RISK MANAGEMENT REPORT

From Crisis to Opportunity: Redefining Risk Management

How a more automated approach to risk management can transform banks' performance, during the pandemic and beyond

Contents

Executive summary

Emerging technologies are transforming every aspect of financial services, and Covid-19 has only accelerated banks' implementation of their digitalization ambitions.

From the way customers complete transactions, to how banks make decisions, digital tools are bringing greater speed, efficiency, and transparency to many aspects of the financial workflow.

Until now, the risk-management side of the operation has been slower to embrace this trend. A survey of 300 financial-services professionals, conducted by SAS in January and February 2021, found that many banks are lagging in their adoption of digital solutions for risk management. This is limiting their ability to forecast future trends and improve decision-making across the business.

But the data also shows that the pandemic is pushing many to accelerate their plans to modernize risk management as they grapple with how to manage risk in a post-Covid world.

The modernization of risk management is essential to maintaining resilience and strategic focus, during the current crisis and beyond. According to the research, the institutions that are leading this transformation are already seeing strategic benefits, including the ability to generate data-driven insights, more quickly and in greater volumes, in an increasingly uncertain marketplace.

For banks that are slower to get onboard, the Risk Management Leaders can offer a roadmap to their own automation journey, and provide insight into the value of a digital risk-management approach.

Key highlights from the survey show:

- Only **around 10%** of banks have completely automated most of their risk-management activities – and only 6% have fully automated large portions of the risk-modeling process

- **54%** of banks plan to modernize their risk-modeling capabilities in the next two years, and more than half (52%) say Covid-19 has accelerated their plans

- The pandemic is cited as the **number-one factor** influencing banks' approach to risk-modeling, making it even more influential than regulatory requirements

- To support this modernization process, **51%** plan to increase investment in tech infrastructure this year, and 50% plan to spend more on talent

- A small group of banks **(20% of the research sample)** have gone further than the rest in automating risk-modeling and digitalizing risk management. They are also more likely to report better performance in other aspects of their business, such as more accurate forecasting and greater integration between regulatory activities and business-planning activities. We call this group the Risk Management Leaders (see page 10 for more information on this group)

Research methodology

The insights in this report are based on a survey of 300 senior banking executives, carried out by SAS in partnership with Longitude (a Financial Times company) in January and February 2021. The executives who participated are based across 24 countries and 50% hold C-suite roles. Almost a third of participants (28%) work for banks with more than $50 billion in assets under management.

In addition to the survey, we conducted in-depth interviews with four senior banking executives, to understand how they are transforming the approach to risk management within their organizations. We would like to thank the following individuals for participating in the research:

Dr Han Hwee Chong,
Chief Risk Officer,
RHB Banking Group

Mandy Norton,
Chief Risk Officer,
Wells Fargo

Sadia Ricke,
Group Chief Risk Officer,
Societe Generale

Mark Smith,
Group Chief Risk Officer,
Standard Chartered Bank

PART 1:

The Covid shock

"After what we have experienced with Covid-19 and the specificities of this crisis, the acceleration of digitalized risk-modeling is a necessity."

Sadia Ricke,
Group Chief Risk Officer, Societe Generale.

