Nasdaq + BCG

The New Growth Imperative:

Cutting Through Complexity in the Financial System

A Global Report

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A Message from Nasdaq's Chair and CEO

Adena T. Friedman
Chair & CEO

In an era where complexity is both a challenge and an opportunity, understanding its true and complete cost has never been more vital.

There is no shortage of factors that are contributing to the rapidly increasing complexity of the environment in which organizations operate today – from rapidly changing technology to the explosion of data, the expectations for real-time operations, combined with an acceleration of regulatory complexity, geopolitical uncertainty, and the growing threats arising from financial crime and cyber attacks.

As organizations have responded to this external complexity, layers of internal complicatedness have accumulated with a dramatic increase in the number of procedures, interfaces, coordination bodies, and decision approvals.

> In fact, research revealed that throughout a half-century, while external complexity had increased more than 6-fold, organizational complicatedness in response had increased more than 35-fold.[1]

Today, we stand on the brink of the next technology revolution led by transformative breakthroughs in artificial intelligence (AI). Similarly, the expectation of "real-time" operations – whether that be in payments, trading, clearing and settlement, or across entire industries such as logistics, consumer retail, or healthcare – is placing additional pressure on organizations to invest in the right technology infrastructure to deliver on the dual imperative of speed and resilience. At the same time, even if regulation were to decrease in the US, the globally divergent nature of regulatory frameworks continues to provide added layers of complexity.

References are listed throughout this report.

> There is therefore no reason to expect that the exponential growth in complexity will abate. The challenge - and opportunity - lies in our collective ability to navigate and respond to this complexity *and reduce* excess layers of complicatedness.

There is a strong case to be made that this deserves critical and urgent attention – the value that stands to be unlocked in getting this right is substantial and so is the cost of getting it wrong. This report aims to provide compelling perspectives to advance this debate across the financial system – from financial institutions to regulators.

> The good news is that as both external complexity and internal complicatedness have grown, so have the solutions to help manage them.

We find that while external complexity is, and remains, a challenge that is difficult to control or eliminate, the complicatedness challenge can be addressed through embracing modern technology solutions combined with the adoption of modern operating models.

Technologies like cloud infrastructure and the development of modern software platforms that leverage cloud foundations, provide unprecedented possibilities to meet the expectations that the external environment demands: innovation at speed, real-time with integrity, *resilience and growth*.

The transformative power of AI, cloud, and modern software, can also foster collaboration across ecosystems, enabling organizations to adopt innovative ways of working not only to manage the challenge of complexity but transform certain aspects of it into opportunity.

The research outlined in this report demonstrates that getting it right could unlock significant value both to the benefit of individual organizations as well as to the economy and financial system at large. We identify efficiency gains of between 10% and 20%, while maintaining or improving effectiveness, within Risk & Compliance functions in banks alone – translating to savings of $25 billion to $50 billion. But that only tells part of the story. The transformative potential of AI will redefine every industry – including the financial industry – in the years ahead.

> The very same solutions that sit at the core of the complicatedness challenge, will serve as the foundation for success in tomorrow's AI-enabled world. As such, effectively addressing these challenges today could protect and reinforce competitiveness well into the future.

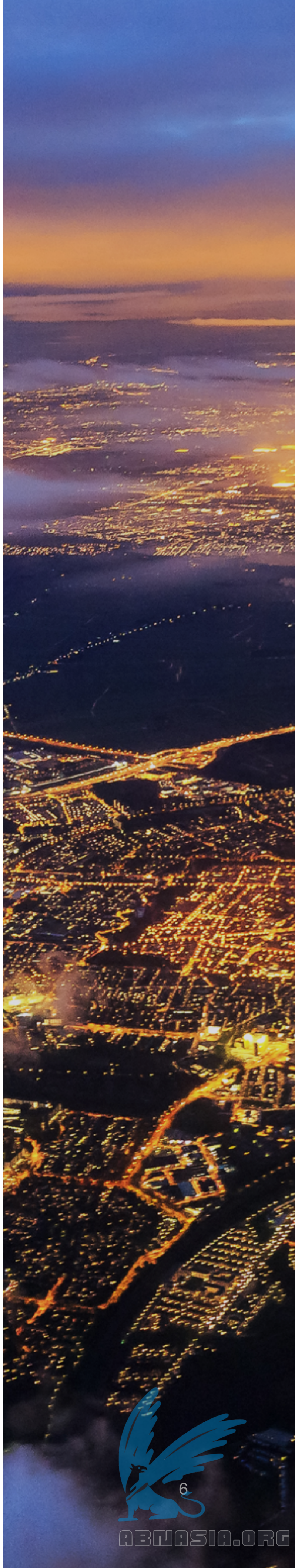
This report finds that there has been a sea-change in the cultural readiness to embrace technologies such as cloud with 93% of bank leaders surveyed indicating they are comfortable leveraging cloud infrastructure. That compares to 57% five years ago, and just 11% ten years ago. We also find an increasing preference toward leveraging the capabilities and scale that external, strategic partners can provide. This is especially pertinent for those workloads that are critically important to the overall integrity and soundness of banks' operations, but that do not meaningfully contribute to their competitive differentiation for example, in areas such as risk modeling, regulatory reporting, financial crime management, and managing country compliance.

In fact, only 22% of bank leaders surveyed for this study still prefer building customized in-house solutions instead of leveraging the scale and effectiveness benefits that strategic, external partners provide. Among those that prefer partners, the majority recognize the benefits of those who can provide a suite of solutions. That compares to only 27% who still prefer single point solutions providers.

We also highlight certain areas where collaborative models can drive more efficiency and effectiveness – reducing redundancy inside individual organizations and across the industry, while providing superior outcomes. A well-known example in this regard is the data consortium approach deployed for the purpose of financial crime management.

This report delves into innovative methodologies that allow us to distinguish between complexity and complicatedness, measuring the cost of both, and offers fresh perspectives and actionable insights. In this report, we focus on the Risk & Compliance functions within financial institutions as one illustration of these dynamics, but its themes apply to most modern organizations.

We also aim to provide new ideas to provoke thoughts about a more sustainable and scalable path forward for leaders in any sector pursuing resilience and growth in tomorrow's economy.



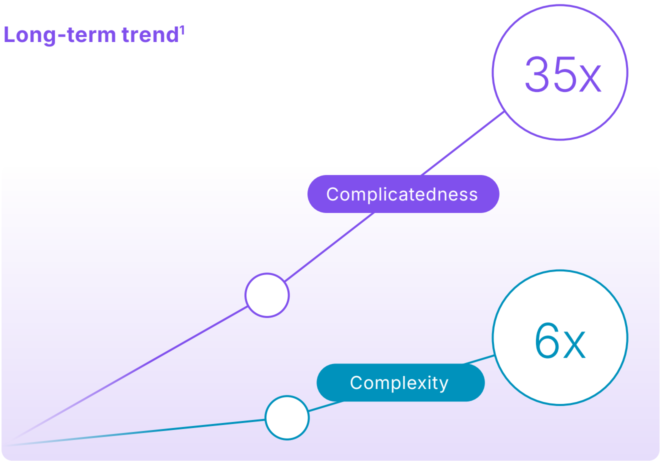
Key takeaways

- Across industries and functions, organizations are challenged by the magnitude and pace of growth in complexity of the operating environment
- Over a half century, business **complexity** increased **6-fold**, while organizational **complicatedness** in response to complexity increased **35-fold** in the same period
- Today, there are new challenges but also **new solutions**, as complexity is met with cloud, software, and AI to **amplify people** and the **processes** they implement

Complexity & Complicatedness are on the Rise

As organizations have responded to a rise in external complexity, layers of internal complicatedness have accumulated

Long-term trend[1]



Indicators of complexity for banks up

2-3x

in last decade

- Over a half century, business complexity increased 6-fold, while organizational complicatedness in response to complexity increased 35-fold in the same period

- The complexity that financial institutions encounter has grown over the past decade, with key metrics and indicators (e.g., annual changes to regulation, Suspicious Activity Reports, cross-border transactions) having increased **2x-3x**[2,3,4]

- Pain points, underpinned by external complexity and internal complicatedness, in banks are particularly pronounced in Risk & Compliance. The largest banks struggle with internal challenges such as manual processes, siloed data, and legacy technology

References are listed throughout this report.

Cost of Complexity Remains a Challenge

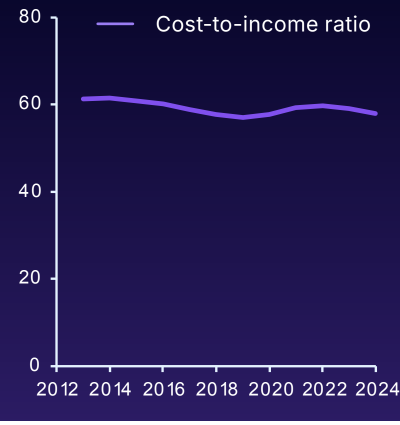
Despite significant investments in technology and modernization, banks' cost-to-income ratios have not meaningfully declined

30%

Decrease in bank entities

$800Bn

Technology Spend



- Despite consolidation & digitization ($800 billion - nearly 50% of net income – in annual Tech investment, ~30% decrease in US bank entities & ~15% decrease in branches over the past decade), operating costs have not meaningfully declined, as banks continue to content with sustained increases in complexity[5,6,7,8]
- Despite focus and investment from banks, there remains opportunity to raise effectiveness in the face of mounting complexity, with major banks accumulating **$241 billion** in fines, which is **2%** of net income of all banks, over the last decade[5,6]

As both external complexity and internal complicatedness have grown, so have the solutions to help manage it.

References are listed throughout this report.

The Time is Now and the Opportunity is Significant

Global banks spend an estimated $250 billion in opex on Risk & Compliance functions. Navigating complexity with a shift from people-based to systems-based, people-led work can stimulate innovation, growth, better outcomes

> “While external complexity remains difficult control or eliminate, the complicatedness challenge can be addressed through modern technology solutions and modern operating models.”

> “The AI-enabled changes that will drive the economy and the financial system in the years ahead, will be built on the very same solutions that sit at the core of the complicatedness challenge.”

A shift towards systems-based solutions - shifting the mindset from people-based to people-led - can deliver a stronger ecosystem

10-20%

Estimated opex savings through efficiency gains

$25-$50bn

Potential cost savings to be unlocked

up to $1T

In additional lending capacity from direct Risk & Compliance savings

93%

comfort level using cloud solutions for Risk & Compliance activities. This number compares to 11% ten years ago.

