Innovative approaches to compliance

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VIEWPOINTS

Innovative approaches to compliance

> *To enable the business model of the future, compliance needs to be truly integrated into the business. Business needs to understand compliance and vice versa or you will just never get there.*
> — Participant

Following a decade of massive post-crisis investment in regulatory compliance and risk management, banks are now identifying innovative improvements to the efficiency and effectiveness of their compliance efforts. An EY adviser said, *"It's an interesting time. The last 10 years were about building compliance up, and a lot of money has been spent. The next 10 years will be about rationalizing and cutting costs while still improving effectiveness."* Firms are looking to new technologies to transform how they use data and explore opportunities for collaboration.

The compliance function can be an enabler of innovation, a driver of business rather than a deterrent, but this may require some fundamental adjustments to how the function is viewed, managed, and incorporated into operations across the firm. Obstacles such as archaic legacy systems, poor data management, cultural resistance to change, lack of coordination and communication across different functions, and evolving regulatory requirements continue to burden the efficiency and effectiveness of the compliance function. *"Everyone wants to improve compliance and better use technology and innovation in this space to be more effective, but most banks are facing massive obstacles to accomplishing that,"* reported one participant.

On June 13 in New York and September 25 in London, BGLN participants met to discuss innovative approaches to compliance and some of the questions these developments raise, including the potential for regtech to help large banks and how incumbents can leverage compliance innovation across other functions in the firm.

This *ViewPoints* synthesizes the key themes which emerged from the discussions in each of these meetings, and from conversations with network participants beforehand and immediately afterwards. These meetings also included discussions on emerging business models in financial services.

Themes from those parts of the discussions are summarized in a separate *ViewPoints.* This *ViewPoints* is organized around the following sections:

- **Innovation in compliance**
- **Addressing challenges to progress**

Innovation in compliance

> *"Business model change is inherent with compliance change; they're not separate."*
>
> — Participant

Compliance teams at large banks are tasked with keeping up with massive institutions undergoing nearly constant change. As firms consider new approaches to offering financial services, the ecosystem continues to evolve in sometimes unexpected ways, and customer expectations for speed and efficiency grow, the need for an innovative, agile, and forward-thinking compliance function may be more urgent than ever. One participant said, *"With compliance, we should be more worried about business model change than regulatory change. Business model change is inherent with compliance change; they're not separate."* BGLN participants have long discussed the ways that banks are changing as a result of new technologies, competitors, and risks; compliance must remain in lock step with these developments.

New technologies are changing what is possible

> *"Financial crime is ripe for innovation. Improving overall effectiveness is still a long journey, but also a place where you can reap fairly early returns via technology."*
>
> — Participant

Process automation, new data management tools, AI, and machine learning will continue to transform financial institutions in the coming years. Looking for improvements to efficiency and effectiveness, firms are increasingly employing new approaches and tools to strengthen oversight functions across the business while improving such functions as AML and know your customer (KYC) processes. Banks can use more data from disparate sources, including non-traditional sources, to identify outliers and potential malfeasance. Participants highlighted a few key areas where new technologies are driving innovation:

- **Financial crime.** According to a recent EY study, about $1 trillion to $3 trillion is laundered through the financial system every year and yet only about 1% of that is detected.[1] Industry experts believe that AML and other financial crime prevention will be among the areas that benefit most from technology improvements, allowing banks to improve transaction monitoring, reduce false-positive rates, and enhance fraud resolution. In his 2018 letter to shareholders, JPMorgan CEO Jamie Dimon wrote, "Over time, AI will dramatically improve AML/Bank Secrecy Act protocols and processes as well as other complex compliance requirements."[2] A participant said, *"Financial crime is ripe for innovation. Improving overall effectiveness is still a long journey, but also a place where you can reap* *fairly early returns via technology."* Early results are encouraging. In 2018, UK bank NatWest noted that it had prevented £7 million of false payments by using a machine-learning system.[3]

- **KYC and identity verification.** New approaches to identification are transforming the way banks can recognize customers across an organization, improving risk management and perhaps offering new business opportunities. For years, financial institutions have "de-risked" in response to capital requirements and raised standards for AML and KYC requirements, with the result that onboarding processes became increasingly cumbersome and whole categories of customers were cut off from financial services. Addressing the compliance, security, and fraud risk around identification could streamline existing processes, making onboarding a more frictionless experience for new customers and potentially creating new growth opportunities.