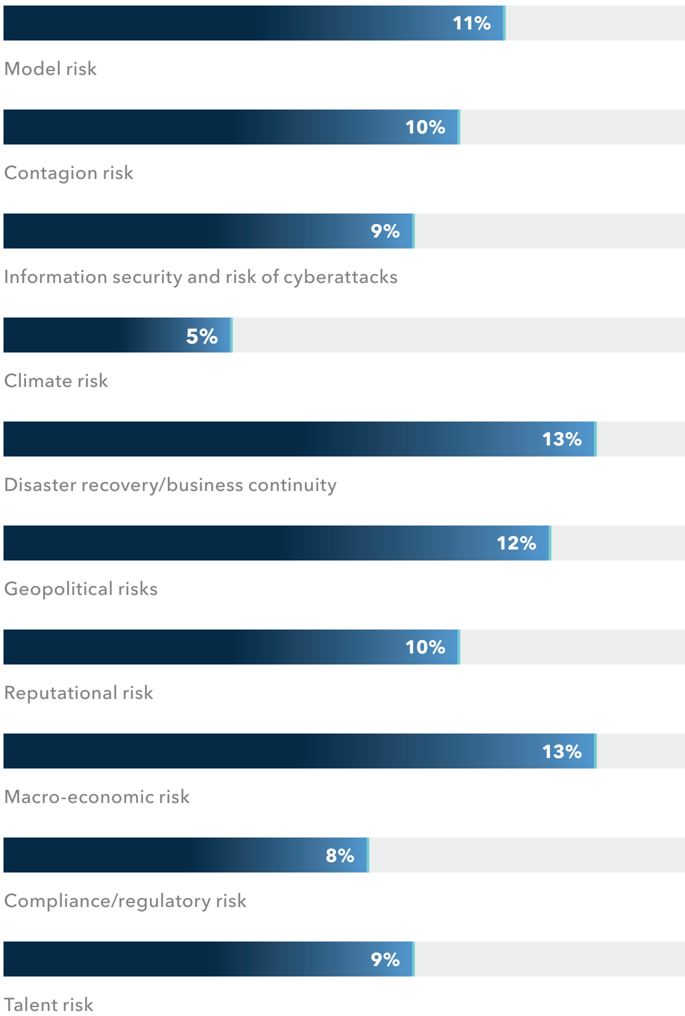
Ricke notes that economic disruption brought about by the pandemic has increased the need for more agile risk-modeling workflows and greater attention to emerging risks. With regard to credit risk, for example, government-driven financial measures have decorrelated the impact of macro-economic variables and occurrences of defaults, thus shifting the way conventional risk models are interpreted. "It disconnected the impacts on the economic environment and defaults in the markets," Ricke says.

In response, banks need risk models that can analyze large, diverse data sets in near real time to identify Covid-related trends and their impacts. This data includes external sources from online retailers, telecoms companies, and other businesses that provide deeper insight into and context for the customer's financial activities.

On their own, human efforts are insufficient to analyze such a quantity and diversity of data. "An automated model's approach makes the process much more efficient," Ricke adds. "You still need expert judgment, but it facilitates the handling of a lot of information more effectively."

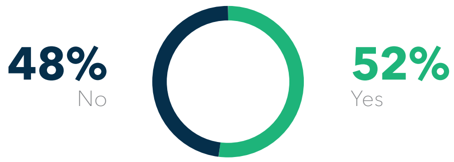
Which risks are likely to increase as a priority for your organization in the next three years?

% of respondents who ranked each type of risk in their top three



The digital advantage in the marketplace

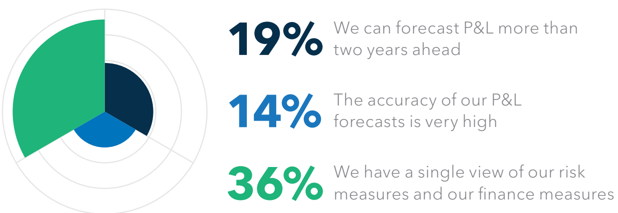
Has the Covid-19 pandemic accelerated your plans to modernize the risk-modeling lifecycle?



Covid-19 is only one factor driving the digitization and automation of risk-modeling in financial institutions. Global banks are also facing pressure from "neobanks" that have been digital from the start, and from customers who expect the same ease of use from their financial institutions that they get from any retailer or app. "Clients want a fully digitalized process where they can do everything online, including applications for credit," Ricke says.

The lack of data-driven insight into risk management has long been an obstacle to improving the quality of decisions in the industry, as well as a barrier to effective customer engagement. The data shows that only 19% of banks can forecast profit and loss accounts (P&L) more than two years ahead – even though regulation (such as stress testing) demands that the majority are able to forecast at least three years ahead. At the same time, just 14% rate the accuracy of P&L forecasts as "very high". Further, only 36% of banks surveyed have a combined view of their risk and finance measures, despite the fact that this is now a standard requirement.