22%

only 22% of respondents have a preference to build software solutions in-house

- Systems-based solutions are enabled by technologies that are now viable; for example, 93% of respondents are comfortable using cloud infrastructure for Risk & Compliance today, vs. 57% in 2019 and 11% in 2014; use of such capabilities hinges on acceptance by all stakeholders
- Systems-based solutions are actioned with high-quality tools; for example, only 22% of respondents prefer building software solutions in-house and of those who use third-party vendors, only 27% prefer point solutions; organizations are seeking “strategic partners”, rather than “vendors”
- Today, bank leaders cite comfort in AI similar to that of cloud five years ago – paving a runway for similar comfort in AI to build over the next five years

Executive summary

Stakeholders across the global financial ecosystem strive for the same outcomes: enhanced liquidity, optimized lending and investment capacity, effective risk management, and an innovative culture. All serve as critical components of a stable financial system that is designed for both resilience and growth. Over time, however, as organizations have encountered a considerably more complex operating environment, layers of internal complicatedness have accumulated. Advancements in technology now provide unprecedented capabilities to tackle these challenges more effectively. Our analysis suggests that reducing complicatedness could translate to average savings of $25 billion to $50 billion in bank Risk & Compliance functions alone - without compromising effectiveness. These resources can be deployed towards critical investment areas in support of economic and societal priorities such as the digitization of the global economy, the modernization of energy systems, and the investment in next generation power solutions to enable artificial intelligence and other technological advances.

Over time, organizations operating across the global economy have encountered a considerably more complex operating environment, evolving in both magnitude and pace. More than any other sector, financial institutions face complexity associated with operating across borders, meeting the demands of regulators across jurisdictions, protecting their systems against the threats of financial crime and cyberattacks, and simultaneously striving to deliver a seamless experience for their clients, increasingly in real-time. Regulators continuously implement and adapt requirements which aim to maintain financial stability, protect customers, and prevent financial crime. As regulatory requirements and business changes have emerged gradually, organizations have been compelled to implement solutions in a patchwork fashion, driven by shifting priorities and various factors beyond their control. If one was to design an optimized model from the ground up today, it would likely look substantially different than what we see.

Up to

$1 trillion

in additional lending capacity from direct Risk & Compliance savings

In recent years, banks and other financial institutions have made significant investments to ensure effectiveness in compliance and resilience as they evolve. The financial industry has long held a place at the forefront of technology, innovating to meet the real-time demands of seamless international transactions, access to funds, investments, trading, and settlement. Banks have also embraced technology to help modernize their operations. But these innovations have not produced the anticipated cost savings. In fact, many organizations often continue to develop complicated internal processes to manage mounting external complexity.

While these themes are prevalent across industries, organizations and functions, this report provides an in-depth illustration in the context of Risk & Compliance within banks. Not every challenge tackled in this report is echoed in all organizations or functions, but we look at common themes that are relevant to many.

The time to drive forward towards a more robust systems-based, people-led organization is now, as external factors are ripe for change and modern capabilities make it possible to realize tangible improvements in both effectiveness and efficiency without the need for multi-year transformational efforts. Core elements of complexity and complicatedness persist through time, context, and political environments, but the tools to achieving a step-change in how we address them are available today. These new methods and technologies can be self-funding through efficiency savings. Additionally, today's industry leaders are increasingly embracing cloud and gaining comfort in AI to apply critical challenges and opportunities within their organizations.

Research context

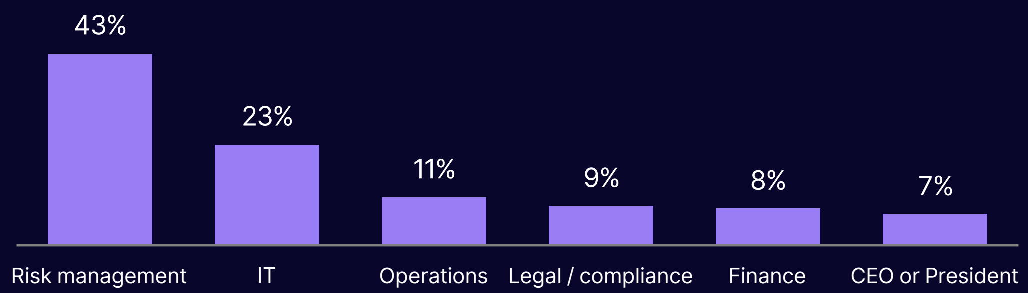
Drawing on our research, including interviews with senior banking leaders, assessment of industry data sources, and a survey of industry professionals, this report provides a summary of challenges, potential solutions, and overall considerations for successful navigation of complexity.

As we highlight Risk & Compliance as an example, we share the results from a survey of bank Risk & Compliance professionals that BCG recently conducted. This survey provides insights from 160 respondents with primarily senior risk and/or compliance-related responsibilities in North America and Europe and representing mid-size to large banks.

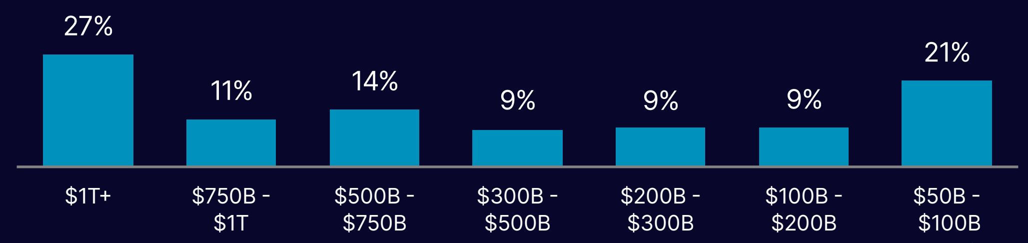
Exhibit 1

% of all survey respondents

Respondents by role function[1-1]



Respondents by bank size (asset value)[1-2]



1-1. Survey question: What is your function within your organization?

1-2. Survey question: What is the estimated value of your bank's total assets? (in USD)

Call to action: A blueprint for progress

Organizational complicatedness is extensive, and we live in a moment with increasing urgency to address it. At the same time, we find simpler solutions than ever before – solutions that are also broader and more sophisticated – aligning with the growing appetite for them in banks. This report offers potential solutions, and a framework through which to apply them, to address the challenges of complicatedness, such as technical debt, manual efforts, and inefficient processes.

Why the time for action is now

Today, we are on the cusp of evolving regulation across jurisdictions and the next true technology revolution. The transformative potential of modern technology infrastructure such as cloud combined with the emergence of AI can not only serve to mitigate complicatedness, but will also redefine the industry in the years ahead, serving as the foundation for competitive success in tomorrow's world. It is therefore imperative that we act with urgency, not only to protect and reinforce competitiveness, but also to bend the cost curve and improve effectiveness to build a stronger financial system.

Balancing systems with people and processes

We find a transition from people-based to systems-based operating models can serve as the foundation towards better outcomes for banks and the economies they support, allowing for innovation at speed, real-time with integrity, resilience and growth.

While systems-based approaches are ripe with solutions to address complicatedness, an effective systems-based organization is driven by the people who lead it and underpinned by the processes that support it. We define systems-based as all technology-based platforms and solutions, encompassing IT infrastructure, core systems, business-driven applications, and supporting tools. We define people as any owner, employee or contractor of an organization and processes as any procedure or way of working.

> Any complete solution must strike a balance between people, processes, and systems.

In this construct, systems serve as the base while people are enabled – and their resources freed up – to focus on decision-making and innovation, rather than rote processes and procedures. Simultaneously we encourage all stakeholders in the ecosystem, to embrace new ways of working and invest in effective ways to embrace the power and capabilities of modern technology.

Exhibit 2

A complete systems-based, people-led solution includes the following components:

- **Systems-based (foundation): Enabled by infrastructure and data**
  Systems-based solutions are made possible by a significant shift in capability of the technology which enables modern platforms. For example, increased comfort with cloud infrastructure by the bank enables the deployment of newer, scaling software solutions, optimizing computing bandwidth, while data collaboration efforts can further reduce burdensome activities within the bounds of data protection and privacy law.
- **Systems-based (tools): Actioned with software and AI**
  Third-party software solutions for widespread use across many organizations can support high fixed cost, non-differentiating activities at scale for numerous banks, while those offering software suites can serve as strategic partners to provide simplified integration, unified oversight, and consistent data management. Both algorithmic, or traditional, AI and generative AI (GenAI) build upon streamlined workflows and data, offering automated, analytic solutions while reducing wasteful manual processes.

- **People-led: Directed by leadership with staff focused on key decisions & innovation**
  With systems-based solutions in place to limit and assume remaining mundane tasks, staff can be amplified, reallocating time and resources toward differentiating value-added activities. Employees retain decision-making capacities, ownership of risk, and systems oversight. The C-suite must provide guidance, ensure collaboration between functions, foster collective ownership, and communicate general business objectives across regions, functions, and product lines.

- **Process-supported: Governed by guidelines with systems and users in mind**
  Processes and governance throughout the organization must match systems-based workflows and data management, supporting the initiatives most critical to staff, regulators, and customers. These should be based upon a standard format across functions and geographies (e.g., codified ways of working, standardized RACI models), with flexibility for local adaptations as needed.

Additional advancements through a systems-based approach

Our quantitative and qualitative research of complicatedness in banks revealed tangible solutions that are both available today and gaining or reaching maturity in the sector.

We offer 4 types of systems-based solutions, encouraging bank leaders to amplify the talent of their teams by implementing systems that bring out the best in their peoples' skills and leadership.

While these 4 solutions are detailed later in this report, the below surfaces select insights from bank Risk & Compliance professionals indicating a readiness and appetite for each.

1. **Embracing modern digital infrastructure:** Cloud infrastructure serves as the foundation for organizations to deploy modern systems and more scalable approaches to core operating functions. Today, 93% of bank Risk & Compliance professionals are comfortable using cloud, compared to 57% five years ago and only 11% ten years ago.

2. **Deploying data collaboration models:** When financial institutions collaborate between one another and with strategic partners for non-differentiating activities, especially for common industry challenges that are governed by regulatory oversight and that allows for, or even encourages, data collaboration to addres non-competitive challenges.