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>
> — Director

- **Conduct and culture.** A director highlighted another area where improved data management can improve compliance: *"Conduct and culture: by connecting more dots and doing more analysis, some principles from financial crime can be applied to identify misconduct. Sometimes the real issue is that nobody is trying to connect the dots. You read some of the stories about what was going on at certain firms, so much was happening, but no one was interested in connecting the pieces."*

- **Operational efficiencies.** Machines are especially effective at compiling and sifting through enormous swaths of data and interpreting contracts. Robotic process automation (RPA) can automate compliance processes and ensure consistent adherence to set rules with limited human involvement. According to a recent white paper, "Institutions such as Royal Bank of Scotland and ICICI Bank have implemented RPA and cognitive technologies, reporting benefits such as a reduction in operational costs and lower response time to customer queries. In fact, ICICI Bank reported reduction[s] in response time by about 60%, with a 100% improvement in accuracy."[4]

Firms are partnering with third-party "regtechs"

Large incumbents are increasingly turning to partnerships with regulatory technology firms or "regtechs" as a way to implement technologically advanced compliance solutions while avoiding some of the internal issues associated with legacy systems and poor data management. Market research firm HTF forecasts that global regtech market revenue will grow from $1.4

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> — Executive

billion in 2018 to $6.4 billion by 2025.[5] Regtechs often seek to automate or streamline specific complex compliance tasks, which can enable banks to allow compliance teams to use their time more strategically and focus on more value-added work. Regulations like the EU Payment Services Directive (PSD2) have driven more partnerships in this area, as it requires the collection, analysis, and sharing of financial customer data that can be a challenge for large complex institutions. Companies like Onfido and Trulioo have partnered with major financial institutions to improve identity verification solutions. *"Improving the KYC does not just help with onboarding, it means better servicing for the customer across the lifetime of the relationship, which enables more opportunities,"* said an executive. Quantexa, a firm that uses real-time entity resolution with network analytics to derive new insights on issues like AML, has partnered with firms such as HSBC. By becoming early adopters of such solutions, banks may be better positioned to not only meet compliance demands, but also to control costs, improve resource allocation, and provide a better customer experience. A participant said, *"Firms that can make onboarding faster and more effective will be a competitive advantage."*

Encouraging innovation by rethinking the current approach

> *"Compliance can drive value rather than just being the people who say 'no' to everything."*
>
> — Director

To see real improvements to compliance, banks need to encourage and empower innovation in the same way it is often handled elsewhere in the firm. *"Compliance can drive value rather than just being the people who say 'no' to everything,"* said one director. Participants highlighted key changes that may be necessary to enable innovation in compliance.

Recalibrating expectations

Some noted that unrealistically high expectations for any investment to improve compliance can hinder incremental efforts. A participant said, *"Enormous developments have been made in technology that can help compliance, but expectations need to be realistic and right now they are not."* For example, this participant said, some compliance executives believe that anything that doesn't deliver at least a 50% improvement in outcomes will not be deemed worthy of investment by senior management and the board. A director said, *"I'm not sure all of those decisions are getting to the board level. Maybe expectations need to be adjusted."* Several participants pointed to bureaucratic processes and organizational lag as a major hinderance to improvement. An executive said, *"Decision making at big banks takes so long and too often it's based on short-term returns."*

Changing culture

In some instances, compliance may be viewed as a deterrent not just to innovation within its own function, but across the firm. As one participant put it, *"Front offices think compliance doesn't get it and will just say 'no' to everything, and that lack of engagement can be felt in the compliance function."* To change this dynamic, some adjustments to how compliance is incorporated into business operations may be required. A participant said, *"Cultural change in governance in this area is needed. There is a lot of fear around doing anything unique or changing compliance functions that are working."* A director agreed, adding, *"Things haven't changed because doing it wrong has serious issues and consequences, while doing it badly, but technically within parameters, is considered fine and acceptable."* Participants discussed three key areas of focus:

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>
> — Director

- **"Designing in" compliance.** Compliance tends to be more effective when it is considered and involved early in the process, particularly when a bank is designing and setting up new services, products, or systems. As firms implement improvements that use new technologies or approaches, including compliance teams early in the process can be critical to improving efficiency and effectiveness. A participant said, *"Compliance needs to be in the room when it's happening, not tagged on as an afterthought."* Several participants highlighted the importance of thinking through compliance challenges as early as possible. An EY advisor said, *"Designing-in a compliant way of setting up systems enables more business to be done; it drives business."* Doing so is increasingly possible by using AI and machine learning to automate compliance and improve identity and data management.

- **Adjusting mindsets and aligning incentives.** A director observed that compliance leaders can also push a more forward-thinking approach in their teams: *"I truly believe compliance can be an enabler of business, not a blocker. I always tell my teams to be thinking 'what would it take to say yes?' It's a change of mindset for them too."* For innovative projects to be effective, banks may also need to reassess organizational ownership and incentives, said one participant: *"You need strong people internally pushing these projects; otherwise they'll go nowhere. You also need the proper incentives that align with these goals."*

- **Making it a board priority.** Participants suggested that monitoring innovation and using emerging technologies in compliance is a topic that may not get enough attention at the board level. *"Boards talk about it to a* *degree, but it's more just asking if we're on track with artificial intelligence in this area, for example,"* said one director. Another added, *"It's discussed by the risk committee, but does not often go to the full board."* Given the cost dedicated to things like anti-money laundering and know-your-customer compliance efforts, greatly reducing these costs and improving the customer experience should be on board agendas.

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— Participant

Though potential enhancements to compliance continue to garner attention around the industry, some participants suggested that most banks have a long way to go when it comes to making meaningful improvements to the function. One participant observed a disconnect between what firms say they want and what they are doing: *"A lot of banks say they want better conduct risk analytics, better data use, automated rules mapping, end-to-end monitoring of everything … but not much of that is actually happening."*

Addressing challenges to progress

Many agreed that although there is potential to markedly improve the compliance function through innovation and new technologies, obstacles remain. One regulator said, *"We talk about compliance like it's one giant collective problem, but the specifics are what matter. I don't think improved technology or systems can just solve it. I think organizational processes are often the biggest barrier to solving it."* These massive financial institutions are operating in a time of heightened competitiveness, ever-evolving risks, and a seemingly endless series of tasks that must be carried out in order to keep the business running. As one participant put it, *"Banks can't pause; they can't stop trading or operating. I once heard a CEO compare the bank to a running train and compliance is trying to lay the tracks as it goes. That's the big challenge, how do you improve while operating?"* An executive agreed, adding, *"There is an expectation of compliance to transform their function while the organization also transforms itself. But how?"*

Participants discussed some of the opportunities emerging in compliance, and some of the challenges related to implementation.

Regulatory burdens may hinder innovation

Compliance teams at banks must monitor and adjust to reflect a myriad of regulations, a task that requires large swaths of time and resources. A report found that 56,321 regulatory alerts were issued by 900 regulatory bodies in 2017, highlighting the sheer quantity of input that compliance teams must review.[6] The volume of new or revised regulations is expected to continue to grow, with some forecasts predicting banks may have to deal with nearly

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> — Fintech Executive

120,000 pages of regulations by 2020.[7] Several participants noted that newer entrants to the industry, such as challenger banks and fintechs, may benefit from less regulatory oversight. However, a fintech executive pushed back against the notion that regulators ease supervision for new entrants: *"We're new so we don't have the sins of the past; that's both the biggest advantage for us and the biggest disadvantage for incumbents. A lot of the burden that is blamed on regulators—and a reason why fintechs and challengers have an advantage on regulation—is not because they're being treated differently going forwards, it's because they have less to deal with looking backwards."*