Lack of data-driven insight is a barrier to decision-making in the majority of banks

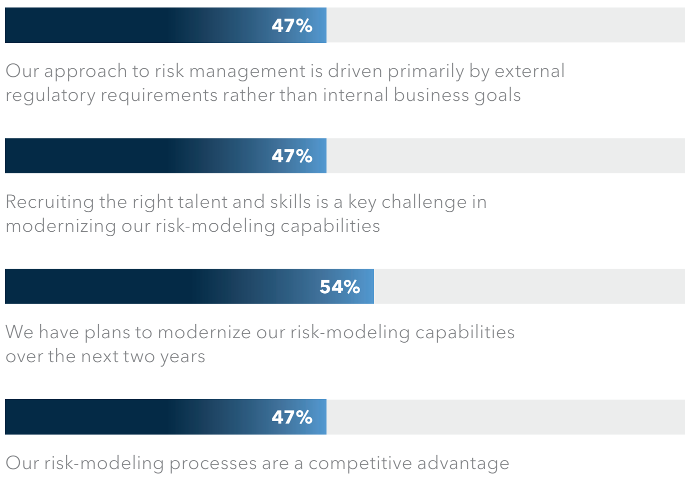


These shortcomings limit banks' long-term predictive capabilities, which can put them at a disadvantage compared with neobanks and those further along in the digitization journey. If banks want to stay ahead of competitors, they need a more agile approach that capitalizes on advances in digitization, automation, and smart technology to get a better view of risk and opportunity in the marketplace, says Terisa Roberts, Global Solution Lead for Risk Modeling and Decisioning at SAS. "In the end it's not the data or the sophisticated analytics that are driving better business outcomes in organizations, but the decisions based on those insights."

Along with greater insights, banks rank "reduced costs" as a leading benefit of their automation efforts. This is particularly true in risk-modeling, where more than half of those who have automated this process say they've experienced cost savings as a result.

Recognizing these benefits and the need to respond to market demands, more than half of the banks surveyed plan to modernize their risk-modeling capabilities in the next two years. That includes utilizing technology to rapidly analyze the growing stream of data coming from more channels in more unstructured formats. "These data sets can be profoundly useful – provided they can be interpreted correctly," says Mandy Norton, Chief Risk Officer for Wells Fargo. Wells Fargo uses artificial intelligence (AI) tools, including machine learning and natural language processing, to translate telephone calls, social media, and emails to identify risk-relevant themes or phrases. "It can help us identify where we may have a problem and react very, very quickly," Norton says.

Less than half of banks believe their risk-modeling processes are a competitive advantage



These digital technologies also help accelerate customer onboarding and decision-making around credit and lending, by automating much of the data collection and analysis. "We can process so much more information in much more efficient and effective ways with these technologies," Norton says. "It is really becoming very useful."

Automation: risk and reward

While the benefits of automating risk-management activities, as part of digitalization, are clear, the process isn't easy.

It requires sophisticated technology and a new set of skills on the risk-management team, along with changes in the way data is collected, shared, and analyzed. Risk-management teams also need to be certain the solutions they adopt are aligned with all regulatory requirements and offer proof of compliance.

"The pressure to evolve without negatively impacting compliance requirements is a constant challenge," says Dr Han Hwee Chong, Chief Risk Officer for RHB Banking Group in Malaysia. His organization aspires to automate its risk-modeling process in the next three years to improve performance efficiency, but he says all of those plans are ultimately "driven by regulatory expectations."

This disconnect highlights the difficulty industry leaders face in achieving transformation. While many recognize the value of automation, transforming such a critical element of financial services is expensive and risky. "We want to make sure we're building something that is not going to be a one-off exercise, and that it is in line with the approach that we think regulators will be taking in the future," says Mark Smith, Group Chief Risk Officer for Standard Chartered Bank in London.

To ease the risks, Standard Chartered Bank is taking a measured approach to digitization using pilot efforts to demonstrate success. They began by automating their stress-testing approach with the Bank of England, with the goal of delivering more sophisticated stress tests in less time. The results have been impressive.

Prior to the automation, it took two weeks to complete the process. But with automation they can generate the same outputs in 24 hours. "The benefits are immense," he says. "It's much more meaningful for us, not just in terms of delivering the Bank of England stress tests, but for managing our business." Automation has enabled the bank to run more frequent scenarios using different inputs to map variations in outputs, and to get answers faster. It has also reduced the risk of errors and inconsistencies.

Smith plans to run many more "proofs of concept," to test the viability of automation. "Not all of them will work, but hopefully the failures will be small, and we can learn from it," he says. And when these experiments do succeed, he plans to use the results to justify broader adoption. "It's a mindset of continuous experimentation, rather than one big reveal," he says.

