

WHITE PAPER

The Future of Banking: A Five to Ten Year Horizon



Banks That Lead Will be Defined by Courage to Take Risks Sooner

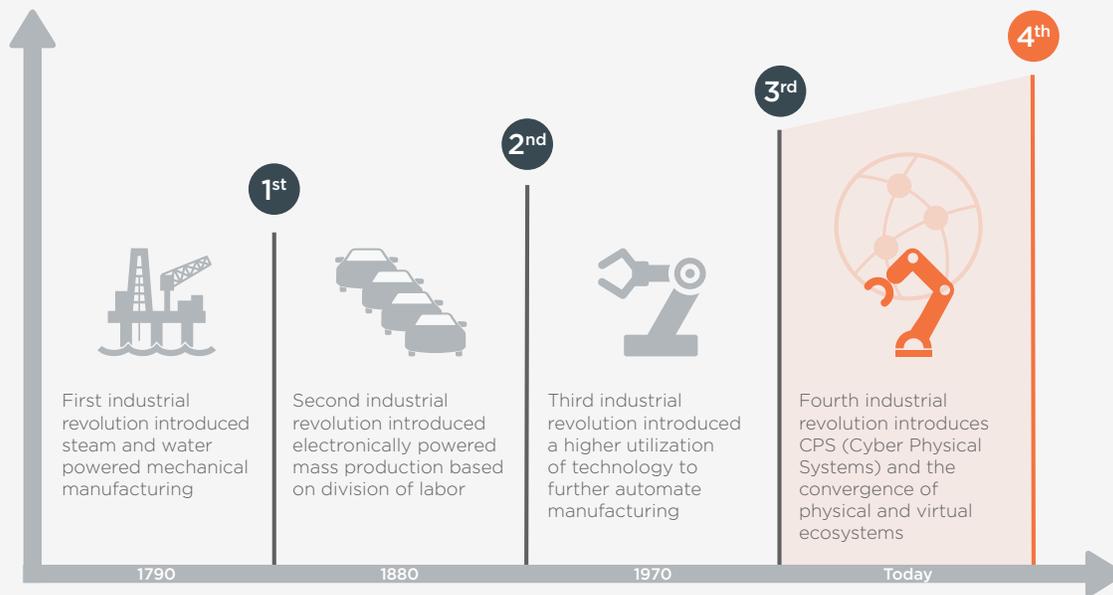


Figure 1. Over the next decade, winners will be defined by courage to take risks sooner, rather than later.

“30% of all banking jobs will be wiped out in the next five years”

- Vikram Pandit, Former CEO, Citigroup, 2017

First time ever that an Industrial revolution is changing the banking business model

-(CXO)

“Fintech will...fundamentally change the banking business.”

- Axel Lehmann, COO, UBS, 2017

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“In our bank we have people doing work like robots. Tomorrow we will have robots behaving like people. It doesn’t matter if we as a bank will participate in these changes or not, it is going to happen.”

- John Cryan, CEO of Deutsche Bank, 2017

“Fintech...will change the nature of money, shake the foundations of central banking and deliver nothing less than a democratic revolution for all who use financial services”

- Mark Camey, Governor of the Bank of England, 2016

“Banking is facing an ‘Uber’ moment. The number of branches and people employed in the financial services sector may decline by as much as 50% over the next ten years, and even in less harsh scenarios I predict they will decline by at least 20%.”

- Antony Jenkins, Former CEO, Barclays, 2017

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Executive Summary

Financial Services is a fascinating industry. Many legacy banks boast long histories—going back hundreds of years—having managed to survive historical, societal, economic, and technological change with what seems like amazing tenacity and flexibility.

Today, their resilience is still being put to the test as the banking industry is changing more rapidly now than ever. This is driven by unprecedented shifts in consumer-driven behavior, intensified competition, and radically increased regulatory oversight. To maintain profitability, banks are transforming themselves to become more efficient, in control, trusted, agile, and digital—all underpinned by improved analytical capabilities.



