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Data Governance: Banks Bid for Organic Growth

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Business and technology executives regard time as a precious, inelastic, and scarce resource. As a result, time management has become a well-established business discipline. Opposite the scarcity of time, information resources change rapidly, are widely spread, and seem endless. If an enterprise does not properly manage the supply of vital data on its business and its customers, the data may turn out to be either insufficient or overwhelming, and it may arrive too late. Data flaws may jeopardize the resulting information and render it irrelevant or inadequate. Given the nature of business, the financial services industry hinges on electronic information for day-to-day transactions and decision-making purposes. This TowerGroup Research Note explores the role that enterprise data plays as a strategic franchise asset and driver of financial performance in banking.

Background

Amid favorable business conditions and a wave of mergers and acquisitions, leading banks have been sustaining profitable growth over the past five years. However, their gains in market valuation are merely half of the level enjoyed by leading companies in other financial services verticals and in industries such as technology, retail, and health care. Of course, some banks may justify the lag in market performance by pointing to external factors. Top excuses are the big impact of regulatory requirements and the erosion of profit margins due to heated competition and market saturation. A more insightful scrutiny of their balance sheets may reveal the dearth of a vital asset: information. In an increasingly fast-paced and automated world, information is money. To advance their role in the economic value chain, banks must transform and enrich their data, produce relevant financial information, and then turn this information into effective business actions.



Legacy and fragmented approaches to automation have left banks with a maze of duplicative and inconsistent data repositories. Duplicative and inconsistent data squirms through silo business units, business processes, and IT systems. New banking products and merger activity have spurred duplication and diverging views of even the most ordinary information elements. Business complexity has caused data types, sources, and occurrences to proliferate swiftly and relentlessly. Financial information comes from the processing of short-term transactions as well as the long-term tracking of individual customer records. Since large and midsize banks span vast geographies, each location may adopt a distinct view of similar data. Electronic transaction volumes have been growing steadily. Transaction volumes are augmented through their granular data elements, complex interrelationships, and linked operations, leading to a flood of information. This swell of electronic data seems still unchecked, thanks to ubiquitous broadband wireless and smart phone technologies as well as a surge in mobile workforce and collaboration networks.

Banking Data in Action

Most banks must still align their technology assets with their business strategies. Despite the pervasive role that information plays in their business operations, virtually all banks lack an enterprise data governance process. What are some of the publicized consequences?

Unfair Data Affairs

Sprawling and redundant data about customer accounts, products, and transactions have mired several enterprise automation initiatives. For example, data issues have caused some customer relationship management (CRM) implementations to be ineffective. Some internal data sources are more reliable than others, and banks seldom take external sources at face value. Breakdowns in access protection and controls over data flows have resulted in scary vulnerabilities and actual losses to fraud. Similarly, a freewheeling flow of electronic data tarnished the reputation of a few banks when their customer data and sensitive company information were compromised.

The banking sector has responded with a flurry of initiatives that demand the extensive logging and inspection of transaction data. Such tactical compliance solutions resulted in unwanted duplication and manual controls, so the industry is now envisioning a broader and more integrated approach to risk management. Because fragmented legacy structures still haunt most banking processes and supporting systems, data integration activities in an enterprise risk management initiative typically take up around 50% of the total effort.

From a structural perspective, banks face issues of data cohesiveness and entropy. Complexity, sophistication, and online flows have elevated the role that data plays across the organization. Banks used to relegate simple data to a deterministic, paced, and passive role. Live banking data now breeds in a mesh of combinatorial and fuzzy interrelationships that prompt real-time actions. Unlike the early, simple relational databases that thrived on intuitive, table-driven data models, bankwide systems are fraught with entropy: This term epitomizes the disorder and waste from duplicative and inconsistent data across the bank. The surge in poor data transcends the information system and spills over to the associated business processes. Indeed, adopting the right elementary data across the bank helps shape flexible business processes. Piling up rigid subprocess components would only yield a limited set of functional capabilities. Conversely, a foundation of elementary objects, schema, and living data elements may both nurture and hold together a rich mix of flexible business processes. In the context of service-oriented architecture (SOA) initiatives, conceptualizing standard data helps orchestrate a “choreography” of end-to-end operational workflows.