Only a minority of banks have automated critical aspects of risk management

% of respondents that say they have automated each activity "a lot" or "completely"

Yet a vast majority of banks report benefits as a result of automation

% of banks that have seen at least one of the following benefits from automating each activity: greater accuracy, increased speed, improved compliance, reduced costs

Digitalization challenges

Despite the growing pressure to embrace digital risk-management solutions, and the success of early pilots like the one at Standard Chartered Bank, the survey shows that less than half of respondents have started modernizing critical phases of the risk-modeling lifecycle such as model monitoring (45%), model development (39%), and data preparation (26%). And just 10% have fully automated activities such as credit-risk monitoring, underwriting, and stress testing.

Smith predicts that the automation trend will pick up speed once central banks and regulators come to a consensus on the types of automated stress tests they want to see, although many leaders are realizing that they can't wait around for that guidance. They recognize that improving risk-modeling – and through this the quality of all their decisions – isn't just vital to protecting the business and responding to regulatory requirements; it will enable them to standardize their model lifecycle and provide a faster, seamless experience to their customers through every transaction. These benefits are likely to be why 54% of executives say they are planning to modernize their risk-modeling capabilities over the next two years. "In essence, that means more models, and more accurate models, can be maintained," Roberts says.

Which aspects of the risk-modeling lifecycle have you started modernizing, if any?

61%	Model deployment
58%	Model validation
45%	Model monitoring
39%	Model development
26%	Data preparation

Firms face a variety of obstacles to accomplishing their goals. Some of these are the familiar and easy to predict. Technology and software are perennial areas of attention, and 51% of executives intend to increase (potentially significantly) their spending on technical infrastructure in 2021. In addition, almost the same number (50%) intend to spend more on advisory consulting. While some of the latter likely relates to changes in technology, it also speaks to needs for business process refinement and redevelopment.

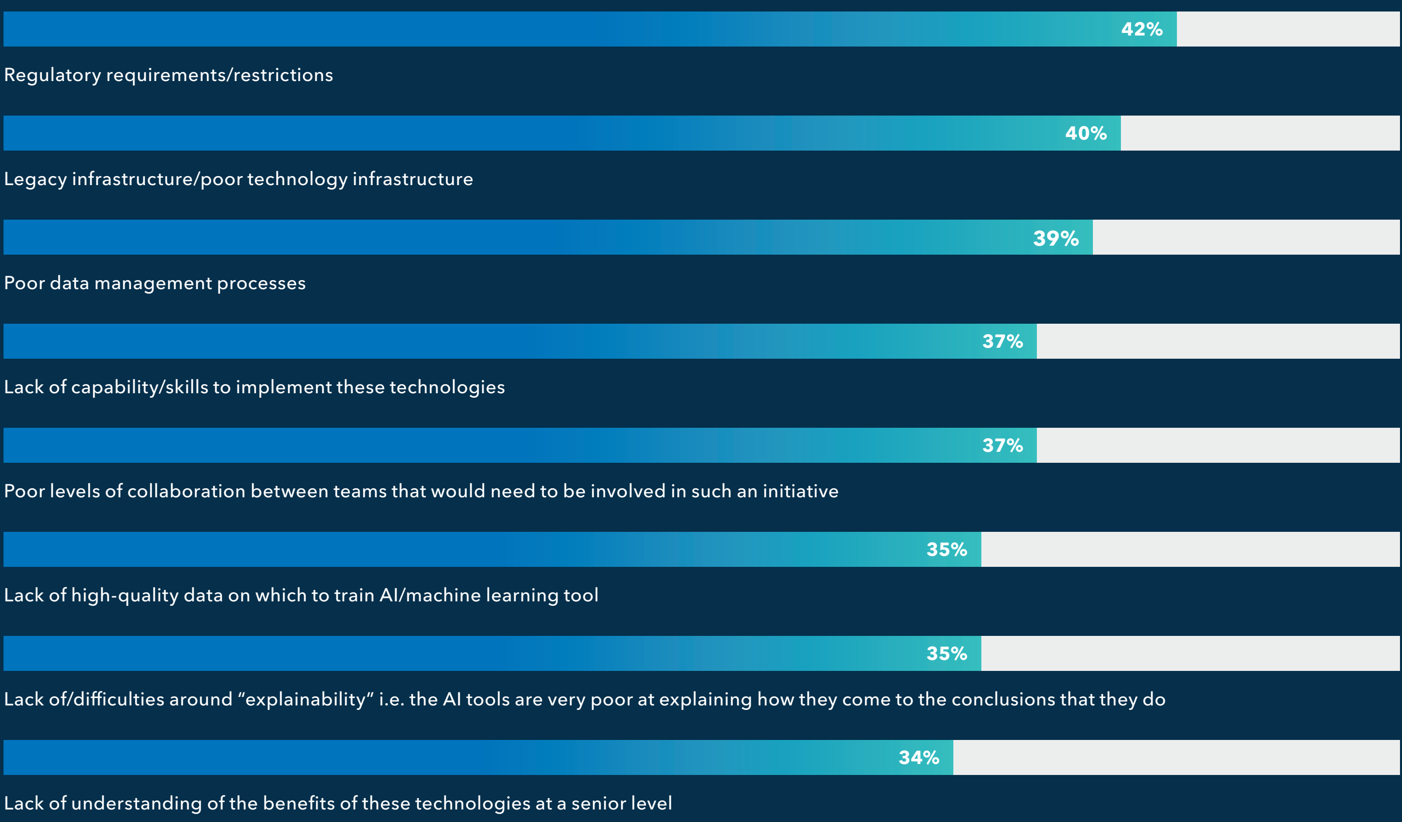
Less obviously, lack of the required talent/skills, and poor collaboration between relevant teams were cited most often as the top challenges banks face in adopting AI in risk management. And more than a third (37%) ranked "lack of skills to implement these technologies" as a top-three barrier to automation.