Introduction

Globally, banks are investing in transformative technologies to meet these challenges and opportunities—developing new capabilities to drive competitive advantage by growing revenue, increasing efficiency and automation, and deploying a more sustainable approach to regulatory compliance and financial reporting.

Delivering world-class capabilities that meet the needs of large organizations—to operationalize analytics in a robust, flexible, and cost-effective way—has never been more critical to growing profitability. What are the frontiers upon which banks are transforming, and what will financial services look like over the next five to ten years?

The Sentient (Retail) Bank

One clear and present challenge is that within many organizations—despite aspirations to become more data driven, customer centric, or agile—there is often a reluctance to elevate analytics from something done

in darkened rooms by bright, low-profile individuals to the same level as Marketing, Risk, and Finance. In other words, to transform analytics to a functional discipline that spans the entire organization.

Successful banks are driving improved business outcomes from analytics to:

-  Grow revenue
-  Improve efficiency
-  Sustain regulatory compliance

The implementation of operational analytics requires a potentially significant organizational transformation, one that should be led by general managers rather than those who build the algorithms. There is, therefore, a pressing need for a multi-skilled analytics function that has a public face of charismatic, empowered, change-driven leadership to ensure that the derivation of value is driven through from behind the scenes where the data scientists hang out to front and center, where customers interact with the organization.

No legacy bank would run without a Finance or Risk function, so why not include an analytics function within the establishment structure? If such a function existed, what might be the overriding theme of where it wanted to move toward? For a detailed discussion, it's useful to consider the framework suggested by The Sentient Enterprise—an analytics capability maturity model¹.

A Sentient Enterprise represents an end state where, in this case, a banking organization can manage vast amounts of information from new and existing sources—leaving algorithms and analytics to make the bulk of decisions autonomously, with human intervention for strategic and pivotal moments of change and business impact. Such an enterprise can sense micro-trends, and quickly anticipate and adapt to market conditions. To reach this end state, the Sentient Enterprise journey is organized along five dynamic stages, or analytic capabilities:

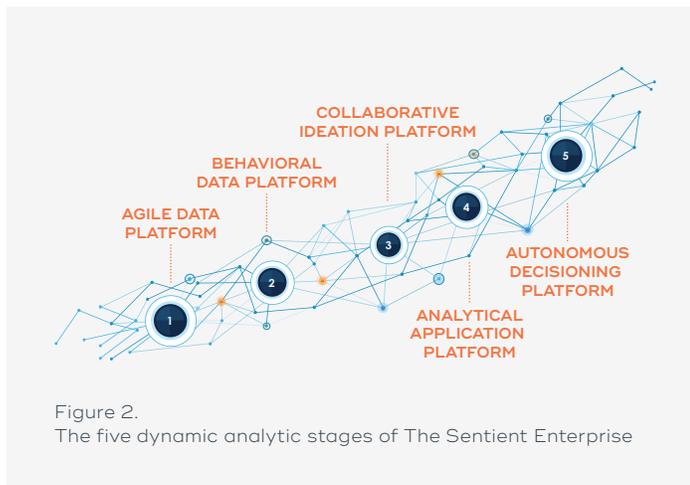


Figure 2. The five dynamic analytic stages of The Sentient Enterprise

1. Agile Data Platform

For the Agile Data Platform, there has been a consistent pattern in Financial Services of organizations experimenting with diverse data ecosystems. Data warehouses, data lakes, discovery platforms, and analytic ops are all key components of the emerging infrastructure. Some of the key characteristics include:

- Predominantly near real-time or micro-batch data ingest across the widest possible range of operational systems.

- Long-term storage of raw, lowest level, granular data accompanied by context-sensitive metadata.