3. **Building strategic partnerships:** There is an overall acceptance of and desire for strategic solutions providers with external vendors and other organizations. Only 22% of bank Risk & Compliance professionals surveyed still cite a preference for in-house solutions. Of that minority with a preference to build-in house, their primary hesitation to use a vended solution is that it would require too much customization – this concern can be mitigated with less complicatedness. It starts with a realization that most risk and compliance challenges are common across banks and not unique to singular institutions. Therefore, rather than assuming the challenge itself can't be solved with a common solution, banks can evaluate the level of complicatedness inside their organizations to identify ways to simplify and standardize their own processes and systems to better address those challenges.

4. **Accelerating with AI:** While algorithmic, or traditional, AI has been building momentum, GenAI stands out as a potential game-changer, with the capacity to unlock unprecedented opportunities. Today, bank leaders cite comfort in AI similar to that of cloud five years ago – paving a runway for similar comfort in AI to build over the next five years.

I. State of the industry

Financial institutions operate in an increasingly complex world of rapidly changing technology, evolving client demands particularly in terms of speed and safety, growing threats to the integrity of the ecosystem through financial and cybercrime, and within rigorous and often divergent globally regulatory frameworks. As such, organizations have built complicatedness in efforts to keep pace.

Research found that from 1955-2010, complexity in business ecosystems across sectors had increased sixfold while organizational complicatedness had increased 35-fold over the same period.[1] Using that as a foundation, we explore the many challenges that organizations face as external complexity builds and evolves, distinguishing between complexity, which refers to external factors beyond the control of any organization, and complicatedness, which refers to the internal response to such complexity and over which an organization has agency.

While these dynamics are prevalent across organizations and functions, we focus on the ways in which they are acute in Risk & Compliance functions in banks, both for the purpose of illustration and because of how deeply these functions are shaped by the complexity of the evolving global regulatory landscape. We encourage the reader to contemplate Risk & Compliance in banks as an example but also consider the relevance of our conclusions to other bank functions such as Operations, IT, Finance, HR and areas of the Front Office, as well as other industries such as consumer goods and industrials. Within Risk & Compliance, we focus on the complicatedness that has accumulated, considering opportunities to improve outcomes and increase effectiveness when reducing inefficiencies.

External complexity

Organizations today navigate an ecosystem in which the scale of complexity in the operating environment and speed at which it evolves continue to grow. The rise of technology and real-time demands, the explosion of data, geopolitical upheaval, and the march of globalization – and more recently, deglobalization – have placed unique demands on all types of organizations.

Financial institutions are particularly exposed to the world's complexities, given the extent to which they are integral in the global economy and intertwined in robust regulatory landscapes across jurisdictions. Banks must meet the mounting demands for new and

1. Morieux, Yves. "Smart Rules: Six Ways to Get People to Solve Problems Without You." *Harvard Business Review*, September 2011.

innovative product types, grow across geographies, serve increasing customer expectations and compete against new non-bank business models. They are also regulated by numerous bodies across jurisdictions and exposed to rapidly evolving risks, such as cybercrime and financial crime, including fraud and scams.

And, when it comes to managing complexity, Risk & Compliance functions face distinct challenges. In another recent BCG survey of senior Risk & Compliance professionals across industries, only 2% of respondents said they had "implemented solutions that are fully effective" when attempting to address increased complexity.[2]

Within bank Risk & Compliance functions, there has been a step change in complexity in the years following the Global Financial Crisis (GFC), and this complexity continues to increase. Over the last decade we have witnessed:

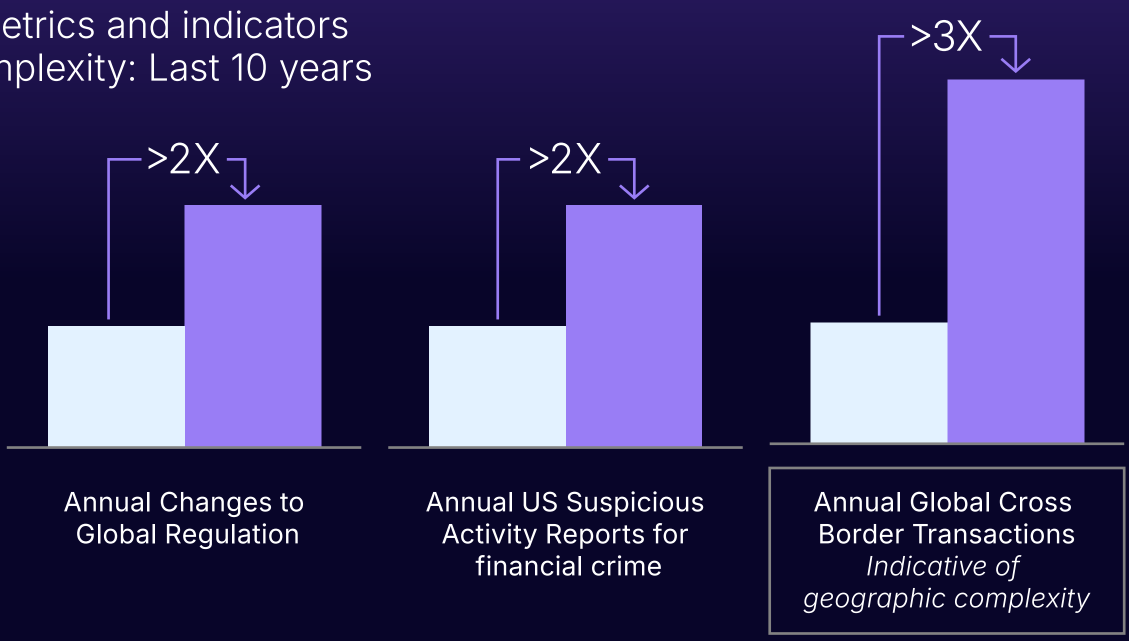
>2x increase in annual changes to global regulation (>6x since 2008)[3]

>2x increase in the number of annual US Suspicious Activity Reports for financial crime[4]

>3x increase in the number of global cross border transactions[5]

Exhibit 3

Key metrics and indicators of complexity: Last 10 years



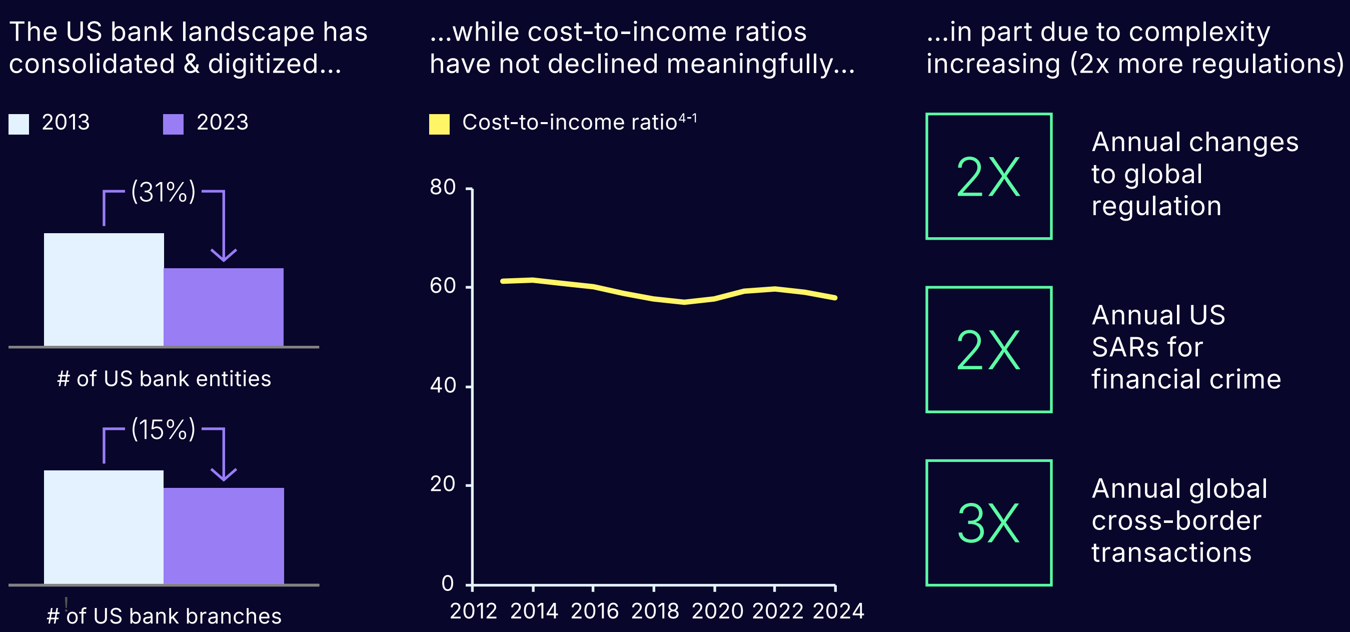
2. "New Ways to Combat Rising Complexity and Costs." *BCG*, 2024.
3. "2023 Cost of Compliance" *Thompson Reuters Regulatory Intelligence*. 2023.
4. "Suspicious Activity Reports (SARs)". *US Treasury Financial Crimes Enforcement Network*. 2024. https://www.fincen.gov/suspicious-activity-reports-sars
5. *BCG Analysis*. BCG. 2024

While obligations have grown there have also been several cost-reducing shifts in bank operating models. For example, an estimated annual technology investment of over $800 billion across banks, equating to nearly 50% of the net income of all banks, has underpinned a widespread shift to digital delivery models which are expected to contribute to cost efficiencies.[5,6] Meanwhile, banks have consolidated (>30% decrease in number of US bank entities) and reduced their real estate footprint (15% decrease in number of US bank branches) over the last decade.[7]

Yet, the cost-to-income ratio of banks has not meaningfully come down.[8] This is both due to the demands of added complexity in the operating environment but also the way those demands have been met. While many factors contribute to complexity, Risk & Compliance professionals recognize we are on the cusp of change. Ongoing major advancements in technology, including GenAI, have the potential to redefine aspects of the industry. Meanwhile, industry leaders anticipate change as new political administrations transition into office across jurisdictions. At the same time, the competitive landscape continues to evolve, as, for example, there has been a fourfold increase in AUM in the global private credit market over the last decade.[9] This is a unique moment for banks to look internally.