Getting support from regulators

An EY adviser noted, *"Regulators are your friend on this; they're pushing this themselves."* Indeed, at times regulators have taken steps to encourage more innovation in compliance. Late in 2018, US regulators encouraged banks to explore more innovative approaches to anti-money-laundering (AML) compliance, adding that if the application of new technology uncovers any problems with legacy compliance programs, banks will not necessarily be penalized for those prior failures.[8] "Private sector innovation, through new ways of using existing tools or by adopting new technologies, can be an important element in safeguarding the financial system against an evolving array of threats," said Sigal Medleker, US Treasury Department undersecretary for terrorism and financial intelligence, as part of a joint statement from several regulatory groups, including the Federal Reserve, the Treasury's Financial Crime Enforcement Network, and the Office of the Comptroller of the Currency.

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>
> — Executive

Around the globe, several regulatory bodies have launched regulatory sandboxes over the last few years, including the UK Financial Conduct Authority, the US Office of the Comptroller of the Currency, the Hong Kong Monetary Authority, and the Monetary Authority of Singapore. Despite these developments, several BGLN participants insisted that regulators continue to get in the way of innovation in compliance. In a pre-meeting conversation, one executive said, *"The regulators have created static-based rules that we must follow, or we will be fined. That gets in the way of doing something completely different and innovative because you must still comply with outdated rules. They must change the definitions of their own rules and I don't think that's orchestrated well, it's done in bits and pieces and it's slow."* Yet, a regulator said, *"If we are an impediment, we want to know that, because that is not our intent."*

Controlling costs

The high costs of compliance continue to burden large banks. For example, HSBC and Standard Chartered spend $500 million per year on AML alone, equivalent to 20% of Standard Chartered's 2018 pre-tax profit.[9] One director said the high costs of compliance can have a ripple effect across an entire firm: *"Over the past 10 years, the biggest cost for any bank has been compliance and legal. It costs banks a fortune. That's where the technology budget has gone, it doesn't leave money to do anything in the exciting innovation space … our budget is going almost fully towards compliance."*

A key driver of high compliance costs is the sheer number of people required. *"The cost of compliance isn't the systems, it's the people,"* said one participant. By the end of 2018, Citi reported that 30,000 (or 15%) of its 204,000 employees worked in compliance, risk, and other control functions, compared to just 4% at the end of 2008.[10] Though many expect the use of new technologies to result in cost—and headcount—decreases, headcounts remain high, and may actually continue to rise for the time being. A 2018 global study of risk and compliance officers at 800 financial firms found that 43% expected their teams to grow in 2019, with only 5% expecting a reduction.[11] Despite all the digitization that has occurred across the industry, one recent survey found that most banks still had over 15% of their staff working in document verification.[12] A fintech executive who has partnered with large banks around compliance issues stated, *"The message for new initiatives in compliance has to be about being more effective rather than reducing headcount. Many heads of compliance want to increase headcount, so the message about reducing headcount is seen as a threat rather than an opportunity."*

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>
> — Participant

The implementation of new technologies takes time and gains in efficiency may lag as a result. One participant warned that even when new efficiencies are achieved, costs may not come down for some time: *"For the future of compliance, banks are going to be spending less on headcount but more on technology. Looking at the full picture, I'm not sure we'll see costs coming down in a significant way."*

Data management and identity issues persist

To unlock many of the potential improvements to compliance functions, firms must grapple with their approach to data and identity management. Longstanding issues of aging legacy systems or poorly designed systems and controls continue to hinder efficiency and effectiveness. *"There is a lot of human error in compliance, but also a lot of system error or lack of controls on*

> *"Most of our banks are dealing with budget distress, don't have the data or it's in bad shape, and legacy systems. All that will need to be addressed for this other stuff to work."*
>
> — Participant

systems," said a participant. A director agreed, adding, *"There's a lot of fundamental stuff that is fixable in compliance. Most of our banks are dealing with budget distress, don't have the data or it's in bad shape, and legacy systems. All that will need to be addressed for this other stuff to work."* Participants highlighted two key areas of compliance where banks continue to grapple with fundamental obstacles.