This latter point is particularly important for Financial Services in the context of the regulatory environment, where the ability to provide lineage and auditability of activity is increasingly critical. Just storing a field called “Balance”, without understanding the precise source and definition of that field at the time the data was captured, is unlikely to be sufficient.

- Constant experimentation and insight generation against the raw, low-level data assets.
- Increasingly automated generation of business-ready data models for self-service consumption of both traditional business intelligence or management information (counting things) and analytics (understanding things).
- The ability to manifest a business-friendly, integrated data model that accurately represents what is happening in the business from any relevant perspective; supporting all required business Key Performance Indicators, capable of delivering information in near real time to thousands of business users of varying technical abilities and with the widest possible range of analytical tools.
- The ability to insulate business users from needing to worry about where data is stored.

2. Behavioral Data Platform

For the Behavioral Data Platform, this is clearly a functional extension of the Agile Data Platform. It relies on taking the atomic level components captured from operational systems, and aggregates them in such a way to be indicative (and predictive) of customer behavior.

What this means, for example, is that a customer’s navigation through an online banking application can be translated into an understanding of how that customer is behaving. At a micro level, a list of online banking interactions is relatively useless, because each individual customer is likely to navigate through an online banking session in a variety of ways, depending on what activity is being performed—and why.

With the right context for these otherwise identical interactions, it's possible to focus with a much higher degree of certainty as to what behavior and purpose the customer is likely to be engaged in. In the next ten years, the kinds of capabilities that should be expected in successful legacy banks might include:

- An intimate understanding of past, current, and future value of all customers at an individual level.
- A clear understanding of where customers are likely to be in the maturity and depth of their relationship with the bank.
- The ability to interact with individual customers, based on an intimate understanding of their own individual financial, life stage, and personal needs.
- The ability to identify alerts within transactions, interactions, and behaviors that represent indicators that customers are likely to “do something” within a range of timescales (from minutes to months)—allowing banks to make a decision to react or intercede.
- The ability to understand and accommodate all channel preferences for customers, and to orchestrate a seamless multi-channel customer experience— without leaving customers feeling they have been forced out of their preferred channels purely for the bank’s own convenience.

3. Collaborative Ideation Platform

This platform is probably the most esoteric and complex component of the Sentient Enterprise model. The original proposition behind the collaborative ideation platform was that organizations typically do not capture information about who uses information. To quote a large retail bank, “users rely heavily on experienced colleagues to navigate to the ‘right’ data resources, and educate them on how to best combine them to derive the truest picture.”

This component reflects that, in most organizations— with the exception of some core organizational KPIs—detailed knowledge of data provenance, lineage, meaning, reliability, and quality is typically restricted to relatively small bands of subject matter experts. This is not surprising, as the ability to unpick all the sources, transformations, and relationships between data

