services, restricting data transfers, forcing foreign companies to invest in duplicate servers in-country, and invoking protectionist barriers on digital designs. Data localization measures can undermine many of the efficiencies and economic opportunities of the digital economy, imposing costs and risks across the economy and impeding financial service efficiency, fraud prevention and innovation. Beyond the direct costs within the financial services industry, which are significant for FIs as noted by multiple executives during our roundtables, the impacts transmitted across the entire economy include weakened systems, reduced connections to global value chains, and less opportunity to leverage global data and technology resources. We will further explore data localization challenges and perspectives. Not all governments share the same perspective.

MAS's Managing Director Ravi Menon highlighted the lack of a rulebook for the global digital economy, and the need for a 'Digital Bretton Woods,' covering topics such as data localization and digital services trade.[12] He stressed the importance and need of the private and public sectors coming together and setting the 'rules of the game' for the digital economy. Menon went on to cite Singapore's successful bilateral Digital Economy Agreements with other countries like Australia, New Zealand, and Chile as potential blueprints, while emphasizing the need for multilateral approaches.

Benedict Evans, a respected consultant and independent analyst, recently cited a large European competition regulator as saying "We tell a tech company to do x, and then that afternoon the privacy regulator tells them not to."[13]

"Our central bank is very much on the journey, they very much understand that this is the way that the country is going and the industry is going, and they're learning and adjusting to that reality."
– - Yuri Misnik, Chief Technology Officer at First Abu Dhabi Bank[14]

"Co-Creation has worked very well with regulators"
– head of wealth and personal banking at a universal bank

"One must acknowledge that there will be a patchwork of regulations and that we [the industry ecosystem] need to get our act together to come up with proactive solutions" notes the chief data officer from a major international bank. Moving forward, greater international collaboration will be essential for the development and harmonization of global standards and protocols, cross-border digital trade, interoperability, and the building of a truly global digital economy operating at full capacity.

The blurring of industry and regulatory boundaries

A discussion on the digital economy would be incomplete without mentioning the masters of this new universe – the hyperscale BigTech tech firms who own the platforms and data and have deeply embedded themselves into the daily lives of billions of consumers across the globe. In the past several years, these firms have been encroaching on the traditional financial services landscape at an increasingly rapid pace, leading to industry convergence and raising important issues for regulators regarding entity- vs activity-based regulation: specifically, what steps to take to protect consumers and promote fair, healthy competition across the globe.

A regulatory shift from FinTech to BigTech

Over the past decade, FinTechs have played an important role in transforming the financial services industry. This first wave of new entrants and competition was met by a fragmented regulatory approach that sought to curb new risks while supporting innovation-based developments in financial services and encouraging industry diversification. And while executives we spoke to have voiced mixed feelings about the, at times, unlevel playing field with FinTechs, most of them agree that FinTechs were a catalyst for innovation in the industry.

More recently, however, BigTechs—who are not currently constrained by the same stringent industry rules and regulations imposed on traditional FIs—have started to move into the space. A chief data officer from a large international bank notes that this "asymmetry of open banking regimes leads to a scenario where a bank can be instructed to share data with a tech firm, but not vice versa." This is particularly worrisome for financial service institutions as the impact of BigTech on the industry is expected to be significantly larger than FinTechs thanks in part to BigTech's global reach and scalability. For traditional FIs, BigTech's vast resources (both monetary and data assets), network effects, advanced technologies and intuitive platforms represent a major force to be reckoned with.

> "BigTechs are providing different types of financial services. Taking advantage, leveraging some important competitive advantages based on data superiority, network externalities that they can benefit from, and also the broad range of activities they perform. Their "DNA Loop" (Data, Network, Activities)"
>
> - Fernando Restoy Financial Stability Institute (FSI) Chairman[15]

The boundaries of traditional industries are converging

While BigTech companies offer financial products only as one part of a much broader set of business lines, the revenues being generated by these firm's financial businesses are substantial; according to BIS analysis, over 10% of BigTech's revenues come from financial sector activities.[16] Each day it seems as though BigTech's activity in the financial services market accelerates: Apple's credit card, Google's checking account, Facebook's Diem activities, and Amazon's small business lending platform all provide prime examples of BigTech's growing influence in the daily financial lives of consumers (and small businesses) across the globe. "It is happening in every industry. If the traditional financial industry wants to become more integrated into the digital economy [...] it's going to have to make this leap" one senior executives at an APAC insurer recognizes.