Data management

A participant said, *"Data quality continues to be a huge challenge. The whole data management process needs to change for compliance to improve."* An executive agreed, adding, *"Improving the data we have and how we use it is still ripe for innovation."* Poor data management and outdated systems have thus far prevented many banks from achieving a single view of their customers. One participant said, *"From a board perspective, it's indefensible if you don't have a single view of customers across the organization globally. Solutions for that exist today."*

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> — Participant

As new technologies and enhanced systems enable financial institutions to utilize data for business opportunities, there are also benefits for compliance and risk. Improved data analytics can help financial institutions build new compliance reports and perform regulatory tasks more effectively, and more accurately and efficiently oversee risks. Some regulatory tasks require banks to aggregate data that is scattered both across the institution and in other entities, thus banks with more updated systems that can produce more accurate and timely data have an advantage. As these issues are increasingly central to broader business strategy discussions, bank leaders need to understand the risks and barriers that accompany optimal data use, and their firm's position on data use and storage.

Ongoing developments in data policy are likely to shape how firms can use their data, something banks should carefully and actively monitor. A participant said, *"There is a lot happening in the policy and regulation space, and it is worth your institution's time and attention. GDPR, the California Consumer Privacy Act, and other regulations are already influencing the landscape, and some of these could present major challenges and make the problem worse in a lot of ways."*

Identity

One area that continues to be particularly difficult for banks is identity verification. Aging legacy systems, which store customer data in numerous, disparate systems; regulations that vary by geography; and institutional inertia pose challenges for banks and their customers. An executive said, *"The* *general concept around identity seems simple, but it's incredibly hard, and so much of what a bank does is built around it."*

While some predict that transformative changes to identity verification and the way individuals manage personal data could happen in the near future, one participant said, *"There is a consistent ache around identity, but not enough pain for any party to drive transformative change. A big problem is that we are all at least OK with the current system."* For major new identity verification programs to work, widespread customer adoption is necessary and may require a strong national political and regulatory push, both of which have proven difficult elsewhere. In reflecting upon past efforts in markets that have tried to implement new identity programs, an executive observed, *"Consumers will not take on the burden of controlling their own identity at scale, and any new identity system needs 90% adoption to be successful."* Others noted that investment initiatives by individual banks can be challenging to sell internally because of questionable short-term returns.

"There is a consistent ache around identity, but not enough pain for any party to drive transformative change."

— Participant

Industry collaboration still faces questions

Participants discussed the opportunities for industry collaboration in compliance. Increased collaboration could result in improved efficiencies and cost rationalization. An EY adviser explained, *"It's the elimination of redundancies. Why does everyone need to do KYC for Coca-Cola? Why does Coca-Cola need to fill out the same paperwork every time? There are obvious unnecessary redundancies that could be removed to reduce friction."*

Several participants noted that efforts among banks to work together in this area should be on the rise. *"It should be a shared industry agenda; I don't see a competitive advantage,"* said one director, adding, *"There is so much effort and investment in this area that doesn't produce a value add."* However, many of the same questions and concerns that have hampered past collaborations persist. One director said, *"There is a general reluctance to give up ownership of a process. There are questions of responsibility and liability, and that creates a lot of fear and hesitation."*

For their part, regulators have highlighted that firms should collaborate where possible. One regulator said, *"Banks have worked together in several areas. Zelle is a consortium; banks worked together there. Why not more in compliance? If it's a regulatory concern, we want to know and talk about that with banks because collaboration of that kind is not a concern from our perspective."* Another participant mentioned the Financial Services Information Sharing and Analysis Center as another example of information sharing that has proven effective. A regulator added, *"It's OK to collaborate in* *these areas. Of course, we want to understand the plan and the process, and you still have your obligations, but collaboration is something we do not want to prevent."*

Yet, participants insisted that for more widespread and effective industry collaboration to occur, regulators may need to be more assertive about removing longstanding roadblocks to collaboration. As one participant said, "*The regulators are saying they want everyone to come together, share data, collaborate on this. They want these new ideas, but it all gets held up on old ideas, like accountability and responsibility. Regulators could be doing more there."*

"Regulators are saying they want everyone to come together, share data, collaborate on this. They want these new ideas, but it all gets held up on old ideas, like accountability and responsibility."