To compound the issues surrounding the use of data in traditional banking, an interesting paradox affects producers and users of the same data. Providing quality information generates a level of overhead beyond the operational task at hand. However, the recipients of such information may not be required to report the results to the producers. Besides, the recipients may be unable to find information that is available “somewhere” and often are even unaware of its existence. Since data quality and value depend on concerted action by all participants in the information supply chain, the adoption of a feedback loop between producers and recipients has become a key success factor.

Some technology advances may exacerbate these annoying data issues. The pervasive use of broadband mobile devices is blurring the lines between business and personal information. Thanks to the emergence of intelligent text documents and the tagging of image, video, and other media objects, electronic information is no longer bound by fixed data formats. Large volumes of online transaction data and multimedia objects generate rapidly changing interrelationships. Such massive flow of variable and complex data requires more adequate processing architectures, so network data structures are resurfacing to enable greater performance and flexibility.

Banking Imperatives

Based on the views from banking executives globally, TowerGroup has identified current and fundamental strategic business priorities:

- Growing revenues organically
- Improving operational efficiency
- Providing flexible and personalized offerings to customers
- Establishing reliable risk management and compliance processes
- Consolidating business operations across the bank

Meeting such bankwide priorities requires a consistent information platform that reaches across and outside the banking company. To grow revenues, banks adopt a holistic view of the customer relationship and life cycle that fosters deeper relationships, effective cross-selling, and price optimization. The orchestrations of small business, wealth management, and upscale banking services are typical examples of customer-centric integration. Such integrated services combine retail banking, cash management, trade, and investment products. At the higher end of the market, private banks offer a variety of specialized products and services (e.g., mortgages, structured finance, margin lending, brokerage, cash management, payments, bank cards, foreign exchange, asset management, hedging, trust and estate, alternative investments, family office, wealth transfer, philanthropy, and tax planning). Rather than creating duplicative service and processing functions, banks may build on internal and third-party products to integrate more sophisticated offerings. Differentiation stems from highly personalized and seamless interconnected solutions. These solutions cater to the needs of individual clients and are delivered through the client’s preferred channels. Direct online connectivity continues to grow as a delivery vehicle. Integrated online views also support client interactions by “high-touch” relationship managers, product specialists, and knowledgeable service personnel. Banks also require integrated information to compress the engineering and time to market of new products.

Virtually all bank executives grumble about the overhead attached to regulatory compliance mandates and balk at the inevitable data integration efforts. Interestingly, TowerGroup has found that banks rarely track the fully loaded cost of such compliance and data integration activities (e.g., archival, monitoring, reporting) at an enterprise level. Opportunities abound to save on duplicative and inconsistent data, interfaces, and automated feeds that often entail administrative efforts and rework to reconcile different



versions and fix errors. Streamlined data feeds in simpler processes may fulfill regulatory requirements and better serve corporate performance management (CPM) purposes. Banks must understand the fully loaded cost of incomplete, incorrect, conflicting, and redundant data. The cost comprises direct and indirect labor at all organizational levels, materials, reruns, and consequential overhead. As shown in Exhibit 1, TowerGroup estimates that the cost of poor data quality in the banking industry will reach \$27.9 billion (USD) globally in 2006. Administrative costs still are higher than technology costs, but increased automation will progressively reduce much of this overhead. When banks add the cost of poor data and unavailable information across all affected banking activities and lost business opportunities, the total amount can be staggering.