Exhibit 4

Evolution of complexity and bank consolidation/digitization vs. cost-to-income



4-1. Efficiency ratio for all insured institutions (non-interest expenses / net revenue); rolling 3-year average; 2024Q1 and Q2 only

5. *BCG Analysis*. BCG. 2024
6. *Capital IQ*. S&P. 2024
7. "Bank Data & Statistics" *Federal Deposit Insurance Corporation*. 2024. https://www.fdic.gov/analysis/bank-data-statistics
8. "Quarterly Banking Profile." *Federal Deposit Insurance Corporation*. 2024. https://www.fdic.gov/quarterly-banking-profile
9. "Private Credit: Feeling the Pressure & Seizing the Opportunity for Banks". BCG. 2024. https://media-publications.bcg.com/Private-Credit-Feeling-the-Pressure-Seizing-the-Opportunity-for-Banks.pdf

Internal complicatedness

BCG's Smart Simplicity framework refers to the internal reflection and magnification of external complexity as complicatedness, defined as "the number of procedures, vertical layers, interface structures, coordination bodies, decision approvals, and other add-ons." [10]

Complicatedness can accumulate over time and is often, though not always, accentuated by patchwork remedies that are put in place due to difficult timelines, rigid requirements from external stakeholders, including regulators, and inflexible in-house systems. Over time, these become embedded in internal mechanisms.

> Excess complicatedness often builds up in high-cost, highly complex areas, some of which do not create competitive differentiation nor add value to the customer experience.

It leads to undesirable realities such as technical debt, manual efforts, and inefficient processes. It can be the driver of higher cost, less effectiveness per unit of cost, resource strain on core competencies, and even costly mistakes.

In fact, while the external world has without doubt grown more complex, it has been outpaced by growth in internal complicatedness. Multiple layers of processes and controls have piled up, matrixed and dotted line reporting relationships have been developed while the results of many "quick fix" decisions over time remain in place. These challenges persist and continue to build through changes in politics, technology, and other shifts in the macro environment.

While complicatedness persists across industries, there are characteristics specific to financial institutions. Regulators modify requirements to maintain financial stability, protect customers and prevent financial crime and banks evolve to increase effectiveness and compliance in response, while hoping to satisfy customers and uphold competitive business models.

Survey respondents shared some of the internal challenges they face characteristic of excess complicatedness, such as:

> "[There are a] huge amount of manual data uploads that are carried out as part of BAU."

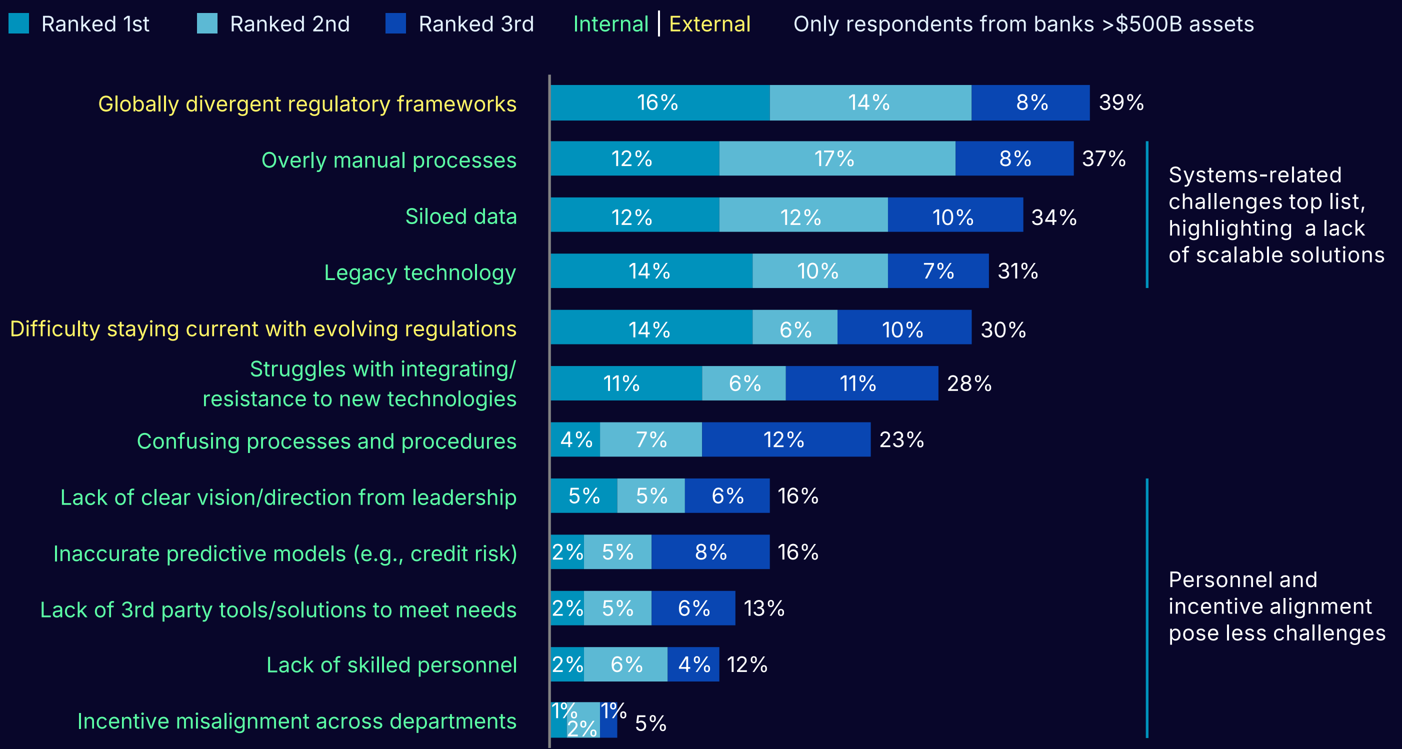
> "There are far too many legacy processes, most of which involve tremendous manual intervention and subject area expertise."

> "Manual processes and poor documentation lead to execution issues."

10. "Smart Simplicity." *BCG*. 2024. https://www.bcg.com/capabilities/organization-strategy/smart-simplicity

Exhibit 5

Ranking of Risk & Compliance challenges in order of magnitude to organization[5-1]



5-1. Survey question: Rank the challenges below in order of magnitude to your organization (1 = most negative impact on my organization); View for banks over >$500B in asset value.

Many of the key challenges facing respondents representing the largest banks (>$500 billion in assets), reflected internal complicatedness, such as overly manual processes, siloed data, and legacy technology. In a world of rising expectations from businesses and consumers, coupled with the growing need for compute power to meet these demands, legacy technology can place a significant burden on organizations. As trading, settlements, and other operations accelerate - exchanges now measure trade execution in nanoseconds - organizations must address real-time demands while avoiding unnecessary layers of complicatedness.

Meanwhile, two of the top challenges are external in nature – globally divergent regulatory frameworks and difficulty staying current with evolving regulation. While organizations are not able to directly change such external complexities themselves, they can construct their people, processes, and systems to avoid unnecessary complicatedness.

Finally, and encouragingly, the same respondents from large banks say they are optimistic about their people and leadership. This leadership is positioned to serve banks well as they look ahead.

The costs of complicatedness

Today, global banks spend an estimated $250 billion in opex on Risk & Compliance functions, excluding risk & compliance-related spend in other functions like Finance, IT and Operations, and this number continues to grow.[5,6] While Risk & Compliance expenditure has not increased as a share of opex over the past five years, neither has it decreased with scale, experience, and technological sophistication – as one might have expected.

> Despite ongoing focus and effort from banks to maximize effectiveness, it is difficult to execute effectively within complicated structures in a complex environment.

Over the past decade, major banks in Europe and the US have paid $241 billion in regulatory penalties, a figure which represents 2% of net income of all banks over this period.[5,6] The cost of non-compliance extends beyond fines, as banks who have faced these large penalties incur additional expenses, negative press, and have struggled to recover in various other ways. Additionally, banks face costly challenges as they manage threats to the financial system, including financial crime. Nasdaq's 2024 "Global Financial Crime Report" shows financial crime represents a $3.5 trillion dollar challenge to the financial system, with $3.1 trillion in money laundering and nearly $500 billion in global losses from fraud schemes in 2023 alone.[11]

In the last ten years, the financial technology solutions that support effectiveness had a serviceable addressable market (SAM) similar in size to these penalties ($25 billion annually; $250 billion if illustratively held steady over the decade).[12] If even a portion of the regulatory penalties were to be mitigated by compliance solutions, they would demonstrate an outsized return on investment.

Here, and elsewhere, there is an opportunity to improve outcomes.

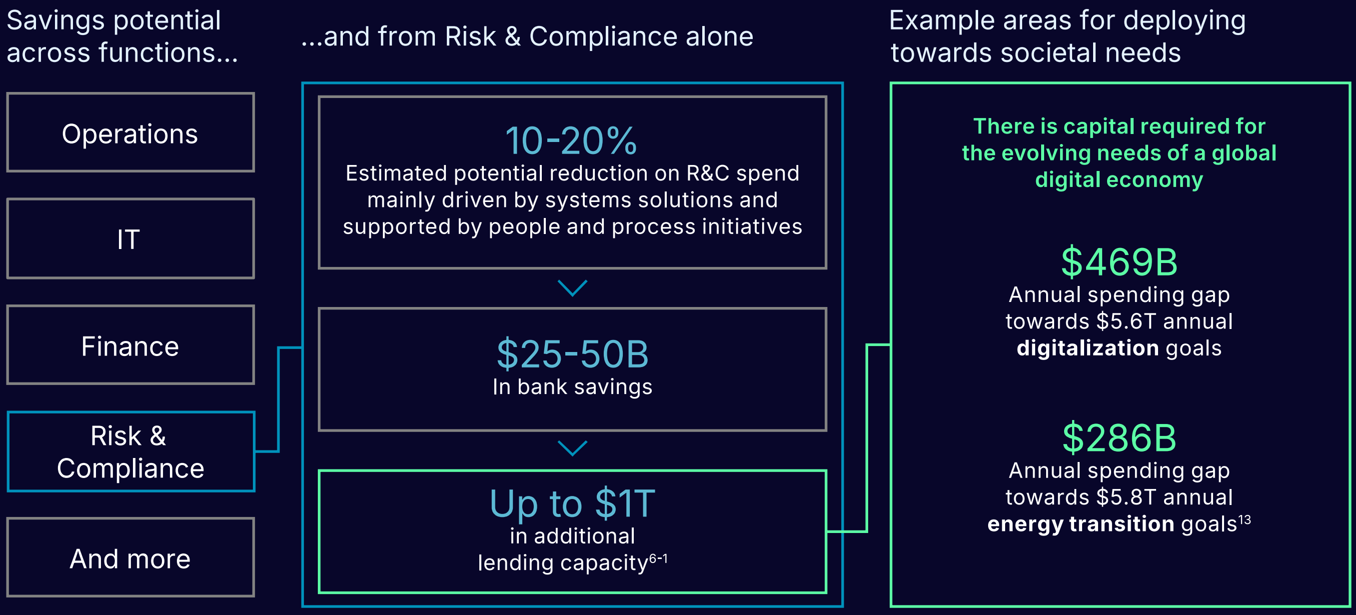
The opportunity

Solutions to address excess complicatedness involve a rebalancing of people, processes, and systems and can enable better outcomes. These solutions can produce a major shift in which manual low value-added tasks such manual data management are taken off employees' plates, freeing up capacity for high value-added tasks such as decision-making, risk ownership, analysis and innovation.