Consider Customers A and B

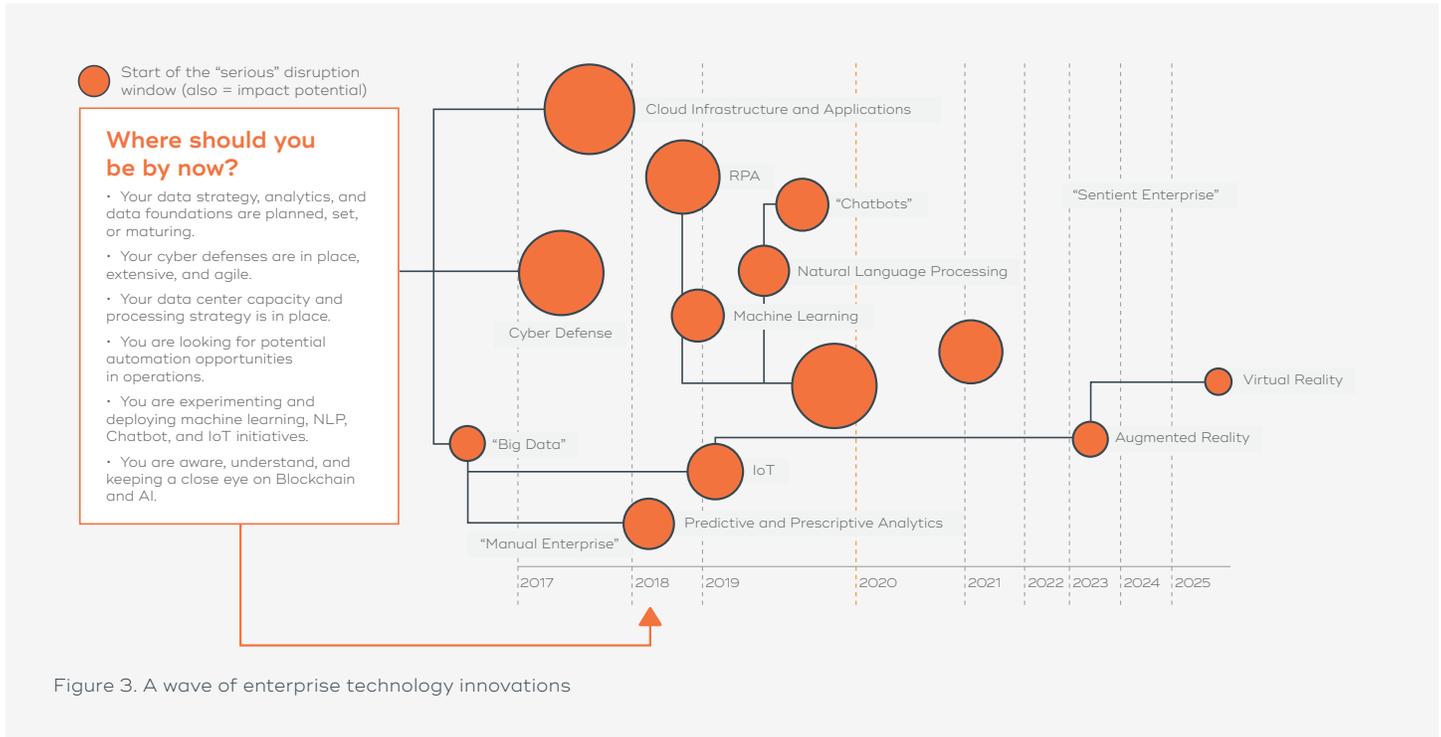
- They both engage in online banking and move to the “Saving Interest Rates” pages
- The activity represents an interaction, but doesn’t offer clarity on the true nature and purpose of the interaction

Without understanding their current status— or past and subsequent interactions with the bank— it’s impossible to distinguish which customer is thinking of opening a new savings account, and which might be thinking of moving their savings to a competitor.

elements in a 300-year-old institution with thousands of operational systems, millions of customers, and billions of transactions would require superhuman capabilities—or, at least, human capabilities augmented by technology.

The kinds of capabilities that should, by 2028, become ubiquitous in this area would include:

- “Business language” description of all data, and easily-understood information about sources, usage, lineage, and quality.
- The ability to add new data into the production corpus of data, without significant IT intervention and engineering effort.
- Ability to find subject matter experts, when required.
- Inclusion of “Analytics About Analytics” into regular reporting; for example, what are the hottest data elements in end user queries? How are all models and algorithms performing this week versus last week?
- Significant eradication of duplicate data within the organization, through increased visibility into where data is being stored.
- Consideration of how to manage AI performance; i.e., how would a customer service director evaluate the performance of a chatbot? How is it possible to avoid AI becoming a closed loop that is unable to adapt to changing circumstances?



4. Analytical Application Platform

Considering the Analytical Application Platform, this is something that many organizations are moving toward; although perhaps not necessarily with deliberate intent or in an integrated manner. However, it is clear even today that data storage costs and compute power are such that what might have been considered niche or complex analytics ten years ago, are now commoditized; e.g., speech to text, text analytics, graph analytics, and pattern recognition.