China's banking regulator has since tightened rules governing how online lending platforms fund their loans, subjecting online lending platforms to similar regulations such as the capital requirements that typically govern banks.[17] In North America, the next wave of BigTech companies – for example, rideshare or houseshare platforms – are likewise exploring to venture deeper into financial services as APIs and "banking as a service" business models make it easier than ever for them to spin up banking businesses with just a few lines of code. Rideshare companies such as Lyft, who already have accelerated payouts to their driver partners through partnering with payment darling Stripe[18], may consider ultimately begin lending to driver partners directly in their apps through embedded finance applications.

Put bluntly, many of the regulators we spoke with in our study feel there is catching up to do from a supervisory perspective. A senior North American regulator commented that "BigTech in finance keeps me up at night. There is a much bigger threat from BigTech than FinTech: they have a huge amount of data and… as regulators, I'm not sure we are ready to face this." Similarly, a Middle Eastern central banker also commented: "BigTechs have tons of data. They're able to manipulate the market. These companies are the biggest nightmare for regulators like us."

Most executives and regulators participating in our study agreed. Armed with huge war chests and leveraging their position outside the traditional realm of financial services, BigTech is gaining confidence and further asserting its influence in the global financial sector. As these developments play out, the tension between BigTech's ambitions and the current regulatory systems will only continue to grow. Furthermore, as FIs adjust their strategies to find their place in an increasingly platformized economy, they will also need to refine their skill sets and their risk appetites, which supervisors will also need to keep pace with.

"We have had, for almost five years now, an open platform in investments, for instance: we sell investments from third partners for most of our clients, we even sell time deposits from competing banks, funds from many different managers… We have an open platform in insurance… this is an important choice that we have to make, this choice of focusing on distribution. It requires lifting your skills in dealing with third parties, associating, acquiring, making co-operation agreements."

Candido Bracher, Former Itau CEO

New regulation emerging for BigTech

Catalyzed by BigTech's foray into financial services, policy makers are rethinking their oversight of new market players, shifting greater regulatory focus toward these tech titans and exploring the notion of "same activity, same risk, same supervision and regulation," or the distinction between entity- and activity-based approaches.

> "The regulatory community has not yet resolved who will be responsible for risks that span across sectors"
> – managing director for regulatory relations at an international bank

BigTech's financial services businesses could grow quickly thanks in part to asymmetries in current regulation between tech firms and traditional FIs "where you can instruct your bank to share data with a tech firm, but not vice versa" the chief data officer at an international bank highlights. For example, the introduction of Europe's PSD2 created asymmetries in the data landscape by setting specific regulatory requirements on data mobility with third parties for only FIs and other payment services providers. However, FIs do not have the same level of access to clients' data as other sectors such as telecommunications, energy, retail, transport and technology. According to a 2019 report by the Financial Stability Board, this asymmetry could rapidly alter the dynamics of competition, with possible ramifications for financial stability.[20]

Given these asymmetries, along with the scale and scope advantages mentioned above, there is a realistic possibility of a small number of BigTechs dominating the financial ecosystem in certain markets in the future and potentially adopting anti-competitive practices. To protect consumers, promote market integrity, and to ensure financial stability and a level playing field in the ecosystem, leading officials are increasingly debating how best to achieve these outcomes, with some emphasizing the principle of "same activity, same risks, same supervision and regulation."