— Participant

Leveraging data could raise ethical concerns

Even if firms were able to resolve fundamental challenges relating to regulatory clarity, data quality, and collaboration, more fundamental questions regarding the appropriate use of technology could raise ethical issues for banks and their boards as they contemplate compliance innovation. For example, when deploying tools to broaden monitoring of employee activity or potential financial crime, firms may create new sources of reputational or even legal risk. An executive said, *"How do you ensure there aren't built in biases or unethical activities occurring? That's a board level discussion firms should be having. I see so many of these things that haven't been put through proper governance."* A director added, *"With data and things like AI, people tend to think it's this weird beast but a lot of it goes back to core governance. You need to answer similar questions as you do for algorithms."* The line between being "cool"—and effective—and being "creepy" may be unclear.

About this document

About *ViewPoints*

ViewPoints reflects the network's use of a modified version of the Chatham House Rule whereby names of network participants and their corporate or institutional affiliations are a matter of public record, but comments are not attributed to individuals, corporations, or institutions. Network participants' comments appear in italics.

About the Bank Governance Leadership Network (BGLN)

The BGLN addresses key issues facing complex global banks. Its primary focus is the non-executive director, but it also engages members of senior management, regulators, and other key stakeholders committed to outstanding governance and supervision in support of building strong, enduring, and trustworthy banking institutions. The BGLN is organized and led by Tapestry Networks, with the support of EY. *ViewPoints* is produced by Tapestry Networks and aims to capture the essence of the BGLN discussion and associated research. Those who receive *ViewPoints* are encouraged to share it with others in their own networks. The more board members, members of senior management, advisers, and stakeholders who become engaged in this leading-edge dialogue, the more value will be created for all.

About Tapestry Networks

Tapestry Networks is a privately held professional services firm. Its mission is to advance society's ability to govern and lead across the borders of sector, geography, and constituency. To do this, Tapestry forms multi-stakeholder collaborations that embrace the public and private sector, as well as civil society. The participants in these initiatives are leaders drawn from key stakeholder organizations who realize the status quo is neither desirable nor sustainable, and who seek a goal that transcends their own interests and benefits everyone. Tapestry has used this approach to address critical and complex challenges in corporate governance, financial services, and healthcare.

About EY

EY is a global leader in assurance, tax, transaction, and advisory services to the banking industry. The insights and quality services it delivers help build trust and confidence in the capital markets and in economies the world over. EY develops outstanding leaders who team up to deliver on our promises to all of our stakeholders. In so doing, EY plays a critical role in building a better working world for its people, for its clients, and for its communities. EY supports the BGLN as part of its continuing commitment to board effectiveness and good governance in the financial services sector.

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Appendix: discussion participants

In June and September of this year, Tapestry and EY hosted two BGLN meetings on upgrading core platforms and resilience. These meetings included more than 35 conversations with directors, executives, regulators, supervisors, and other thought leaders. Insights from these discussions informed this *ViewPoints*, and unattributed quotes from these discussions appear throughout.