The potential for AI can dramatically change what a bank will look like—and how it'll operate in the next decade

5. Autonomous Decisioning Platform

When considering predictions about the impact that a functional Analytical Application Platform might have on a bank in 2028, it's necessary to introduce a significant caveat; that the outlook will be greatly influenced

by what happens to the final Sentient Enterprise capability—the Autonomous Decisioning Platform.

At this point, it's appropriate to introduce the impending uprise of Artificial Intelligence (AI). In 2018, AI is without question the emergent replacement for the big data hype cycle; however, some of the recent achievements in this field are so significant that a prediction for Financial Services in 2028 must feature AI as one of the most significant developments.

Much has been made of recent advances in AI. For example, the virtuoso achievements of Google's "Alpha Go", which has essentially solved the centuries-old challenge of how to win at Go. Considering the nature of Go (whereby all available outcomes are constrained by a set of documented rules), and that many business processes in Financial Services (where decisions are taken based on a set of documented rules) there is clearly a huge scope for the application of AI to financial decisioning.

As credit scoring has become more sophisticated, the ability to override has tended to disappear, particularly

A More Sophisticated, Demanding, and Mobile Millennial Customer with Access to Competitive Alternatives Defines the Future

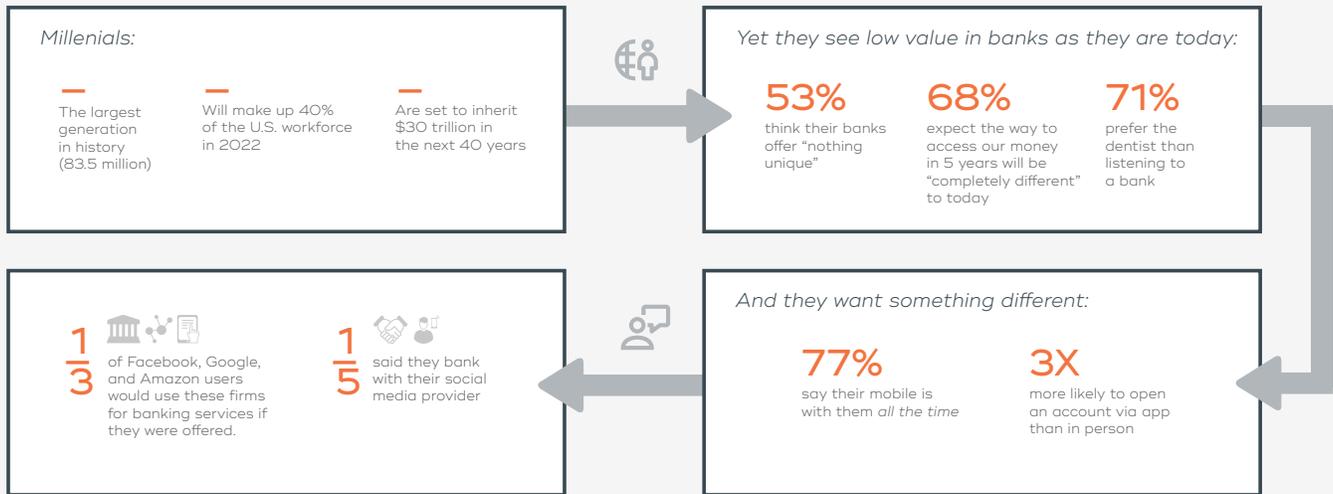


Figure 4. A wave of enterprise technology innovations

at the mass market (personal/small business banking) end of the spectrum. It's conceivable that lending decisions in 2028 could be undertaken by AI that is capable of making exceptions to "either/or" criteria, based on datasets of such detail and scale that no human would ever be able to effectively manage it.