ECB Supervisory Board member Pentti Hakkarainen highlighted the impetus to ensure the regulatory framework keeps pace with developments in the industry and maintains a level playing field:

"Sectoral and entity-based supervision is faced with the challenge of ensuring effective and intrusive supervision and oversight of activities partially within and partially outside the regulatory scope. As the trend toward unbundling [financial services] is accelerated by innovation and digitalization, the current framework may need to be reviewed to ensure a level playing field."[21]

More recently, Deputy Governor Pan Gongsheng of the PBOC expressed that the principle of "same business, same rules" should apply to the world of financial technology and new market players as a basis to ensure fair competition vis-à-vis regulated incumbents. He went on to write, "We need regulation that emphasizes the substance not the form of a company."[22]

And although there had been increasing signals of a growing acceptance of the "same activity, same regulation" principle over the past year, a more nuanced view of this emerged in a January speech by BIS General Manager Agustin Carstens[23] and a February report authored by FSI Chairman Fernando Restoy[24]. While both agree that BigTech raises concerns around financial stability, consumer protect and competition, they argue that regulation will need to remain primarily entity-based, but with extension to include BigTech entities within the regulatory perimeter.

Moving forward, it is uncertain just how BigTech regulation will evolve, though it is clear that many stakeholders we spoke with are advocating for a more a more integrated, cross-sectoral regulatory response to address the magnitude and nature of risk BigTechs are likely to pose to the financial system (e.g., concentration risk around cloud services). The EU has aimed to set the global narrative on regulating BigTech, recently announcing its landmark Digital Services and Markets Acts. The act aims to calibrate "what digital platforms can and can't do in Europe," said Bernd Meyring, a European competition lawyer at Linklaters.[25] The sanctions are heavy and could result in fines up to 10% of annual global turnover. But the impact on the industry and BigTech and whether other regions will follow this example remains to be seen.

One executive suggested that it has been a one-sided (regulatory-driven) effort with limited consultation with the industry or BigTech. One potential pathway forward could be a closer alignment of accountability across the public and private sector. The evolution of AML and Financial Crime regulation provides a good case study for where governments and commercial entities are major stakeholders accountable for solving these issues. However, this may prove challenging to execute as the debate over the extent of social cost and benefits of BigTech continues.

> "Many banks that still have legacy issues, board members with four-year mandates who won't touch the legacy in that time. On the other hand, we have Google who says they "refactor all their code every three years, which is incomprehensible for most of the major and older banks. This presents a real challenge for us regulators to keep up with"
>
> – executive at a European nation's central bank

The need for greater global convergence in data regulation

Providing secure and efficient financial intermediation in this economy requires working across borders and using cloud computing to its full advantage. The global response to the COVID-19 pandemic has underscored the importance of digital connectivity in our economy as financial services firms rapidly have transformed their operations to shift employees to work from home in roles ranging from capital markets and trading to consumer account servicing. This need to shift to remote operations was consistent; however, the crisis revealed differences in regulation of the necessary new technologies and business operations in cloud computing. This has been particularly pronounced for companies that operate across borders.

The economic value of data and increased cross-border data flows

The economic value of data has soared in light of the rapid evolution of digital as data has become the feeder 'raw material' for business models and entire digital ecosystems whose engines - AI, Advanced Analytics and the Internet of Things – are in constant need of complete, quality data. Through the development and deployment of these data-reliant technologies and solutions, nations can expect to derive increased economic and social value which has turned data into the essential economic resource of the 21st century.

As the world economy continues to shift investment from tangible to intangible assets as value is increasingly derived from digital platforms, software and other intangibles, the volume with which data is created, shared and manipulated continues to increase exponentially.[26] But it is not just information industries that benefit, but traditional industries as well. The use of data analytics is now present in virtually all industries, as cross-sector organizations increasingly rely on data for a number of purposes, including to monitor production systems, manage global workforces, track supply chains, and support products in the field in real time. This means data is no longer just a byproduct but is a fundamental raw material that companies need to remain competitive. Yet as one official focused on emerging markets noted, "Boundaries of data are not well-defined because this has not been articulated in broader public policy. There is no legal certainty around these boundaries which is where financial services companies are facing the most issues."