Cost of Data Quality in the Banking Industry (2006)

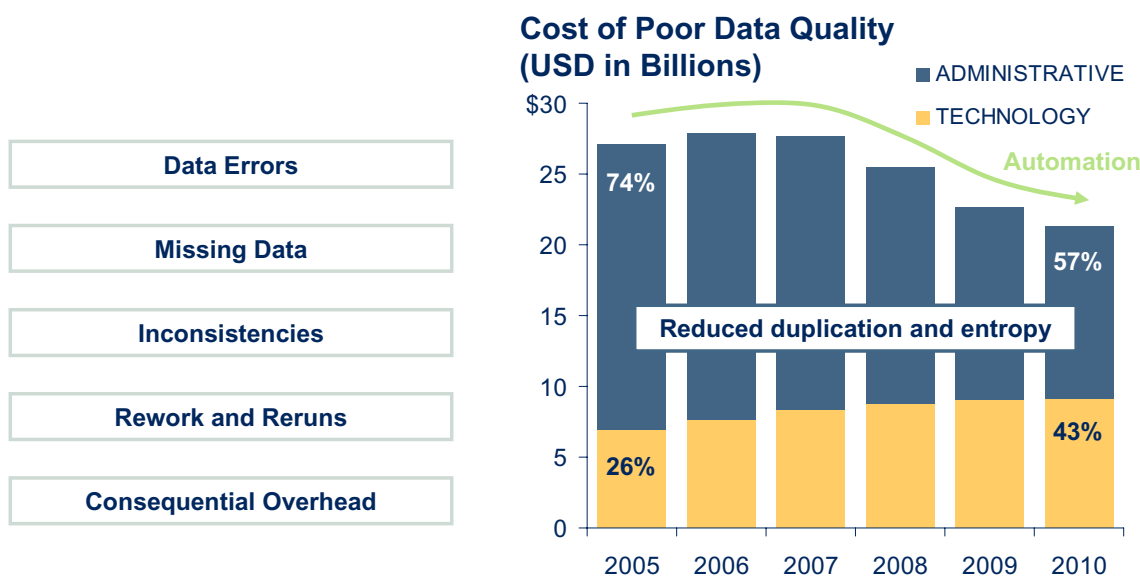


Exhibit 1
Source: TowerGroup

Exhibit 1 Cost of Data Quality in the Banking Industry (2006)

Source: TowerGroup

Since information moves between internal and external processing parties, banks must establish dynamic controls throughout these interconnected processes. As the proportional cost of running and maintaining disparate interfaces declines, banks redirect their precious technology resources to business transformation.

Banks must take charge by introducing sound data architectures. Integrity, timeliness, adaptability, consistency, and reliability are essential attributes of enterprise data. Sometimes, purposeful duplication occurs in distributed versions that are circulated to multiple users. However, such dispersed data is harder to collate in a timely manner for advanced analytics and automated decision making. Rather than navigating through multiple repositories, banks would prefer to locate a “single source of the truth” for vital customer and financial data. Other structural imperatives would benefit from such cohesive enterprise data architecture. For example, a dynamic banking business environment demands that data processing be efficient and scalable.



Banking processes require tighter controls and greater disclosure, as reflected in the Basel II risk management regulations globally, the Sarbanes-Oxley Act in the United States, and similar mandates. Consequently, banks must ensure that financial data is transparent and traceable down to the transaction level. Some compliance mandates require banks to reconstitute all point-in-time data associated with a financial transaction. Unstructured information also factors into the compliance process: Key data must be pulled from a sea of free-flowing text within and outside the bank, including an average of millions of e-mail interactions with customers every day. Monitoring and auditing unstructured information is beyond the ability of conventional systems and has given rise to advanced tools and techniques to perform intelligent searches and information discovery. A robust transaction monitoring capability not only is necessary for compliance but also brings immediate opportunities to save on fraud and operational losses.

Business Transformation Strategies

Most executives understand the business opportunity attached to distinct and sophisticated views of financial information. As new technologies disrupt traditional business models and trigger strategic transformations, gaining control over the emerging information flows becomes a source of power within and outside the organization. A first leadership move is to envision the desired state of information assets that will drive innovation and change through diverse business models, product and service offerings, and operational processes. Banks face a tall order in recombining and reshaping their business operations. Therefore, many banks are seeking a balanced approach that leverages their investments in tactical and legacy solutions by repurposing valuable data and technology assets into architected enterprise frameworks.

