The business of banking is in the midst of radical transformation. Today’s customers demand more options, creative solutions, greater flexibility and faster response. Underlying this revolution is a new digital business model that’s sweeping the industry.

Survival, much less success, in this new world demands a transformed, efficient risk management function with the intelligence, agility and speed to keep pace with the needs of the business. Risk management can no longer follow. It must be integrated into the business, adding value to the enterprise when and where risk decisions are made.

The availability of relevant data across multiple risk and compliance business functions—including risk, finance, treasury, audit, and IT—creates an opportunity to mash data together and explore relationships that may yield causal or predictive insights.

In the race to extract cognitive insights from risk data, analytics tools must play a vital role in the risk management function of the future.
Data analytics in banking risk management today

Grant Thornton’s joint survey with MIT’s Golub Center for Finance and Policy revealed that although the banking industry continues investing in information technology, data management and analytics, true transformation is a long way off.

There is certainly more information available today than ever before; across the spectrum, experts estimate that 90 percent of all the data that exists today was created in the past two years.

Yet, in our experience, the data remains elusive. One challenge is data diffusion: banking data comes from many places, including an array of transactional platforms and databases, customer operations centers, bank function applications, and other sources. Finding, acquiring and leveraging all that data can present immense challenges. Legacy systems are a long-understood challenge. And perhaps most tellingly, inadequate risk management data frameworks aren’t capable of transforming a sea of data into meaningful insights.

Our survey shows that banks recognize their shortcomings all too well.

Consider these findings:
• A majority of respondents tepidly describe their institution’s risk data management framework as “moderately comprehensive.”
• Large and small institutions alike share concerns regarding risk management information technology systems.
• A majority of respondents (85 percent) believe that many or very many additional efficiencies could be realized in data and risk information management in their institutions, and a similar majority (82 percent) indicated the same for their institution’s risk analytics and measurements.

Yet our survey respondents share an appetite for improvement and an appreciation for the value that risk analytics can provide—an attitude we can describe as “aspirational.” Most survey respondents expect to expand the use of analytics and other quantitative methodologies to further enhance their risk management, and they’re planning to invest more in the next three to five years than in the past three years.
Moving from compliance-focused to performance-driven risk management

In the years since the global financial crisis, the banking risk management function has been basically centered on compliance. Yet banks and other organizations are increasingly embracing the concept of performance-driven risk management and, with it, the understanding that actionable information gained through sound analytical methodologies can guide critical business choices impacting profitability.

As the banking industry continues investing in information technology, including data management and analytics, our survey confirms that banks likely will align data aggregation and reporting practices to industry standards such as the Basel Committee on Banking Supervision’s regulation number 239 (BCBS 239): “Principles for effective risk data aggregation and risk reporting.”

Irrespective of the general momentum of risk analytics, leading firms are redefining organizational lines and thinking about markets in new and different ways.

In one organization, for example, risk event data, key risk indicator (KRI) data and audit reports are being aggregated to reveal causal and trend relationships. In another top large institution organization with substantial exposure within local communities, credit analysts are looking at the potential economic domino effect if a single large employer should fail and create job losses.

Large technology firms are enabling risk analytics by supplementing new sources of data to improve traditional credit processes.
Achieving transformation

So how should banks follow these examples as they move towards the goal of integrating data and analytics into a transformed risk management function?

The first key is reliable and robust data. On one hand, the challenge of data diffusion described earlier can present challenges. Therefore, it’s no surprise that banks today are applying analytics in areas where the challenge is clearly defined and contained. A good example is regulatory stress testing, where it’s relatively straightforward to build a model that creates projections and forecasts to estimate capital adequacy.

Yet we believe that a shift in thinking about when and how data is most valuable can open the door to much greater opportunities. In the past, data was regarded as static and constant, regardless of use. Clearly, this is no longer the case. We believe it’s time for banks to broaden their horizons and explore new ways to extract value from the data analytics lifecycle.