> "We need engineering excellence in cases where we need to redo applications to be more cloud native - where the real value comes from. This means more expense, more work for the incumbents, and they want to avoid it, whereas digital banks or FinTechs are avoiding the cost."
> - innovation leader at an APAC universal bank

Many stakeholders we spoke with noted that this trend toward digitization has been further amplified by the emergence of COVID-19, which has served as a super booster for data-driven business models and digital transformation efforts across financial services and beyond. However, to realize the full potential of these data-intensive technologies and the value they create (for companies and society at large), companies are dependent on the foundational ability to move, store and process data across borders. In today's environment companies need to navigate a myriad of local, national and regional regulations that govern data flows, driving cost and complexity. This was emphasized by a number of experts we spoke with, including the head of FinTech and innovation at an emerging market central bank who, during a discussion on international data flows, commented, "We're going to see more cross-border trade in an increasingly globalized and digitalized world, so [regulatory] harmonization is more important than ever." This creates a big opportunity as a strong commitment to forward-looking cross-border data transfer policies can help offset the impacts of the COVID-19 pandemic and set the stage for future economic growth.

Friction is amplified for international FIs (and their customers)

In addition to establishing policies on cross-border data flows, simplifying the complexity of multi-regional reporting was frequently cited by study participants as another opportunity to unlock value within the ecosystem. Heavily regulated, truly global entities (e.g., operating in 30+ countries), are often the most impacted by regional reporting requirements, and this has long been considered a cost of doing business for these organizations. Consequently, this has driven an ever-more complex customer experience for the end-user, whose interactions are increasingly global in nature.

There is recognition from regulators that an effective balance must be stuck, with the European Systemic Risk Board noting that "neither excessive complexity nor excessive simplicity are likely to be features of a regulatory framework that successfully deals with the challenge of maintaining cost-efficiency and adequate risk-sensitivity in an increasing complex world," and that "…regulation should be robust enough to accommodate the hard-to-predict evolution of the financial system (including the emergence of new business models and financial innovations) while preserving financial stability at a reasonable cost."[27]

Over the past two decades, some progress toward global harmonization has been achieved, most notably the agreement on Basel III which has helped reduce international complexity by creating an international framework that drives toward cross-border interoperability. However, current data regulation is still a long way off from the maturity and global standardization of a Basel III.[28]

Most importantly, the economic value an internationally recognized data policy framework would drive is dearly needed in the face of ever-growing mountains of debt that governments face due to COVID-19. An economic accelerant would help start rebuilding GDP not only for the largest 'digital' institutions but would also make it easier for smaller companies to expand geographically without the risk of falling foul of data regulation. "Companies rely on cross-border data flows to create jobs and make local industries more competitive. In fact, research shows that 75% of the value of data transfers goes to traditional industries like agriculture, logistics, and manufacturing."[29] And due to the COVID-19-driven acceleration of the digital economy the value multiplier is now higher than it has ever been.

> "Regulators are more connected to each other now. There is an urgent need for fora for regulators across borders, especially while they're all issuing digital banking licenses"
> – chief executive at an APAC digital bank

> "You can estimate the opportunity for how cloud, automation and AI can lower costs and complexity for a universal bank generating 1,000+ regulatory reports a year in 70+ languages…"
> – a senior CSP executive

Not all governments share the same perspective

The vast majority of stakeholders we spoke with agreed that the inconsistency of data regimes across sectors and jurisdictions, such as data localization and asymmetry in open banking, requires banks to navigate a complex web of regulations when accelerating digital transformation efforts. The regulatory landscape for financial services institutions is further complicated as FIs are often regulated by multiple authorities, both at a regional and a national level, giving rise to the phenomenon of "regulatory shopping," choosing to be supervised by one agency over another. New laws and policies are on the rise around the world that aim to create a framework for companies to have regulatory certainty for data movements. However, regulators are following a variety of approaches to regulating data. "A lot of countries are moving forward with their own national projects. But we need to avoid the development of digital islands. Standardization is very important as well as the development of regional platforms in order to achieve that interoperability and standardization," one executive from an APAC FI notes. And some countries are aiming toward the creation of an international data economy with clear interoperable policy frameworks that can streamline requirements across borders and create mechanisms to reduce regulatory overload. Others, however, are focusing on the protection of data residency a number of stakeholders we spoke to noted.