"We're definitely facing a lot of people-skills issues at the industry level," Dr Han Hwee Chong says. Candidates with analytics skills, cyber skills, and knowledge of AI are in high demand. "There are only so many graduates that we can produce a year," he acknowledges.

This journey won't be easy, but the banks who can attract the talent, and who are willing to invest in purpose-built technology specialized with specific contents to target multiple business and regulatory requirements, have an opportunity to gain a competitive advantage over their slower-moving peers.

What are the top three barriers to increasing the use of artificial intelligence (AI) and machine learning to strengthen risk management and risk-modeling within your organization?

% of respondents that included the option in their top three barriers



PART 2:

The Risk Management Leaders

A small but growing segment of the marketplace has already proven that an effective digital-transformation strategy can generate significant long-term benefits.

The survey revealed that 20% of the total sample of banks surveyed have a progressive approach to risk management, and more advanced digital capabilities. We call this group the Risk Management Leaders. Their maturity allows the leaders to outperform their peers across many aspects of their operations, including:

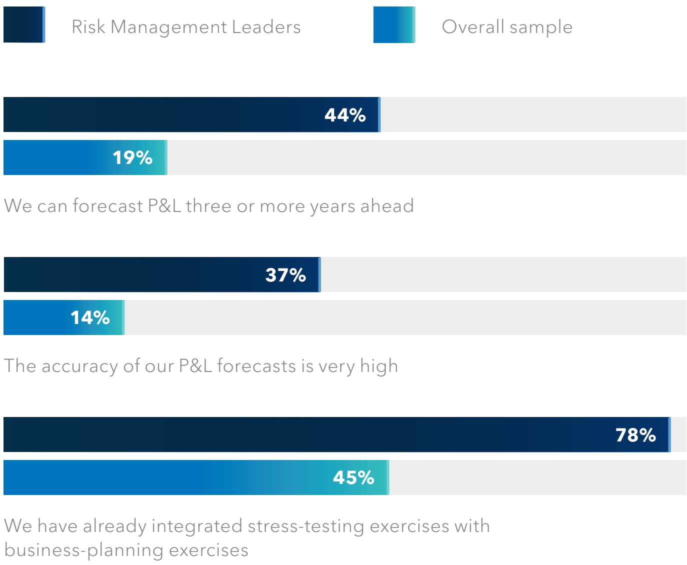
Greater benefits from automated risk-modeling:
The leaders are more likely to report benefits from automation. For example, when it comes to the automation of risk-modeling, 55% report increased speed as a benefit vs. just 42% of the overall sample; and 43% of the leaders report improved compliance vs. just 32% of the total.