5. *BCG Analysis*. BCG. 2024
6. *Capital IQ*. S&P. 2024
11. "2024 Global Financial Crime Report." *Nasdaq*, 2024. https://www.nasdaq.com/global-financial-crime-report
12. "Nasdaq Investor Day 2024". *Nasdaq*. 2024. https://ir.nasdaq.com/static-files/c12ab670-b5d2-40a3-a58a-35b96bd4d966

Exhibit 6

Savings (direct from Risk & Compliance and indirect from other functions) can be redeployed to capital-constrained areas such as lending



6-1. Assuming there is incremental demand to meet this capacity

In Risk & Compliance in banks alone, it is estimated that thoughtful and thorough use of systems can reduce the cost base by 10%-20%, and this would produce at least $25 billion to $50 billion in direct savings. However, given the reach of relevant activities like internal controls and monitoring across functions there are additional savings to be realized in other areas like Finance, Operations, and anywhere where there are manual or duplicative controls.

Such savings create additional capacity for banks to invest and deploy resources in other capital-constrained areas. For example, savings of $25 billion to $50 billion in direct Risk & Compliance expenditure alone can generate up to $1 trillion annual lending capacity through additional capital deployed, assuming incremental earnings are retained to strengthen the capital base.

13. "The costs of achieving the SDGs: Inclusive digitalization". *UN Trade & Development*. 2024. https://unctad.org/sdg-costing

These funds can help finance businesses, support consumers and help close funding gaps in critical investment areas in support of economic and societal priorities such as digitization of the global economy, the modernization of energy systems, and next generation power solutions to enable the artificial intelligence revolution.

> Additional lending and investment capacity can also support economic growth. Research, for example, shows that a 10% increase in lending to the private sector is linked to 0.6-1.0% increase in real GDP[14], assuming the capacity is deployed at the same standards.

14. Antoshin, Sergei, et al. "Credit Growth and Economic Recovery in Europe After the Global Financial Crisis." *International Monetary Fund*, 2017. https://www.imf.org/en/Publications/WP/Issues/2017/11/17/Credit-Growth-and-Economic-Recovery-in-Europe-After-the-Global-Financial-Crisis-45411

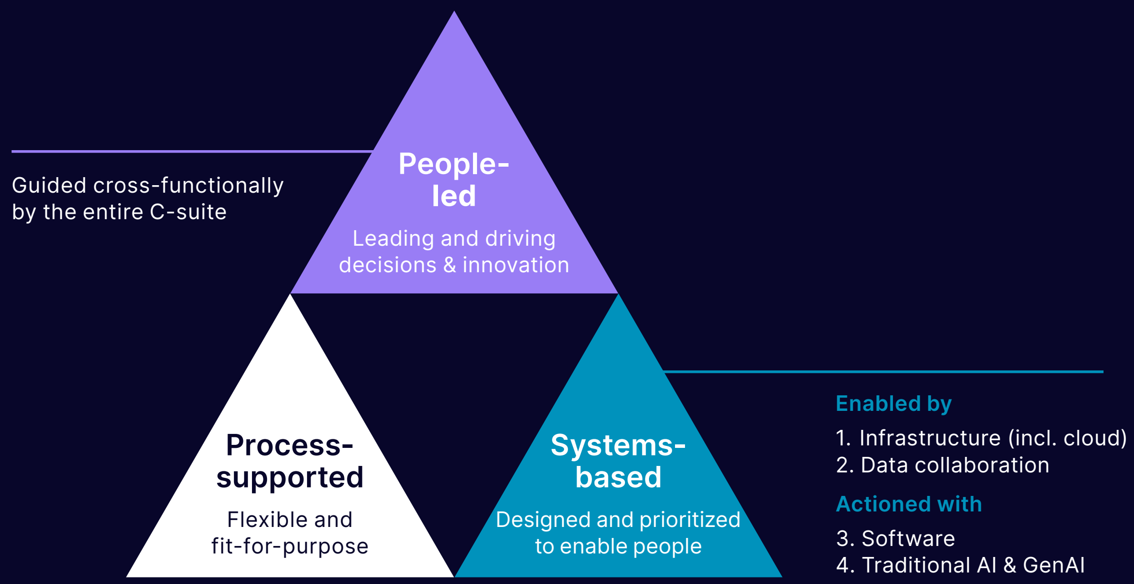
II. Potential solutions

While complexity in the ecosystem and complicatedness in organizations is increasing, these are not new phenomena. However, what is new is that we have reached a point of capability change – new technologies have made a shift to systems-based, people-led models increasingly viable. At this pivotal moment, this report considers potential solutions to outsized complicatedness that are gaining traction in the sector; now more than ever, there is an opportunity to improve outcomes with more efficient solutions that do not jeopardize effectiveness.

Recalibration: Moving towards systems-based and people-led

The most effective solutions will require a recalibration of people, processes, and systems. Manual processes have become an archetypal manifestation of complicatedness, as many Risk & Compliance departments have felt the need to lean on people-based solutions when time is pressing, essentially "throwing more bodies" at problems. And these are large functions; in the ten largest commercial banks in the US and Europe, 3%-8%[15] of the entire headcount resides in Risk & Compliance.

Exhibit 7



15. *LinkedIn*. LinkedIn. 2024.

As organizations look towards systems-based solutions, digitization, automation, and modernization will facilitate more effective and efficient work. Greater use of modern platforms cleans up meandering internal structures and workflows, thereby reducing errors and allowing peoples' time to be reallocated for more useful undertakings such as decision-making, risk management, oversight, analysis, and innovation. While systems require human guidance and monitoring, they give back time by handling repetitive and mundane low value-added activities.

Encouragingly, survey respondents indicate an intent to shift Risk & Compliance investment away from headcount and contractors in the future, highlighting appetite to reduce reliance on people to perform manual tasks.

1/5

of Risk & Compliance opex allocation to headcount & contractors is expected to be reallocated to other Risk & Compliance needs over the next five years

There are numerous types of systems-based solutions that organizations can use to amplify the skill and leadership of their people. In the following, we offer 4 such solutions.

1. Embracing modern digital infrastructure

Cloud infrastructure is at the center of many systems-based activities, enabling easy-to-scale software solutions. It unlocks opportunities to modernize key aspects of Risk & Compliance tech stacks, data management approaches, and core processes and procedures.

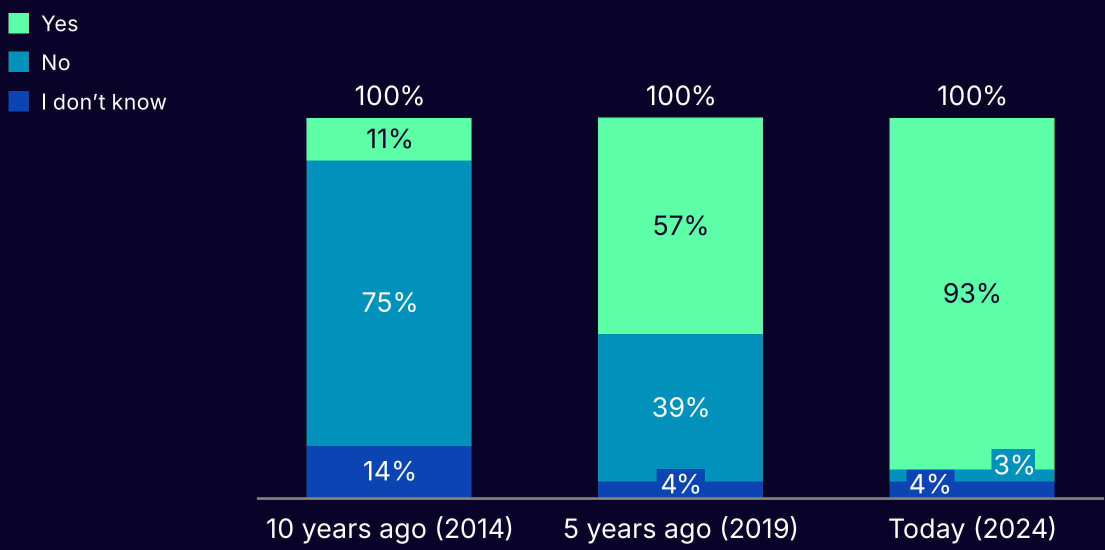
In recent years and with clearer regulatory frameworks in place, bank staff have also become much more comfortable with the underlying technology in use. For example, when asked about their ease when using cloud infrastructure, 93% of survey respondents indicated comfort today compared to 57% five years ago and 11% ten years ago.

Even with this newfound comfort, using cloud technology safely and effectively requires thoughtful work. Banks must invest in navigating the regulations surrounding the nature of their cloud deployments (e.g., data localization and protection guidelines) and incorporate cloud into their overall infrastructure strategy.

Exhibit 8

Comfort level using cloud solutions for Risk & Compliance activities[8-1]

% of all survey respondents



8-1. Survey question: Are you comfortable performing Risk & Compliance activities in the cloud? Please answer for each of the years listed below.

2. Deploying data collaboration models

Managing ever-growing complexity in the ecosystem requires participation from both internal and external stakeholders. Financial institutions can look not only to minimize complicatedness in their own organizations, but they can also look to regulators, vendors, and even competitors to find solutions and opportunities for collaboration.

While in-house build and resources should rightly be focused on differentiating activities, collaboration and partnerships can be leveraged to support critical but non-differentiating workloads or needs. In recent years, new possibilities for modern collaboration models have come to the forefront. Data collaboration can significantly reduce duplication of effort and can enable cross-organizational teamwork on non-differentiating activities, within observance of data privacy and other applicable regulations.