If designed properly, dynamic databases can provide flexibility and adaptability to changing business needs. What’s more, cognitive analytics and other approaches shaped by this new school of thought promote sourcing data to support specific end purposes. For example, they empower banks to adopt business models that integrate a customer’s accounts from various providers to enable wealth management advisory and other banking services. We support applying risk analytics in parallel with revenue-generating activities, so banks evaluate risks in real time as they are being taken.

We also see banking risk functions adopting more advanced data mining techniques, machine learning, deep learning, and robotics to support superior risk technology. They are also quickly adapting to changing operating environments and embracing risk management frameworks that incorporate non-financial risks, especially those introduced by digital business models. Advanced analytics, cloud-based IT systems, deep learning and new technologies (e.g. AI, robotic processes, and blockchain) are driving expansion of risk management. Further, mobile and other channels demand risk-in-real-time (RIRT) capabilities, especially on the front line (first line of defense).
Looking further to the future, we see the exploitation of data leading to the use of algorithms that are designed to distill risk and provide business insights.

These algorithms embedded into programs allow computers to leverage data and make decisions without human supervision—sharpen the ability of banking institutions to make evidence-based decisions. Yet as algorithms gain a stronger foothold, they also create new challenges: their ability to make unsupervised decisions, and the interactions of humans and machines, add complexity to the risk equation.

With the proliferation of quantitative models and algorithms supporting decision making, there is a new type of relevant risk that requires active management—model risk. Today, the industry is still in a one-dimensional world when it comes to model risk management, as it has only just begun to establish governance frameworks for single models, including the Federal Reserve’s SR 11-07, “Supervisory Guidance on Model Risk Management.”

Present-day models are not typically interconnected (e.g. such as linking originations, collections and capital), and their application to business decision-making is very limited and specific.

But don’t expect it to stay that way. We predict that interconnected models will be the way of the future. The fundamental Risk Control Self-Assessment process is due for a transformation that will enable interconnected models that effectively drive risk decision-making to the right levels in an institution. When models are coupled together as a network of model systems, the aggregated model risk creates the opportunity to evaluate the total risk. This extends into frontier areas such as robotics, with interesting opportunities and complications for automated decision-making and artificial intelligence.
Becoming a “cognitive” enterprise
Banking is headed down an inevitable path to disruption and towards an explosion in productivity and efficiency.

In the next 5-10 years, the productivity of the enterprise will be transformed through multiple technologies.

Fintech represents a long-term, systemic change in the industry. The only successful way forward is to take a long-term view. The key is to plan for a steady pace of adoption for interrelated technologies rather than focus on individual projects and siloed technological innovations that will not build upon each other.

Over the next decade, size and cost of labor will shrink, and shareholder return and margin growth will come from huge cost reallocation and decline in operations and technology expense, not necessarily from direct new business or new products.

Following are the technologies that we’re watching:

- **Robotic process automation**—A machine or software that manages, acts on or processes high-volume, repeatable tasks that previously required a human to perform. RPA offers a key and important foundation for other technologies to build on, including machine learning and Artificial Intelligence.

- **Natural language processing**—The advanced ability of a computer or program to understand human speech (speech recognition) or written text (unstructured text) and derive intelligence, take action or present results normally requiring manual interpretation.

- **Distributed ledger technology**—An integration approach where financial activities, registered as linked “blocks,” are recorded as a chronological “chain.” Everyone can see common information, common status and all changes without the need for a central authority. No single party can tamper with the records and as such forces transparency, consistency and trust across all participants.

- **Artificial intelligence**—The development of systems and software able to perform tasks that normally require human intelligence, such as reconciliation, investigation, validation and repair within complex and multi-input processes. Augmented intelligence, machine learning, natural language processing and expert systems are early, more understandable steps towards comprehensive AI.

- **Microservices/internet of things**—Interactive software components (services) that have their own function, or interface to other enterprise systems for creation of business orchestration across complex data, technology, processes and functions. Well suited for rapid product development of lightweight applications that do not need huge amounts of data and so bypasses the large integration projects.