Besides being an intrinsic asset across banking process flows, the synergistic use of data must be understood as a business enabler for organic growth and operational efficiency. Most data governance initiatives are motivated by marketing, risk and compliance, transaction processing, or technology consolidation. Virtually all technology projects link to customer data. In order to market, sell, and serve well, front-line personnel (e.g., relationship managers, tellers, customer service representatives) must have access to complete information. Data about customers, products, and controls must be rich, accurate, and timely. Personalized information plays a central role at the intersection of customer knowledge and product features and tightens the relationship between clients and their relationship managers. Growing volumes of data in diverse electronic data feeds are a vital source of credit and market information and are often channeled through a master data management function.

Changes in the business value chain are impacting data flows. Globalization, functional specialization, consumer market forces, and collaborative work models are giving rise to loosely coupled business alliances and partnerships. Monolithic corporate structures are yielding to networked, “virtual” enterprise services. Information is being distributed broadly across these shared services. Thanks to personal mobile devices, distributed information is sprawling everywhere. Superior information is a source of power. In the bank, knowledge management portals are unleashing the collective power of its employees and business partners. Beyond the possibilities that breed in any such centrally controlled content management program, the Internet keeps extending the frontiers of experimentation, discovery, and innovation. Global collaboration over the Internet is surging into a wave of user-driven information entities such as open software “wiki” Web sites.

Bank executives and business managers have been employing a cascade of vital performance measurements across operating units. Such cross-functional measurements communicate a cohesive vision of the desired transformation stages and gauge the progress of concurrent change projects. The transformation of business processes and application systems requires a broad mix of enterprise knowledge covering the intertwined dimensions of banking functions, technology architecture, and data structures. Absent



appropriate metrics, it is hard to drive improvements, and most banks have yet to adopt key performance indicators (KPIs) that reflect overall data capabilities.

Information assets work as a catalyst of enterprise integration as data models (e.g., semantic, logical, physical) become the unifying force behind a networked “virtual” company. TowerGroup has found that banks consider adopting standards and centralizing customer information to be the preferred strategies to reduce their technology integration costs. An effective approach is to realign business operations with customers’ needs. Despite the common wisdom that customers drive quality, many centralized customer information initiatives got mired in ineffectual CRM implementations that lacked real business value. In contrast, in several success stories, the use of standard banking data models has jump-started enterprise integration projects and saved a large portion of the data integration effort. In other cases, institutions have leveraged automated tools for the dynamic detection, inference, and discovery of data types and the subsequent acquisition of relevant data structures and stored information. Data governance frameworks are furthering strategic alignment and consolidation across banking businesses by spanning multiple dimensions of policy, organization, customer, product, service, people, process, and technology.

More Information About Banking Data

Since banking embodies sensitive customer and financial information, institutions have grown increasingly dependent on data, thereby exposing themselves to threats, privacy concerns, and operational risk. Consequently, most banks have embraced information security disciplines to protect themselves from external and internal fraud. Many have also established a corporate information security function to steer such programs across business and technology units. TowerGroup estimates that banks have been allotting about 4% of their technology budgets to information security software, processing, and support functions. Automated safeguards in the form of protection, detection, governing rules, and actionable alerts vary according to the bank’s information security policies, data classification (e.g., restricted, confidential, private, internal use, and public), and risk assessment. Risk factors weigh the data class, its source (e.g., trusted, vulnerable, suspicious, and threat), and the potential business impact.

Banks have been tapping technology advances that amplify the information sprawl. These advances include virtually unlimited storage capacity, breakthroughs in processing speed (e.g., parallel processing), and broadband data transmission, at low cost and with easy access. An interesting approach to effect integration amid such growing complexity is to establish a centralized operational data store that feeds from disparate customer and product systems and supports real-time interactions with the front office. The explosive growth in electronic storage has also made data protection a priority. Primary protection measures include encrypting transmitted and stored data, especially customer identity and other sensitive information. Stored data is usually subject to controls on access, change, synchronization, integrity, and privacy. Key attributes of stored data comprise the associated conceptual structure (also known as “ontology”), the intended persistence as a primary source of reference, and the redundancy or distribution criteria for availability, version control, history tracking, audit, retention, resilience, and performance purposes.