Previous data-sharing efforts, such as public or private common industry utilities have varied in success, as safe and mutually beneficial stakeholder participation could not always be ensured. Industry utility efforts over time, which have often required large upfront investments, have also faced challenges in governance and struggled to keep pace with an evolving world. However, there are now models for data collaboration that not only work but can also serve as inputs to software and other systems-based approaches, enabling trusted technology partners to help address these industry-wide challenges.

One illustrative use case is the compelling benefits provided by the data consortium approach leveraged in financial crime management. Here, the consortium-based approach allows for the analysis of patterns across the financial ecosystem – rather than being limited to data within just one financial institution. Especially in the case of financial crime, which is defined by the fact that nefarious actors leverage the entire financial ecosystem and bank across institutions to avoid detection, data collaboration has proven to be among the most powerful tools to greatly enhance banks' ability to manage and mitigate crime from across the ecosystem.

3. Building strategic partnerships

> Third party software solutions offer compelling functionalities to realize benefits of scale and are well-suited to executing critical non-differentiating activities including core compliance, regulatory reporting, financial crime management, and risk modeling applications.

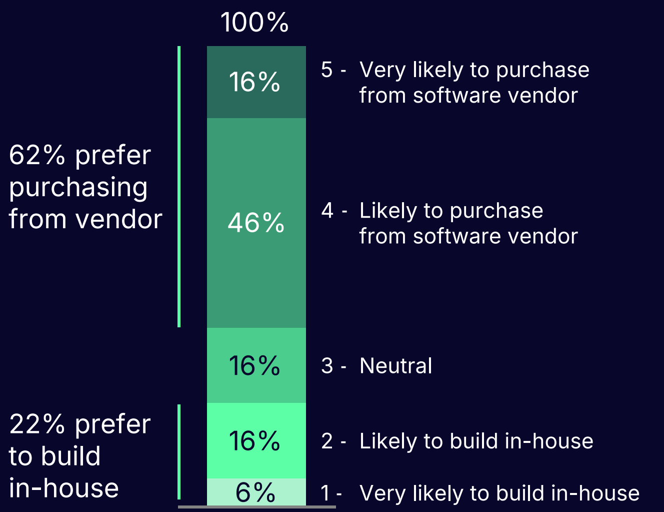
Third-party software providers remove the need for banks to develop expensive in-house solutions for activities applicable to all. While there are cases in which banks should build solutions in-house, third-party solutions are well-suited for high cost, complex activities that are non-differentiating and do not add direct value to the customer relationship. In a world where tech budgets are finite, the bank can focus on its core competencies and differentiation while strategic partners can build the rest.

While smaller banks tend to use external vendors for most Risk & Compliance software solutions, given they do not have the scale to build in-house, most large banks source some software solutions externally (most commonly for activities such as GRC, AML, regulatory reporting) and build others in-house. Only 22% of our survey respondents indicate a distinct overall preference to build software in-house.

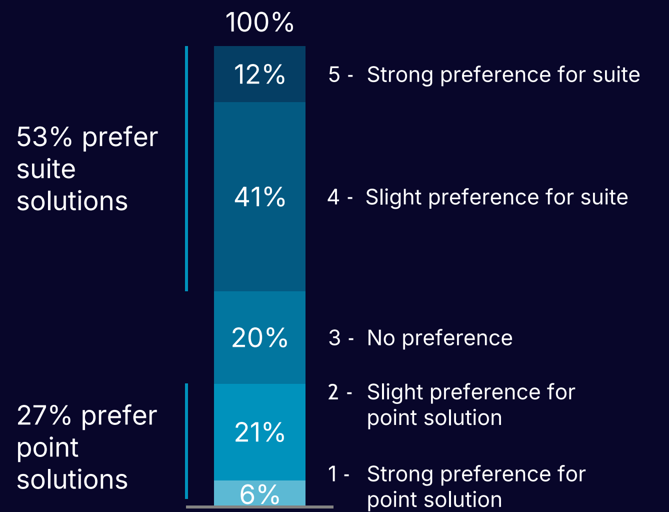
Exhibit 9

Banks' preference for choosing 3rd party vs. in-house solutions for R&C[9-1]

% of all survey respondents



Banks' preference for choosing suite vs. point solutions for 3rd party software[9-2]



9-1. Survey question: Imagine a situation in which an organization like yours requires a new solution for a Risk & Compliance process or procedure. There are options to (a) build it in-house, or (b) purchase from a third-party software vendor that is equally effective. Which of the following best describes what an organization like yours would choose?

9-2. Survey question: How would you rate your organization's preference for selecting a point solution versus a fully integrated suite (offering solutions across multiple Risk & Compliance areas) when choosing third party vendors? (Asked only to respondents who use 3rd party solutions)

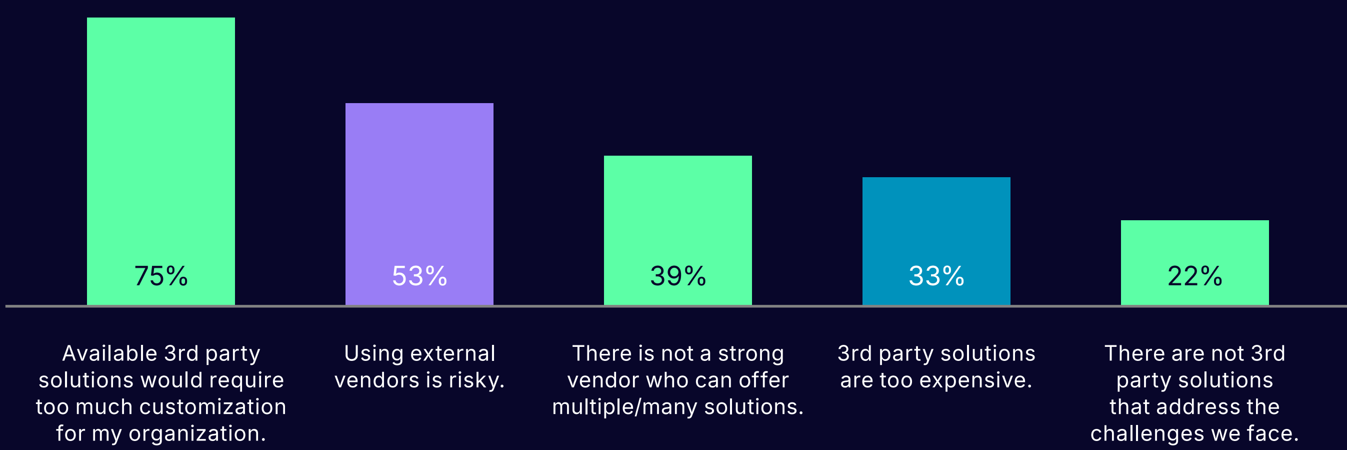
Furthermore, there appears an overall preference for software suites with only 27% of respondents expressing a preference for point solutions. Bank professionals indicate a preference to work with strategic partners, who work alongside them while streamlining workflows, as opposed to point solution vendors.

Among the small subset of respondents who still prefer to build in-house solutions, 75% cite concerns that their organization would require too much customization for a third-party software solution to be suitable. While most of these respondents indicated they were comfortable using modern technology (e.g., based on cloud infrastructure), their concerns primarily lie in their ability to deploye these solutions effectively, due to the unqiue nature of each individual organization’s internal operations. Yet, their perceived need for customized would be mitigated with less internal complicatedness. The onus is both on banks to streamline internally to produce processes simple enough for external technology to be bolted on, but also on software solution provider too both meet the needs of banks and communicate their capabilities.

Exhibit 10

Banks' reasons for building solutions in-house[10-1]

% of total respondents (asked only to those who prefer to build in-house)



10-1. Survey questions: What are the reason(s) your organization prefers to use in-house solutions over 3rd party software vendors for Risk & Compliance challenges? (multi-select)

In pursuit of a more systems-based model, banks often encounter complicated legacy infrastructure developed as a patchwork of integrations, add-ons, and partial-upgrades have been bolted together over time to meet challenging demands and deadlines. Often the challenge and cost of fully improving these systems is perceived to be too great; leading to less troublesome investments in UI/UX and continued building of vulnerable core systems.

For example, as we consider the accumulation of vulnerabilities within Risk & Compliance, one compelling option is to invest in regulatory architecture and the strategy surrounding it. This could involve building a modern IT stack aside from the legacy stack and in communication with the product and customer systems. Software suites and cloud infrastructure can serve as helpful foundational pieces for this type of effort, which may be a challenging, but necessary undertaking for many.

Additionally, increasing technological complexity across the ecosystem continues to surface additional use cases for software solutions; for example, organizations must seek less computationally intensive means of meeting demands for activities such as risk modeling. These needs will continue to evolve, while others are likely to take shape in the future.

4. Accelerating with AI

The accumulation of manual processes over time underpins numerous examples of complicatedness. AI can replace many of these mundane and cumbersome tasks, while amplifying the output of the people on these teams and enabling organizations to continue to grow. Algorithmic, or traditional, AI can be used to automate processes and workflows (e.g., controls built into day-to-day activities). GenAI can support data management (e.g., processing unstructured data) and cumbersome and nuanced activities (e.g., drafting reports and flagging potential gaps for staff to analyze).

> While AI can be an excellent systems-based tool, it cannot exist in isolation from processes or people. Standardization of processes on which AI can be based is a prerequisite. People must retain all decision-making and their oversight is required to guide and monitor AI activities from end-to-end, while their time can be reallocated to analyze and drive insights from systems-based repetitive work.

Moreover, the real transformation in AI hinges on people. Without strong, people-centered strategies, even the best AI initiatives can fall short.

Although AI is a natural tool to support systems-based and people-led organizations, banks remain hesitant or limit it for certain use cases. This is in part because regulators need to be comfortable with AI before banks can fully embrace it. Although regulators are showing increasing openness to AI, often seeing the potential to deploy it for their own use as well, they continue to do their own research and trial before gaining full comfort. The emergence of AI thus presents a unique opportunity for collaboration between the market and regulators to set the foundation for better controls, better outcomes, and more efficiency.

Given both the newness of AI and nascent levels of comfort from market stakeholders, these tools are at the early stage of their adoption curve. Reflecting on the speed at which bank Risk & Compliance functions gained comfort in cloud infrastructure (11% comfortable in 2014, 57% in 2019, 93% in 2024), there is now an expectation for AI to follow an accelerated adoption trajectory, as bank Risk & Compliance professionals cite comfort in AI today to be roughly the same as comfort in cloud five years ago.