Executives we spoke to generally agreed that the most advanced and mature regional approach to data supervision is arguably the GDPR in the EU and it has been frequently referred to in that context. At its core, the GDPR is a new set of rules to give EU citizens more control over their personal data. It aims to simplify the regulatory environment so both citizens and businesses in the EU can fully benefit from the digital economy. By unifying Europe's rules on data protection and having a single supervisor authority, it will be simpler and cheaper for businesses to operate within the region, saving an estimated €2.3 billion per year across Europe.[30,31] On the other hand, it is increasingly being recognized that GDPR has strengthened the hand of the largest players and weakened small and medium-sized firms. The high cost of GDPR compliance is an advantage for large firms with larger budgets to pay for specialist software and privacy professionals, potentially reducing choice for users in the longer term. While stakeholders we engaged with broadly acknowledged that GDPR is by no means perfect, most agreed that it has been a big step in the right direction.

India's Personal Data Protection Bill and Brazil's General Data Protection Law (Lei Geral de Proteção de Dados (LGPD)) are other regulations that participants highlighted as they heavily draw upon GDPR's provisions. Like GDPR, India and Brazil's laws establish consent as the primary legal basis for processing data. These laws apply to companies beyond the territory if their citizens' data is collected and authorize material fines for noncompliance.[32] In Australia an executive notes, the government has amended the Australia Privacy Act of 1988 to include mandatory breach notification requirements that will require organizations to report an 'eligible data breach' to the data protection authority and notify affected customers immediately.[33]

In APAC, the Asia Pacific Economic Cooperation, developed a uniform standard of data protection law covering China, Hong Kong, Indonesia, Japan, Korea, Malaysia, Philippines, Singapore and Vietnam. The APEC Cross-Border Privacy Rules (CBPR) system has been forged out of this framework. Unlike GDPR however, the CBPR system does not displace or change a country's domestic laws and regulations.

A growing number of countries are making it more expensive and time consuming, if not illegal, to transfer data overseas with the belief that these actions will ultimately protect the economic value of their data and will concentrate its value distribution within the local country. Additionally, one senior regulator from an APAC central bank argued for both data redundancy and localization, citing a need for immediate access in case of disaster, and regulatory hurdles involved if data is held/maintained by a US CSP under US Law. Conversely, a leading CSP executive stressed that they can address those interests, via local access and assurance.

In Russia, the Russian Federal Law No. 242-FZ, effective 1 September 2015, contains an explicit requirement that companies collecting personal information about Russian citizens must "record, systematize, accumulate, store, amend, update and retrieve" the information using servers physically located within Russia.[34]

The sheer increase in data protection laws across the world is testament to data protection's rising importance on the global agenda. Yet despite some of the momentum in the space of data regulation, executives in our study acknowledged that the regulatory environment is going to be messy for a very long time, not least because different regulators have different levels of maturity. Still, while many executives articulated a gap in skills and knowledge across various regulators, they saw greater risks in regulators being silent, and recognized that new is the time to take action.

Local laws and specificities cannot be eradicated of course, something the majority of our stakeholders accept. They are necessary and appropriate due to the different values and strategic priorities that countries are governed by. It was a common perspective among study participants that, an ideal world, data protection would be harmonized across continents to ensure a more comprehensive and coherent global policy on the fundamental right to personal data protection, especially in the extraterritorial application of data. This would reduce the degree of flexibility with which countries can implement data protection requirements, minimize confusion when data protection issues arise between countries and more essentially, leverage data as an asset for economic development.