Artificial intelligence might be easily capable of identifying a lending proposition that would not normally clear a credit score, but came with extenuating circumstances that would make it still a good risk. The scope for enhancing customer relationships and loyalty by giving loans to customer who might look like bad risks

Prior to automated credit scoring, risk decisions were delegated at various levels to individual bank officers who authorized loans against a variety of criteria from an unsecured and secured perspective. While objective criteria was generally applied, any decision could be overridden by a human being.

with traditional broad-brush modelling could represent a massive competitive advantage for the banks who can get this right. By the same token, being able to decline loans that would otherwise pass a traditional credit score would also represent a potentially massive impact.

It's worth noting that, too often, customers have become increasingly knowledgeable about how banks have traditionally made lending decisions—and are more than capable of gaming the system.

Integrating this perspective with various other emerging capabilities can provide a very useful triangulation on the kind of analytic roadmap that Teradata is helping clients in Financial Services to navigate (Figure 3).

The Role of Fintechs

In addition to the challenges legacy banks confront in the way of maneuvering from current, unwieldy legacy structures to new, agile, flexible, lower cost architectures, they face the dual threat of the Fintech revolution and the platform providers (Figure 4).

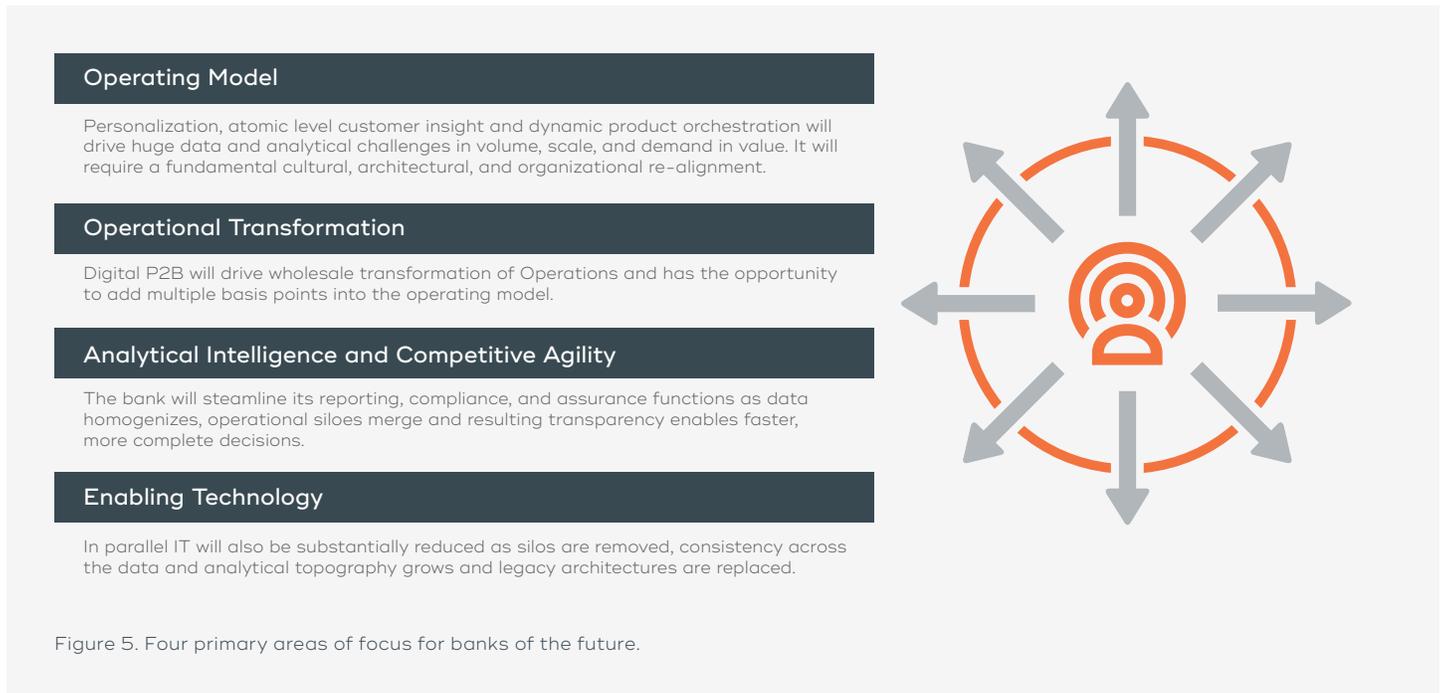


Figure 5. Four primary areas of focus for banks of the future.