Now is the time

As leaders consider the systems-based solutions that they can drive forward in their organizations, the aforementioned set pose a valuable proposition, available at a time at which the challenges and opportunities associated with complicatedness deserve critical attention.

Given the capabilities available today, these foundational platforms and tools do not require large-scale, multi-year implementations. They can be adopted gradually, with initial savings and the impact generated used to fund subsequent steps, creating a self-reinforcing cycle of improvement and value delivery. This is not to say that addressing these challenges is instant, but leaders can embrace a chartered path with tangible results in a limited timespan for these initiatives. While today's society faces many economic challenges that require incremental lending capacity, complicatedness continues to mount. As we look both to change the trajectory of the cost curve and increase effectiveness for a stronger financial system, now is the time to embrace such paths towards improved outcomes.

III. Spotlights

As we consider solutions to navigating complexity across functions, we reiterate that complexity, externally as we define it, is not within a given organization's control. However, specific processes across functions exhibit some of the major friction points that reflect complicated means of addressing complexity – for this, organizations can solve.

In the following we highlight risk modeling and reporting, managing compliance across countries, and SOX compliance and reporting as examples within Risk & Compliance. Thematically, manual processes and data siloes/data management echo across examples and while not all banks face every pain point in these spotlights, these pain points have surfaced as common challenges to many. We suggest potential solutions as mitigants to the challenges in each of these processes and note that these specific spotlights are not necessarily the largest of obstacles in themselves, but illustrative of processes that span broadly across financial institutions.

Risk modeling & reporting

Credit, liquidity, and capital risk models have increased in complicatedness due to complex regulation, growing product offerings, and non-standard data feeds inbound from legacy and patchwork systems. Reporting processes themselves are complicated and exacerbated by siloed data and inconsistent data management.

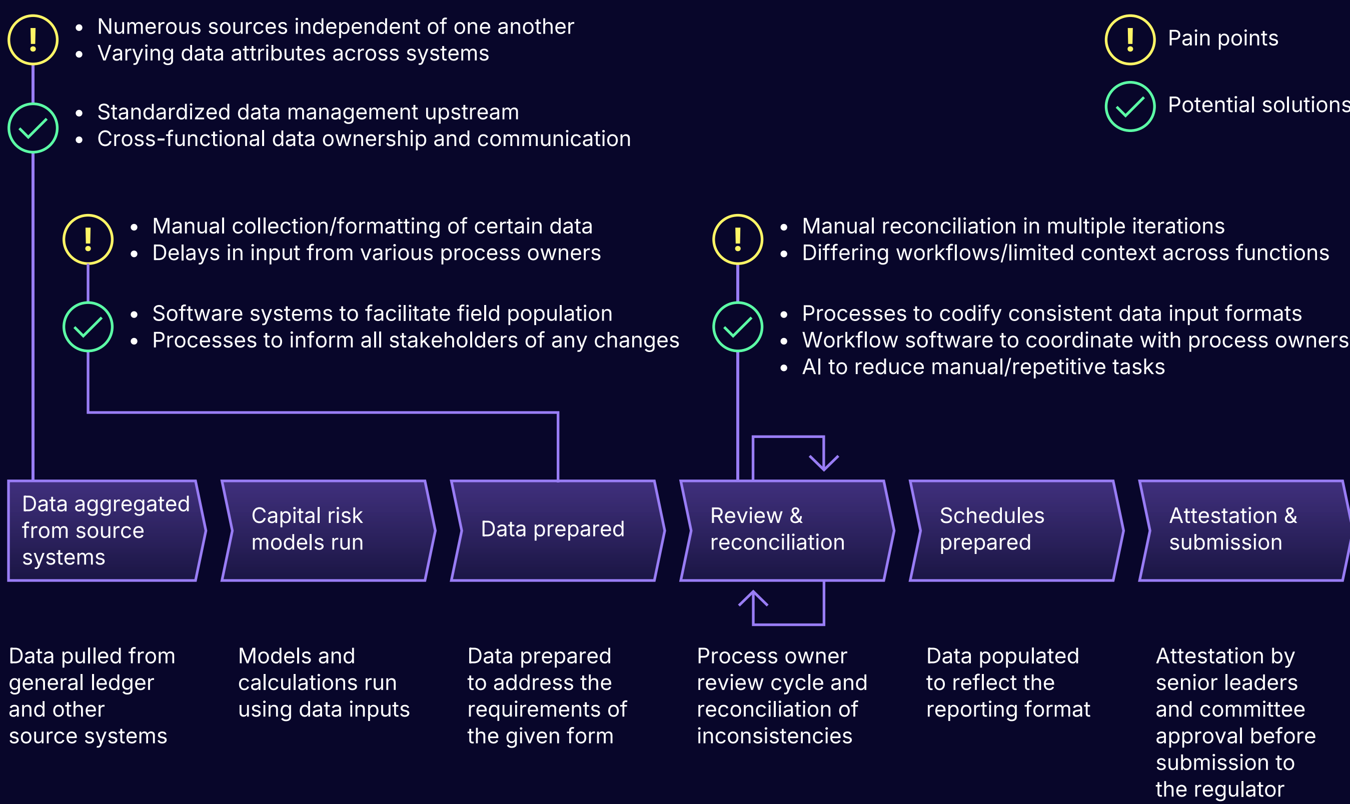
As an example, we look to capital rules, where both capital requirements themselves and the requirements for reporting upon them have increased materially since the Global Financial Crisis and beyond, and are subject to change in current and future political environments.

In the US, there are numerous illustrations of capital reporting. These include Federal Reserve FR Y-9C Schedule HC-R, which comes along with 123 pages of guidance from the regulator, Call Report FFIEC 031 and 041 Schedule RC-R (74 pages of guidance), and FR Y-14Q Schedule D (5 pages of guidance).[16,17,18] Reporting for each of these forms begins with aggregation of data from across numerous source systems, often independent of one another. In many organizations, varying data attributes across these systems lead to manual efforts of data collection and reconciliation for preparing the schedules which go beyond the metrics included in financial reporting. After running the models, manual intervention and iteration with process owners is often required to resolve inconsistencies across schedules.

16. "Instructions for Preparation of Consolidated Financial Statements for Holding Companies." *Federal Reserve*. 2018. https://www.federalreserve.gov/reportforms/forms/FR_Y-9C20190331_i.pdf
17. "FFIEC 031 and 041 RC-R – Regulatory Capital." *Federal Deposit Insurance Corporation*. https://www.fdic.gov/resources/bankers/call-reports/crinst-031-041/2022/2022-03-rc-r-part-i.pdf
18. "Instructions for the Capital Assessments and Stress Testing information collection." *Federal Reserve*. https://www.federalreserve.gov/apps/reportingforms/Download/DownloadAttachment?guid=83c6e71a-86c2-40b6-a9a5-16e15ca7d2d8

Exhibit 11

Process for capital reporting, pain points, and potential solutions



Example US capital reporting requirements

Not exhaustive

FR Y-9C Schedule HC-R

123
pages of guidance

Call Report (FFIEC 031 / 041) Schedule RC-R

74
pages of guidance

FR Y-14Q Schedule D

5
pages of guidance

Third-party workflow software solutions can be adopted and processes put in place to set higher standards for data input quality, facilitate better data transfer, and more clearly communicate quality control initiatives to departments that require the same data. Furthermore, AI tools can support quality control and the management of unstructured data as well as initial drafting of commentary and summaries. Overall, human leadership and oversight are required alongside systems and processes to ensure consistent inputs, handoffs, and communication.

Managing additional country compliance

“Globally divergent regulatory frameworks” is the top Risk & Compliance challenge faced, according to the largest financial institutions in our survey. They face complexity in the form of differing obligations across numerous jurisdictions, leading to difficult data management needs and complicated solutions. These obligations are naturally beyond their control, as global financial institutions must comply with complex regulations from a wide variety of regulatory bodies, which vary in stringency and sometimes directly conflict with one another. However, banks can ease some of the pain by finding a balanced approach to simplify the internal complicatedness embedded in data management and analytics of this nature.

Banks have a central headquarters-based Compliance function, including stakeholders from both the first and second lines of defense, which provides guidance for compliance globally. This central function sets minimum global standards and processes. Simultaneously, banks have regional functions, with members of the second line of defense in each relevant jurisdiction providing local monitoring, accountability, and interfacing with the regulators, as well as adhering to data localization as required in the given jurisdiction. It is critical that both central and regional representation play a key role in compliance processes, but the extent to which guidance leans towards one or the other will, and should, vary by the context of any given bank’s location, profile, and strategic priorities.

While the right balance between central and regional will vary from bank to bank, many still have an opportunity to find theirs. This balance is the point at which leaders have established an effective risk management framework across regions which homogenizes processes and workflows where similar, while outlining and approaching the remaining differences with clarity.

Exhibit 12

Central function	Regional functions
Centralized	Region, Region, Region, Region, Region, Region, Region, Region, Region
Central team that sets standards, rules, minimum controls to be adapted by each region, monitors across all jurisdictions	Local expert teams that execute locally under central guidance, tailoring and deploying regional add-ons

There are both responsibilities that must be managed centrally (e.g., minimum controls) and regionally (e.g., relationship with regulators, data localization); there is a spectrum in between and organizations must find their appropriate balance

Optimal balance varies by bank and includes a centralized minimum standard with clarity on regional differences, with homogenized data where permitted and synergistic

Balance is key to managing both perspectives:

	Central function	Regional functions
+ Advantages from this perspective	Consistent and non-duplicative processes and data Decisions leveraging regional synergies Centralized monitoring and accountability	Customized decisions tailored to local regulations Deep knowledge of region-specific requirements Faster decision-making process
− Disadvantages from this perspective	Limited flexibility to regional nuances Complicatedness from applying strictest rules globally Bureaucratic delays to regional issues	Inconsistencies, low standardization (e.g., in data) Challenges in leveraging regional synergies Duplicated efforts and regional silos

Potential solutions

Systems:

Software:

- **Cloud-enabled**, allowing for global standard with deployment of local add-ons
- Focused on **data management** across jurisdictions, supporting rule-based workflows

AI: Built on robust, rule-based workflows from the central function

Processes:

Intentional central governance structure to provide clear minimal control standard with local add-ons, supporting regional leaders who will make decisions and monitor locally

In a balanced bank, the central function should be able to provide minimum guidance that is standardized and for which the data is managed well. This might look like harmonized IT systems with shared centers of excellence, cloud-based solutions, and rule-based workflows. Where standardization is effective and viable, it reduces the technological investment of operating in different markets and uplevels expertise across the organization. Furthermore, there will always be activities that must be conducted locally. With a strong central global standard core, local needs can be "added on" in their respective jurisdictions. It is up to software providers to help organizations to not only manage information across jurisdictions but also incorporate sufficient flexibility for differing data input requirements.