"I think that almost all regulators certainly have senior people who understand what the problem is. I don't think we need to spend more time admiring the problem. I think we need to spend more time actually proposing solutions that work"
– a senior CSP executive

"We're going to see more cross-border trade in an increasingly globalized and digitalized world, so harmonization is more important than ever."
– senior executive at a central bank in the Middle East

Trade agreements serve as a catalyst

The absence of a global framework for the digital economy, is exacerbating challenges to digital transformation and threatens to undermine the potential for future growth. Leading voices have drawn attention to the issue since the Japanese G20 Osaka Track in 2019. As mentioned previously, in 2020, MAS Managing Director Ravi Menon highlighted this absence of a rulebook for the global digital economy, and discussed the possible need for a 'Digital Bretton Woods,' covering topics such as data localization and digital services trade.[36] He suggested the private and public sectors come together and set these rules for the digital economy, similar to what had been achieved for traded goods with GATT and the WTO. Similarly, President Biden's National Security Advisor, Jake Sullivan, was a co-author of a report in October 2020 that suggested "establishing a new international body to manage the risks of a digital crisis and promote common approaches to digital regulation."

Trade agreements are an important vehicle to address digital issues in advance of a global framework and financial services is just one of many segments of the economy that would benefit. While disruptive digital technologies (including Big Data, the Internet of Things, and distributed manufacturing enabled by 3D printing) may enable small businesses to engage in trade, digital protectionism and disrupted digital access, they serve to limit the potential for such breakthrough technologies to support economic growth opportunities. These issues can be considered in the context of trade agreements, as well as the design and operation of local regulations, both in the form of requirements from financial regulators, and other requirements pertaining to local infrastructure and data privacy and security regimes. One frequently cited example of a trade agreement solving these issues is Singapore's Digital Economy Agreement with Australia[37] and those with Chile and New Zeeland.[38] These are designed to foster interoperability of standards and systems and support businesses, especially SMEs, engaging in digital trade and electronic commerce. Building on these examples and working to establish a new global framework could head off a labyrinth of overlapping and fragmented regulation of specific digital technologies and activities which is gaining steam and could negate the future growth opportunity from digital transformation of the economy.

Cloud – the need to focus on data security vs data residency

There is broad consensus across stakeholders we engaged with for the advantages and opportunities cloud has to offer for the industry. This perspective on the upside of cloud has been equally supported across executives, regulators, policy makers alike. However, the very nature and value driver of cloud – being agile and location agnostic – also causes far reaching complications, particularly in the context of data localization and security. Should firms be allowed to store data on a cloud which is operating in another jurisdiction? While on the surface a trivial question, it adds significant jurisdictional risk from a regulatory perspective. Can a foreign cloud provider be expected to resist a subpoena from their own (potentially more powerful) government to uphold the data protection laws of another country?

Consistent data regulation is especially consequential for cloud computing. Industry leaders are relying on this essential tool for digital transformation and it is dependent on the free flow of data to deliver its full impact. Only cloud computing can leapfrog legacy systems to modernize infrastructure and access economies of scale in advanced analytics, data storage, fraud prevention and cyber defense. The importance of cloud and free flowing data is even more evident when considering views on the future of finance with customer expectations for financial intermediation embedded in other digital services and transactions. Among executives we spoke with, there is consensus that cloud computing is essential to keep pace with the broader ecosystem – but it is threatened by new nationalist regulation. To deliver its full benefits, cloud requires a consistent regulatory framework that allows the free flow of data, centralized resources, and distributed services across the digital economy. This is not just a question of duplicative hardware costs but also of scarce tech talent and efficient design. As we heard in conversations, leaders in industry and the public sector alike have come to recognize the benefits of cloud computing; as the chief innovation officer of a large FI in APAC put it, "If the financial industry wants to become more integrated into (and more helpful for) the digital economy, it's going to have to make this leap to cloud-native solutions."