There may be an element of the dot-com boom in respect to Fintech—as with any well-hyped innovation opportunity as venture capital flows around looking for the next big return. Some Fintech companies have already failed, and further rationalization and consolidation is inevitable. The more important question is at what point will there be a transformative market shift that forces legacy players to dramatically change their position and interaction in the market.

The point about a hyperscale business is significant; the FANG companies count their customer bases in billions. They are, therefore, better positioned to pursue incremental gains and operate at much lower margins than traditional players—a one basis point improvement for a customer base of 500M customers is a lot of value. Additionally, unlike legacy players, FANG companies typically have a much greater proportion of their cost base as true variable cost, making them better able to control their costs and, thus, forecast business performance.

To maintain competitiveness there are four primary areas of focus for banks of the future to consider (Figure 5).

Closing Thoughts

Technology is an enabler of change, offering the ability to effectively harness data and analytical capabilities

“The idea of Fintechs as a threat to retail banking might be receding, but new strategies adopted by FANG are even more challenging for incumbent banks. By creating a customer-centric, unified value proposition that extends beyond what users could previously obtain, digital pioneers are creating ecosystems that reduce customer costs, increase convenience, provide new experiences, and whet their appetites for more.”

Financial organizations turn to Teradata when:

- Seeking help with digitalization and increased competition
- Challenged to maintain profitability in the face of unprecedented changes in consumer-driven behavior
- Facing pressure to comply with radically increased regulatory oversight

that can greatly impact the potential for success of banks posturing to dominate their markets over the next decade, and beyond.

Forward thinking companies can deliver significant business value by enabling every person within their company—and every client doing business with them—to benefit from new and actionable analytical insights and capabilities. Insight-driven banks are creating market differentiation by delivering high-impact business outcomes across a range of improved mission critical analytics by:

- Creating more personalized—and lucrative—customer experiences
- Delivering operational excellence across all channels and touchpoints
- Transforming finance to increase operational transparency, boost the bottom line, and enable faster delivery of financial and regulatory reporting
- Using insights to innovate products
- Identifying and mitigating the most serious business risks
- Optimizing the value of critical business assets, from people to infrastructure

We believe banks that fail to take full advantage of analytics are at risk of losing competitive advantage and constraining their growth potential. In the longer term, we believe this is an existential threat.

About Teradata

Teradata leverages all of the data, all of the time, so you can analyze anything, deploy anywhere, and deliver analytics that matter. By providing answers to the complexity, cost and inadequacy of today's analytics, Teradata is transforming how businesses work and people live.

About the Author

Mark Perrett is head of Financial Services Consulting for Teradata International. His team provides subject matter expertise for colleagues working with our many financial services customers across the globe. In addition to sixteen years working at Barclays Bank in the UK, he has spent nearly a decade working as a data and analytics consultant focused on helping organizations deliver business value from their technology investments. Mark holds a degree in Psychology from Lancaster University and an MBA from Henley Management College.

For more information on operationalizing analytics for large banking organizations, visit Teradata.com/Industries/Financial-Services or email Mark.Perrett@Teradata.com.

Footnotes

1. The Sentient Enterprise by Ratzesberger and Sawhney, <http://www.teradata.com/Sentient-Enterprise>
2. McKinsey report, <https://www.mckinsey.com/industries/financial-services/our-insights/remaking-the-bank-for-an-ecosystem-world>