The following individuals participated in BGLN discussions on upgrading core platforms and resilience:

BGLN Participants

- Homaira Akbari, Non-Executive Director, Santander
- Jeremy Anderson, Audit Committee Chair, UBS AG
- Giles Andrews, Co-Founder and Non-Executive Director, Zopa and Chair of the Supervisory Board, Dynamic Credit
- Paola Bergamaschi-Broyd, BNY Mellon International Ltd
- Norman Blackwell, Chair of the Board, Lloyds Banking Group
- Pat Butler, Chair of the Board, Aldermore Bank
- Juan Colombás, Executive Director and Chief Operating Officer, Lloyds Banking Group
- Martha Cummings, Head, Compliance Strategy & Operations, Wells Fargo
- John Devine, Chair of the Board, Credit Suisse International
- Terri Duhon, Risk Committee Chair, Morgan Stanley International
- Julia Dunn, Chief Risk Officer, Nationwide Building Society
- John Johnston, Non-Executive Director, BNY Mellon International Ltd
- Phil Kenworthy, Non-Executive Director, ClearBank
- Kevin King, Head, Product Marketing, ID Analytics – Symantec
- Olivia Kirtley, Non-Executive Director, US Bancorp
- Beth Knickerbocker, Chief Innovation Officer, Office of the Comptroller of the Currency
- Stuart Lewis, Chief Risk Officer, Deutsche Bank
- Vishal Marria, CEO, Quantexa
- Tom Mildenhall, Global Head, Technology Business Development, Bank of America
- Scott Moeller, Risk Committee Chair, JPMorgan Securities

- Roberto Nicastro, Vice Chair and Risk Committee Chair, UBI Banca
- Yusuf Özdalga, Partner, QED Investors
- Andy Ozment, Chief Information Security Officer and Managing Director, Goldman Sachs
- James Paris, Chief Revenue Officer and Chief Strategy Officer, Amount
- Vandana Sharma, Senior Vice President, Large Institution Supervision, Federal Reserve Bank of New York
- David Sidwell, Vice Chair, Senior Independent Director, and Risk Committee Chair, UBS
- Alan Smith, Global Head, Risk Strategy, HSBC
- John Sun, Founder, President, and Chief Product Officer, Spring Labs
- Tim Tookey, Risk Committee Chair, Nationwide Building Society
- Radhika Venkatraman, CIO/CTO of Global Markets, Credit Suisse USA
- Tom Woods, Non-Executive Director, Bank of America

EY

- Omar Ali, Managing Partner, UK Financial Services
- Jan Bellens, Global Banking & Capital Markets Leader
- Kara Cauter, Partner, Financial Services Advisory
- Peter Davis, Americas Financial Services Advisory Leader
- Sara Elinson, Americas FinTech M&A Leader
- Ron Giammarco, Americas Financial Services Information Technology Advisory Partner
- David Kadio-Morokro, Americas Financial Services Advisory Deputy Innovation Leader
- Marcel van Loo, EMEIA Financial Services Regional Managing Partner

Tapestry Networks

- Dennis Andrade, Partner
- Brennan Kerrigan, Associate
- Tucker Nielsen, Principal

Endnotes

[1] EY, "How Cognitive Investigator is Taking a Bite out of Financial Crime," (New York: Ernst & Young, LLP), accessed October 12, 2019.

[2] Jamie Dimon, "CEO Letter to Shareholders," page 35, April 4, 2019.

[3] Sooraj Shah, "NatWest Prevented £7m of Corporate Fraud Using Machine Learning," *Internet of Business*, April 6, 2018.

[4] IBS Intelligence. "Intelligent Operations in the Banking Industry," page 2, accessed October 12, 2019.

[5] "The Past Decade has brought a Compliance Boom in Banking," *The Economist*, May 2, 2019.

[6] "The Past Decade has brought a Compliance Boom in Banking," *The Economist*, May 2, 2019.

[7] IBS Intelligence. "Intelligent Operations in the Banking Industry," accessed October 12, 2019.

[8] Samuel Rubenfeld, "U.S. Encourages Banks to Innovate in Anti-Money Laundering Compliance," *The Wall Street Journal*, December 3, 2018.

[9] "The Past Decade has brought a Compliance Boom in Banking," *The Economist*, May 2, 2019.

[10] "The Past Decade has brought a Compliance Boom in Banking," *The Economist*, May 2, 2019.

[11] "The Past Decade has brought a Compliance Boom in Banking," *The Economist*, May 2, 2019.

[12] IBS Intelligence. "Intelligent Operations in the Banking Industry," page 6, accessed October 12, 2019.