> "First question is whether you can allow firms to have data on a cloud which is operating in another jurisdiction. Because that effectively adds all the criminal justice risks. Can your cloud provider resist a subpoena from their own government?"
> – executive at an emerging market central bank

However, increasing actions in data sovereignty, privacy, and localization are in conflict with these expectations. Evolving the regulatory mindset to focus on the security of data as it moves through the economy, rather than local data residency, will deliver the objectives political leaders seek without hampering digital economic trade and growth. The Osaka track 'Data Free Flow with Trust' during the Japanese G20 presidency illustrates the nascent evolution in focus from data residency to data security and some are starting to see advantages to this approach.[35]

Moreover, there is an ongoing discussion among regulators on where CSPs fit into the regulatory framework and who has responsibility for oversight, with more regulators now beginning to have direct conversations with CSPs. According to a former senior US official, this issue has not yet been fully taken on by the authorities, in part limited by the political sensitivities of overseeing activities of Amazon, Microsoft and Google. That said, participants in our study (both FIs and CSPs) showed support for a form of direct supervision of CSPs by financial regulators, with some proposing certification of CSPs (and "globally recognized certifications") as well as standard contract clauses, as direct supervision of major CSPs would enable supervisors to gain a better understanding of the risks posed and address the inefficiency of each FI having to assess risk.

> "Many regulators take the view that big cloud providers could be better at cybersecurity than a small bank running its own IT system"
> - executive at an emerging market central bank
>
> "The rules on what to do in case of a meltdown haven't been updated in 30 years"
> – chief digital officer at a large international bank
>
> Midcaps can be tolerated at a single CSP, but regulators will want large caps to have multi cloud."
> - a former official, now senior executive at a major international bank

There is still a long way to go, and many forces are pushing in the other direction with fragmentated local requirements. This is further complicated by an asymmetrical policy debate on data localization focusing on potential benefits while not exploring the real costs across the entire economy including those born by tech startups, SMEs as well as lost opportunities in digital trade. There is also a human element at-play, as one chief digital officer at an APAC bank noted that moving to the cloud will require CIOs to give up their traditionally vast data kingdoms – no easy proposition given internal dynamics.

This increasingly complicated regulatory landscape for data and public cloud computing is also seeing data localization measures mutate into subtler forms such as licensing and contract requirements while nationalist political forces drive debate. Industry is also noticing data residency requirements becoming contradictory across different markets as economic activity flows across borders and the necessary data tries to follow but is blocked by privacy and localization requirements in both markets.

Industry leaders are beginning to plan for a more complicated regulatory landscape for cloud computing and data flows, especially as we move toward a multi-cloud environment (which many participants view as inevitable to mitigate concentration risk). Study participants agreed it would be timely to identify the potential costs and engage the public sector to share the tradeoffs and inform policy debate with more symmetrical information. An overarching new rulebook for the digital economy would also address the drivers behind data localization requirements replacing an inefficient patchwork of nationalist rules with a consistent framework for an international digital economy.

"Digital economy agreements have a lot of helpful potential, good to see a few happening, largely driven by Singapore, some of the agreements being better than others"

senior executive for government affairs at a global bank

Conclusion

The financial services ecosystem will continue to evolve, industry and regulatory boundaries will continue to blur, and data regimes will continue to face questions around interoperability and portability. These trends have several major implications for ecosystem participants – FIs, regulators, FinTechs and other technology players – to consider:

- What will global data governance look like in the years to come, and is there an opportunity for ecosystem participants to boldly create a digital "gold standard" (e.g., laws, protocols and standards) to facilitate the free exchange of data across borders?
- How might ecosystem participants break down silos to modernize regulatory frameworks in an agile, integrated fashion that matches the accelerating pace at which the industry is moving?
- What is the right balance to strike between innovation and the responsible management of assets, and how can ecosystem participants collectively determine the right mix of tools (e.g., internal innovation functions, regulatory and industrial grade sandboxes) to deploy to safely and responsibility unlock the power of AI, Big Data, and other next gen technologies?
- How will the role of regulators shift, if at all, from regulation to supervision of new entrants such as BigTech players, and which approach will be most appropriate and effective given the predominant industry dynamics and customer needs?

The world is changing quickly, and there are many big, important questions that ecosystem participants must answer in the coming years to capitalize on (and ensure responsibility within) the new digital economy. Where this paper has identified the key issues across the ecosystem, we will follow this with a supplement that will provide a "call to action" – a series of recommendations for ecosystem participants to address these issues and allow the full potential of the digital economy to be realized.

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