- **Chatbots**—A computer program that conducts a conversation via auditory or text methods. Such programs are designed to simulate human conversation and are typically used in dialog systems such as customer service and/or information acquisition. Commonly linked with NLP, RPA, AI and other technologies.
Integrating risk management through data, analytics and infrastructure: Our perspective

- **Predictive & prescriptive analytics**—Using your data to make reliable, data driven business decisions about current and future events. Predictive analytics utilizes modeling focused on specific business problems or outcomes to identify patterns and anomalies and provide actionable insight. Models improve over time based on feedback from actual results of prediction. Prescriptive analytics enhance predictive models by providing recommendations of action.

- **Augmented reality**—Interactive visualization that superimposes computer generated information into real life through the use of classes or projection to assist in real time activities. Differs from virtual reality, which is fully immersive.

**Becoming a cognitive enterprise**

Over the next five to eight years, we expect many of these technologies to impact the banking industry, both potentially introducing new risks and clearly helping to minimize others. This timeline shows when we anticipate each technology will begin to cause serious disruption for financial services firms.

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**Where should you be by now?**

- Your data strategy, analytics and reporting foundations are set and maturing.
- Your cyber defenses are in place, extensive and agile.
- Your data center capacity and processing strategy is in place.
- You are looking for potential automation opportunities in operations.
- You are aware, understand and keeping a close eye on Blockchain, NLP and AI.
- You are exploring some new analytics adds with machine learning.

**“Manual Enterprise”**

**“Big Data”**

**“Cognitive Enterprise”**

**“Predictive & Prescriptive Analytics”**

**“Robotics Process Automation”**

**“Chatbots”**

**“Natural Language Processing”**

**“Machine Learning”**

**“Artificial Intelligence”**

**“Blockchain”**

**“Virtual Reality”**

**“Augmented Reality”**

**“Microservices/IIoT”**

**“Cloud Infrastructure and Applications”**

**“Where should you be by now?”**

- **Pay attention, start planning**
  - Start of the “serious” disruption window (size = impact potential)

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How we can help

Our Advisory Services professionals have significant expertise in risk solutions and industry experience, inclusive of Financial Services, Healthcare, Life Science, and Technology. We help clients define and execute their business strategy in alignment with their overall risk appetite to create business value. We deliver practical, innovative, and holistic risk management programs and solutions to address strategic, operational, financial reporting, regulatory compliance, digital, and cyber risks.

Across many industries, we’re helping our clients transform from compliance-based to performance-driven risk management that creates value for their enterprises in seven areas.

1. **Risk function transformation**
   We help clients implement heightened risk management (RM) functions and related processes to increase business value and functional efficiency, improving risk identification, culture, and control effectiveness; and optimizing three-line-of-defense operating models and upstreaming risk activities.

2. **Data & risk analytics**
   We assist clients with implementing model risk management solutions: deploying risk analytics, algorithms, advanced forward-looking methodologies, and data science solutions for regulatory, business, and RM decision-making purposes.

3. **Financial risk management**
   We support clients that are implementing sustainable RM solutions and stress-testing, improving capital, liquidity, market, and credit risks.

4. **Operational risk management**
   We assist clients that are optimizing risk assessment and business processes performance through cohesive operational RM programs, including customer-centric and resilient frameworks covering non-financial risks such as digital, cybersecurity, and third-party/vendor risks.

5. **Integrated risk infrastructure and technology**
   We support clients in the optimal deployment of governance, risk, and compliance solutions, as well as architectures, platforms and tools.

6. **Regulatory compliance**
   We help clients to optimally satisfy changing rules and dynamic regulatory guidelines and to effectively respond to external regulators and supervisors observations and expectations.

7. **Controls advisory, forensics and specialized assurance services**
   We deliver bespoke services for our clients, including leading internal audit sourcing solutions.

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