More accurate business forecasting:
More than a third (37%) of Risk Management Leaders rate the accuracy of projected balance sheets as "very high" compared with 14% overall.

The ability to project balance sheets further into the future:
Almost half (44%) of Risk Management Leaders can project balance sheets three or more years ahead, compared with 19% overall.

Greater integration between risk management and business planning:
Fully 78% of Risk Management Leaders report that the bank has already integrated regulatory stress-testing exercises with business-planning exercises, compared with 45% of the overall sample.

Risk Management Leaders report better P&L forecasting and greater integration between stress-testing exercises and business planning



Perhaps because of the above benefits, the Risk Management Leaders are far more likely than the overall sample to say that their risk-modeling processes offer them a competitive advantage (73% vs. 47%).

The tools of transformation

To become Risk Management Leaders, this group has strengthened their approach to risk management through a number of digital-transformation projects. Unlike the majority of respondents in the survey, these leaders are embracing automation of their risk-modeling, either completely or to a great extent.

This digitization journey includes adoption of a suite of technologies that enable a more streamlined, data-driven approach to risk management. In addition to automating their risk-modeling process, which they have all done, every leader in the survey is using the following tools, at least to some extent:

- Integrated balance-sheet management
- Scenario-based risk analytics platforms
- Modeling-as-a-service
- Enterprise-wide data analytics platforms
- Real-time risk management

The Risk Management Leaders are also further ahead in automating many aspects of their banks' operations, including underwriting, capital planning, and credit-risk monitoring. Additionally, they are more likely than the overall sample to say they are planning to increase their investments in tech infrastructure (70% vs. 51%), third-party software (60% vs. 43%), internal talent (62% vs. 50%), and third-party advisory (68% vs. 50%).

Who are the Risk Management Leaders?

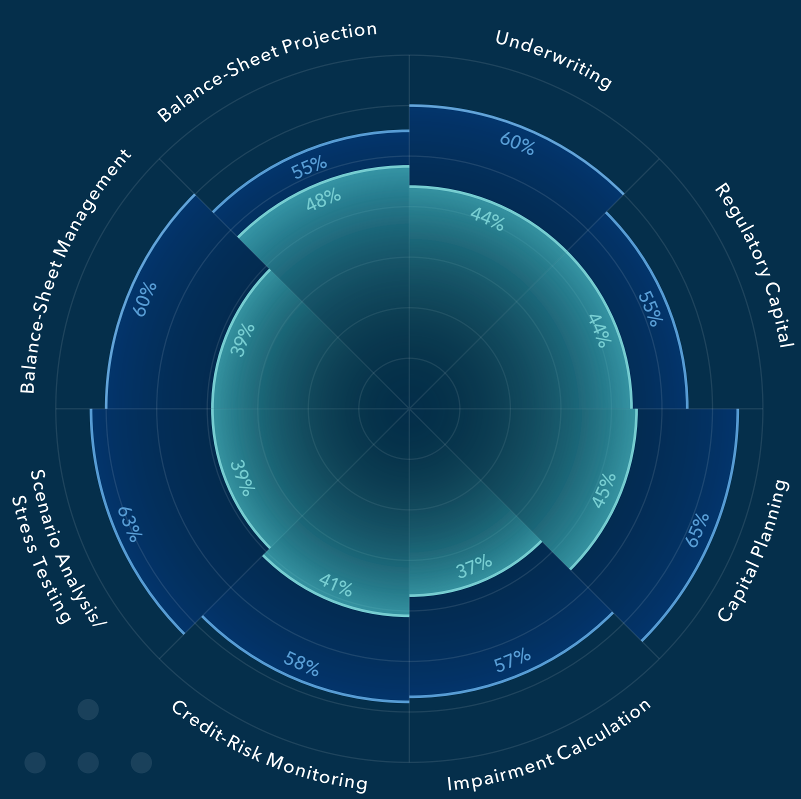
The Risk Management Leaders are a group of banks (20% of the sample) that have:

- Automated risk-modeling a lot or completely

Adopted the following tools to at least some extent:

- Integrated balance-sheet management
- Scenario-based risk analytics platforms
- Modeling-as-a-service
- Enterprise-wide data analytics platforms
- Real-time risk management

The data reveals that the Risk Management Leaders also report better performance than the overall sample across many aspects of risk management and business planning. This indicates that their investment in automation is paying dividends.