All banking operations embed valuable data. Because the prevailing structure of banking products and operational functions is fragmented, electronic data must be spread across several specialized business processes and systems to articulate a typical transaction. Enterprise integration frameworks (e.g., SOA) provide a structured layer and “bus” for data transport across all application systems. Enterprise data transport displaces monolithic data structures with a collection of loosely coupled and dynamically integrated information repositories that follow normalized, standard industry criteria. Exhibit 2 illustrates various interaction, process, and data components that integrate an SOA environment. In such an interconnected environment, preserving data quality is essential. Data quality is a broad discipline that



encapsulates internal data operations such as organizing, staging, integrity, scrubbing, cleansing, enriching and deriving, reassurance, and access performance.



Service-Oriented Architecture: Context Map (2006)

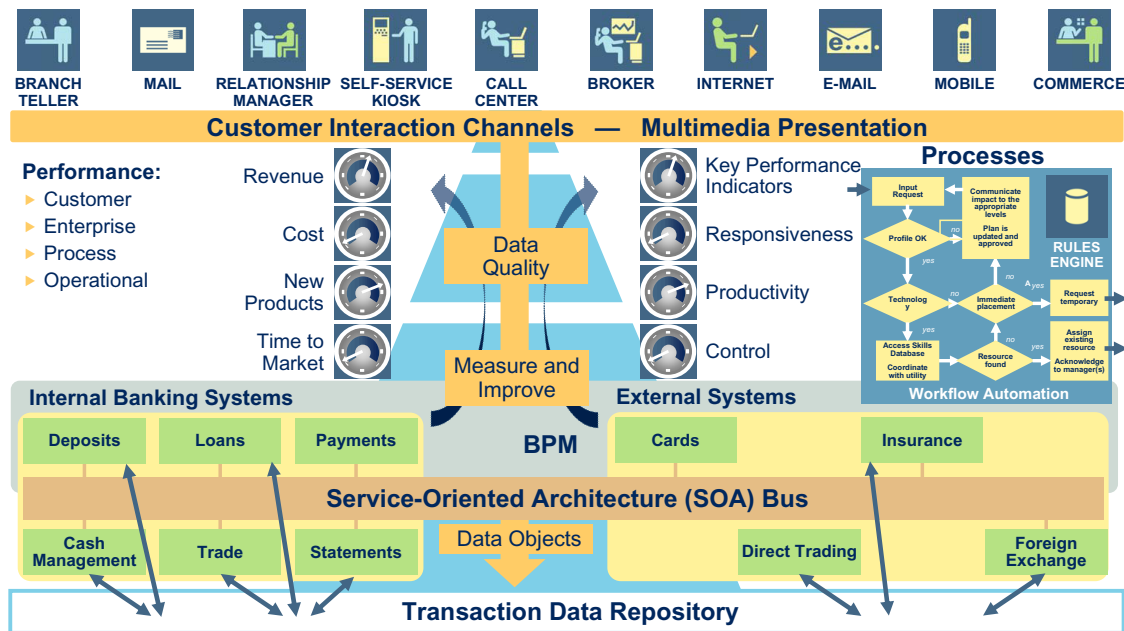


Exhibit 2
Source: TowerGroup

Exhibit 2
Service-Oriented Architecture: Context Map (2006)
Source: TowerGroup

Banks are promoting functional integration and adoption of best practices by focusing on the semantics (e.g., business meaning and rules) of their enterprise data. They decouple related data from disparate business processes and pull it together by semantic affinity at a common level of abstraction that maps to existing source system models. Naming conventions for abstracted data entities must be meaningful to different business users and supporting technology systems. Semantic consistency involves leveraging proven data models and establishing data hygiene procedures. Data mining techniques and advanced analytics create new value and business models. For example, predictive analytics can anticipate customer behaviors accurately, and comprehensive views of customer relationships can optimize profitability across diverse products and services. As banks take up SOA to connect with rapidly evolving internal and external utility functions, a new breed of unstructured data is unfolding as a common functional denominator across the banking industry, its customers, and business partners. The semantic Web initiative leverages unstructured data by encapsulating conceptual models and logical relationships. It then exposes information in a common format that facilitates universal exchange across applications and document platforms.