Once a central function has established an IT stack and standardized data and built rules-based workflows (with additional local settings in place), AI can be added on top to further automate.

While the solution to this challenge can be systems-based it, requires strong governance of processes and people leadership with active collaboration across regions.

Sarbanes-Oxley Act

Established in 2002, the Sarbanes-Oxley Act (SOX) evolved through GFC and post-GFC changes to take a prominent position in the regulatory landscape.

The controls required by SOX have grown with external complexity and managing and reporting on internal controls becomes even more complicated as new controls are put in place and build layers on top of one another. While internal controls are often a driving factor of complicatedness in banks, most are necessary – the excess complicatedness discussed in this section refers to controls that are obsolete, duplicative, or engage manual efforts where there is an effective automated alternative.

As banks conduct ongoing SOX compliance requirements and file the necessary reports in accordance with SOX Sections 302 and 404, there are numerous pain points. These include manual data collection, broken flows of information (such as how data is captured for a new or changing products), inconsistent data formats, and delays in collecting data from process owners.

Exhibit 13

SOX Compliance requires public companies to report on internal control over financial reporting (ICFR) to ensure accurate financial statements and mitigate fraud. Section 302 mandates quarterly executive certification of properly designed controls, while Section 404 requires an annual assessment of control effectiveness, with findings disclosed in the 10-K

Process for SOX compliance, pain points, and potential solutions in some organizations

Process mapping
Document the main financial processes and workflows

Control mapping
Identify key controls to mitigate financial risks

Pain points:

- Manual data collection across functions
- Limited communication of product updates
- Delays from untimely inputs
- Inconsistencies in format and integration into centralized systems

Potential Solutions:

- Software to manage processes, controls and products across functions
- Software and AI for data management
- AI to review controls and identify both gaps and potential redundancies that do not increase effectiveness

RCSAs[13-1]

Control testing
Test effectiveness of SOX controls

Key figures for large banks

1,000+
control performers

100+
control reviewers

Pain points:

- Manual testing across functions
- Varied timeliness from process owners
- Limited review to identify obsolete or truly redundant controls[13-2]
- Unclear ownership to rationalize controls
- Limited centralized artifact repository

Potential Solutions:

- Workflow software from process mapping to control testing
- AI for data and artifact assessment
- AI to identify both gaps and redundancies
- Processes to continuously review controls to ensure aligned to current risk-based views

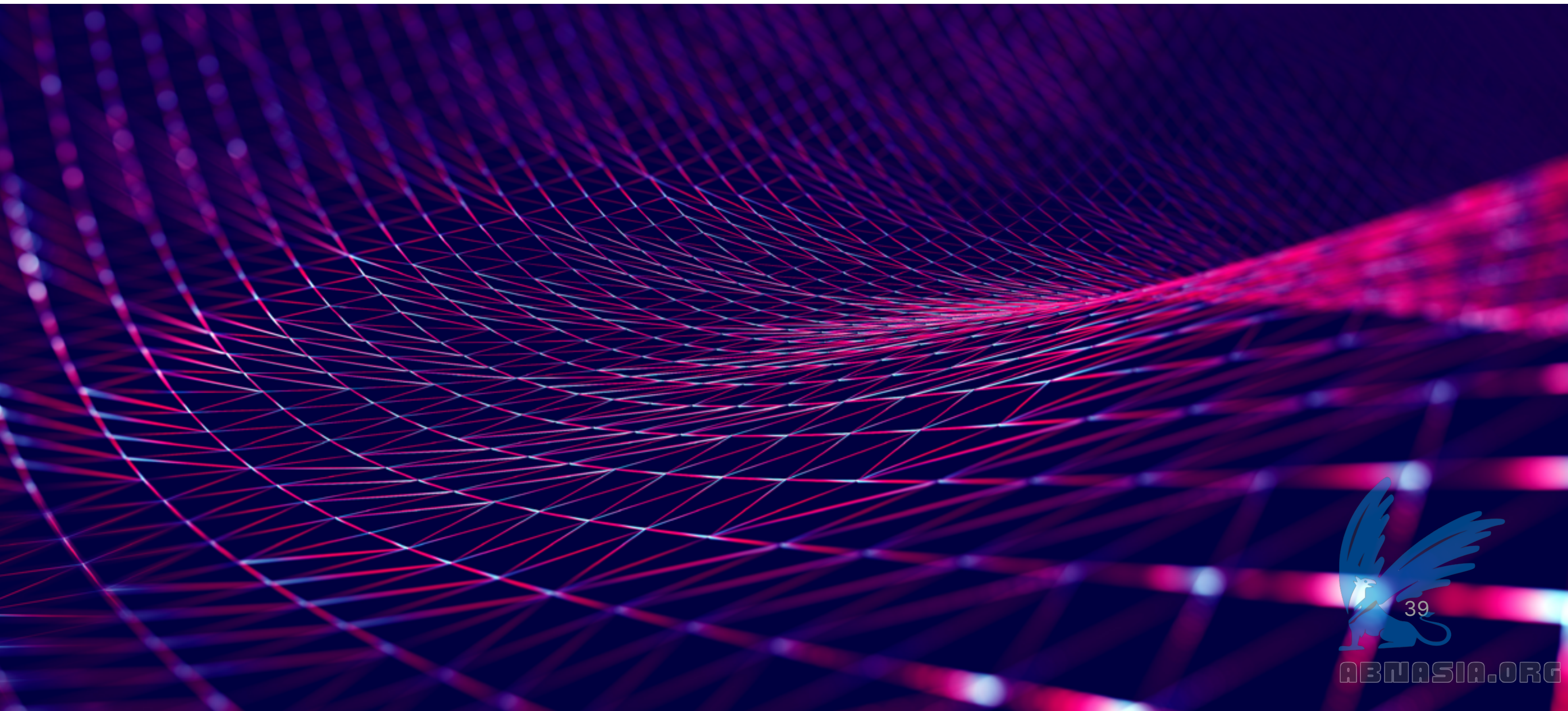
Audit & Reporting

13-1. Risk and Control Self Assessment
13-2. Potential to accumulate "activity traps" in which work is being done on obsolete controls no longer helpful in risk or compliance

As banks focus on ensuring all risks are addressed, there is oftentimes a missed opportunity to engage in the risk-based retirement of obsolete controls, as some legacy controls can become “activity traps” in which employees are spending time on controls that are no longer relevant. There are also often duplicate controls in organizations, siloed in different functions or regions. As one survey respondent described it, “There are many other controls requirements now overlapping each other.” As controls are passed down to employees over time and banks evolve, organizations are usually effective in assigning testing responsibilities for each control, but do not always invest in the overall design evolution of an often-complicated controls landscape.

Higher quality software suites, with banks utilizing all their functionality, can facilitate better and more timely data transfer and cleaner flows of information. Traditional AI can review internal artifacts and continuously identify errors in internal controls such as may occur in approvals and signatures, while GenAI can do more sophisticated analysis and identify redundancies to support rationalization of outdated controls.

There must also be strong people and processes not only to drive and support these systems, but also to stimulate continuous refinement of the design of the controls landscape. Review needs to be ongoing to ensure the design aligns with the most modern risk-based view of the organization.



IV. Conclusion

As financial institutions seek to navigate complexity and reduce complicatedness, a shift from people-based manual work to systems-based and people-led work, can stimulate innovation and growth in tandem with better outcomes – less human error, a stronger financial system. A path to such outcomes is chartered, with modern technology making such change possible without multi-year transformational effort required.

In addition, such shifts drive savings that can create more capacity for banks to invest in and deploy resources elsewhere. In our example, at least $25 billion to $50 billion direct Risk & Compliance opportunity could be saved by reducing inefficiencies - while exceeding current compliance effectiveness. This could be redeployed in capital-constrained areas such as lending, as we estimate an increase of up to $1 trillion annual originations in lending capacity through additional capital deployed if incremental earnings are retained, without higher leverage. Recall, funds of this magnitude can support economic growth, assuming capacity is deployed at the same standards. Such funds can finance businesses, support consumers, and address some of society's most pressing issues – including the evolving needs of the global digital economy, such as digitalization, next generation power supply, and energy transition. Funds of this magnitude can make a difference, for example, narrowing the $469 billion annual funding gap towards digitalization and $286 billion annual funding gap towards energy transition among the UN Sustainable Development Goals pathways.[13]

To achieve these results at this moment, as complexity continues to evolve and capabilities too have evolved to manage complicatedness alongside it, we recommend organizations invest as follows:

- **Systems-based (foundation): Enabled by infrastructure and data**
  Leverage the platforms that make solutions viable that were previously not possible. Use cloud infrastructure to enable software. Collaborate safely across financial institutions to learn from one another and reduce non-differentiating burdens.

- **Systems-based (tools): Actioned with software and AI**
  Invest in best-in-class tools and set up the organization to use them properly. Find trusted strategic partners and standardize data formats to make full use of software solutions and suites that can be deployed throughout the organization. Use traditional AI to automate manual tasks that have accumulated over time and use GenAI to draft content and identify potential gaps.

13. "The costs of achieving the SDGs: Inclusive digitalization". *UN Trade & Development*. 2024. https://unctad.org/sdg-costing

- **People-led: Directed by leadership with staff focused on analysis & innovation**
  Guide systems to carefully manage mundane tasks to re-allocate employee time towards decision-making, ownership of risk, analysis, and innovation. Lead with intention to break down silos. Support investment in seamless workflows to safely exchange information and accurately report data, making it clear from the top down that all employees constitute a team which is striving for effectiveness.
- **Process-supported: Governed by guidelines with systems and users in mind**
  Ensure the organization is set up to take full advantage of the systems in place. Promote standardization in processes and data formats across functions and geographies, with local requirements added on top as needed. Rationalize systems and applications so users know they can expect consistency from collaborators across functions.

As stakeholders across the financial ecosystem seek shared outcomes in the face of complexity, they can look both within Risk & Compliance and broadly across functions for solutions that yield more lending capacity, less fraud, more innovation, and a more stable financial system.

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