Risk Management Leaders are **far more likely** to have automated critical aspects of risk management

Overall sample

Risk Management Leaders

PART 3:

Five steps to automated risk management

Risk Management Leaders – banks that have automated their approach to risk management – are improving customer experiences, reducing credit- and fraud-related risks, and extending their future forecasts, while simultaneously cutting costs and demonstrably adhering to regulatory demands.

Financial institutions that aspire to achieve the same advantages in their own risk-management organizations can use the lessons learned by the Leaders (set out below) to help them to chart their own automation journeys.

1. Invest in cloud infrastructure and automation.

Banks must harness the power of the cloud and ensure they have the right infrastructure to consolidate and analyze increasingly large sets of data more frequently and faster, to support business needs. “Moving from legacy systems to cloud-based platforms enables banks to deal with a lot more data in quicker and more responsive ways,” says Standard Chartered Bank Group CRO Mark Smith. Cloud platforms are enabling technologies, and not an end to themselves. Common elements – containers, microservices and APIs, scalable computing – are powerful tools, but still only tools. It is when those elements are combined correctly and married to flexible operating processes, that the true benefits can be realized.

2. Invest in and develop talent.

The data indicates that investing in the right skills and capabilities will be vital for banks to strengthen their approaches to risk management. Finding the right combination of skills can be challenging. “The talent market for these skills is not mature yet,” Dr Han Hwee Chong says. Banks can adapt by hiring candidates with individual “quant,” digital, and data analytics skills, then providing training programs to fill gaps. Moreover, they can provide high-level risk and technology training to the entire organization. Identifying which activities can be automated will also be vital, enabling banks to deploy employees where their skills are best utilized.

3. Standardize and modernize the risk-modeling lifecycle.

In order to build, deploy, and monitor models at speed and scale, banks must modernize their risk-modeling and decisioning lifecycle. For many banks, this will mean activating a standard framework for the development and application of regulatory and managerial models across the institution. This framework should guarantee easy application of both common and advanced analytics (such as ML), while aligning with regulatory and internal governance. Centralized model repositories, automated documentation, and real-time monitoring can reduce the time it takes to build and deploy a model for batch and online applications from a few months to a few weeks – a critical difference in today’s fast-changing marketplace. “There’s a lot of challenges to work through, but the evolving technologies and models are helping us get there, and I think that’s exciting,” enthuses Wells Fargo’s Mandy Norton.

4. Integrate risk management with business-planning activities.

The value of risk management is amplified when it is integrated with business-planning activities, such as forecasting. Solutions such as data analytics platforms and integrated balance-sheet management can enable this, and the research shows that many banks plan to invest in such technologies. "A more automated approach gives you the ability to be more effective from a business perspective," says Sadia Ricke of Societe Generale.

5. Focus on quick wins rather than large-scale transformation.

For many banks, large-scale transformation of risk-management processes is potentially too disruptive to be feasible. Yet, by identifying a few areas where modernization can deliver the greatest value, banks can pilot lower-risk projects like early warning systems, model monitoring, credit collection, and fraud risk detection and use the results to inform and guide further transformation. "Fraud risk is interesting because the risk vectors continually evolve and shift," says Norton. She believes that if banks can use automation and analytics to identify fraud-related risk trends more rapidly, it can provide protection for customers and reduce fraud losses. "Automation technologies can be really effective in these places," she affirms.

"There's a lot of challenges to work through, but the evolving technologies and models are helping us get there, and I think that's exciting."

Mandy Norton,
Chief Risk Officer,
Wells Fargo

The move to digital risk management in financial services is clearly no longer optional. The growing competition and rising uncertainty in the marketplace demand a more agile, data-driven approach to managing risk, and automation is the key to making this happen.

The institutions that embrace this change, and who invest in the purpose-built technology, talent, and change management required to make it successful will not only appease regulatory demands; they will lower their risk, while creating a more robust user experience. "We have the most incredible computing power to process billions of pieces of data," Norton says of this automation journey. "It is exciting to think about how we can use this to be more relevant, timely, and responsive to our customers."

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Mandy Norton,
Chief Risk Officer,
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