Notwithstanding general industry patterns, the timeliness requirements for accessing and processing data are based on the particular business mix and customer needs at each bank. For each instance, data performance varies from real time to quasi-static and maximizes service levels in relation to cost. Promptness of information is becoming a competitive differentiator. In treasury and institutional trading transactions, very low processing latency is critical to absorb a growing flood of data. Treasury systems must quickly



absorb data from multiple sources across a combination of asset classes. High-performance trading has introduced complex event processing tools such as data streaming architectures with derived information, automated event triggers, and real-time alerts. Another example of fast processing belongs in retail banking, where two-way, proactive alerts prompt the completion of interactive financial transactions.

Data Governance Trends

Corporate governance means the administration of policies, people, customer and enterprise assets, business processes, and technology resources. Business executives think in terms of markets, relationships, capabilities, strategies, and results. At a different level of analysis, would the term “data governance” function as a unifying theme solely for processes, products, and services? Actually, banking data assets amalgamate diverse dimensions and interrelationships of virtually all resources across the enterprise. Data governance programs are thus holistic and must be inscribed in a broader corporate administration scheme.

Emerging Approaches to Data Governance

Historically, banks have embedded some form of data governance in their IT management function or customer information efforts. Most executives agree, at least conceptually, on the importance of information in their enterprise. However, most banks lack a formal enterprise data program. In the enterprise context, organizational models for data governance involve managing bankwide resources through defined roles and responsibilities and accountability for all information assets. Executive sponsors, business champions, and data owners must promote a data culture and coordination across the bank. Data governance starts with leadership and a business vision that leverages information strategies.

Inscribing data initiatives within wider governance functions has been a challenge. Functional domain expertise is critical, and data governance should mind the affinity with specific business processes. For instance, regulatory mandates on capital adequacy and effectiveness of controls place responsibility for financial data at the board level, and good performance is rewarded with “well capitalized” or “well managed” ratings for the entire bank. Among best governance practices, banks ponder the direct, indirect, and opportunity costs that are attached to their data. In such a formal approach, business units may quantify the return on investment (ROI) that is attributable to a data management capability based on expected gains in process efficiency, adaptability and dependability, new semantic value, autonomic technology resilience, and information integrity. Another example of business value builds on the widespread adoption of outsourcing and formal service interaction models. These models drive the alignment and partnership involving outsourced functions and data between businesses and technology providers.

To execute a data governance business mission, senior executives designate corporate resources to steer a comprehensive program. Typically, such programs encompass the definition of policies, strategies, processes, standards, principles, rules, controls, metrics, and performance reporting. Data becomes another tool in the functional management repertoire that addresses a fundamental question: What data assets does a business unit own or need? Formalizing the program and continually communicating progress foster adoption. Actions should include publishing a data governance manual, sharing best practices, and educating staff and customers on the implications of data (e.g., value, information security). Nevertheless, sustainable adoption of a data program ultimately depends on the value that such “enterprise” information delivers to each department and business unit to fulfill day-to-day tasks. For more insights on success factors for enterprise program governance, see TowerGroup Viewpoint Issue 152, *Business and Technology Transformation: Enterprise Paradigms in Financial Services*.



Periodic assessments of the capability levels in data governance provide the necessary visibility across the organization and help in mobilizing resources and keeping them focused. The scope of a capability assessment includes the following dimensions of information performance:

- Corporate awareness
- Policies and procedures
- Roles and responsibilities
- Business and technology skills
- Formulation of existing and desired business value (e.g., cost efficiency targets)
- Performance benchmarks for selected data attributes
- Effectiveness and benefits of data improvement actions

The evaluation should reveal cross-functional strengths and issues highlighting both the accomplishments and the concentration of risk and exposure stemming from data governance capabilities. As shown in Exhibit 3, most banks are still at the initial levels of data capability. Steps to maturity involve establishing an enterprise data program that combines organizational and technology capabilities. As a data culture takes hold, banks establish an integrated platform to drive business transformation and customer value.



Levels of Capability in Data Governance in the Banking Industry (2006–10)

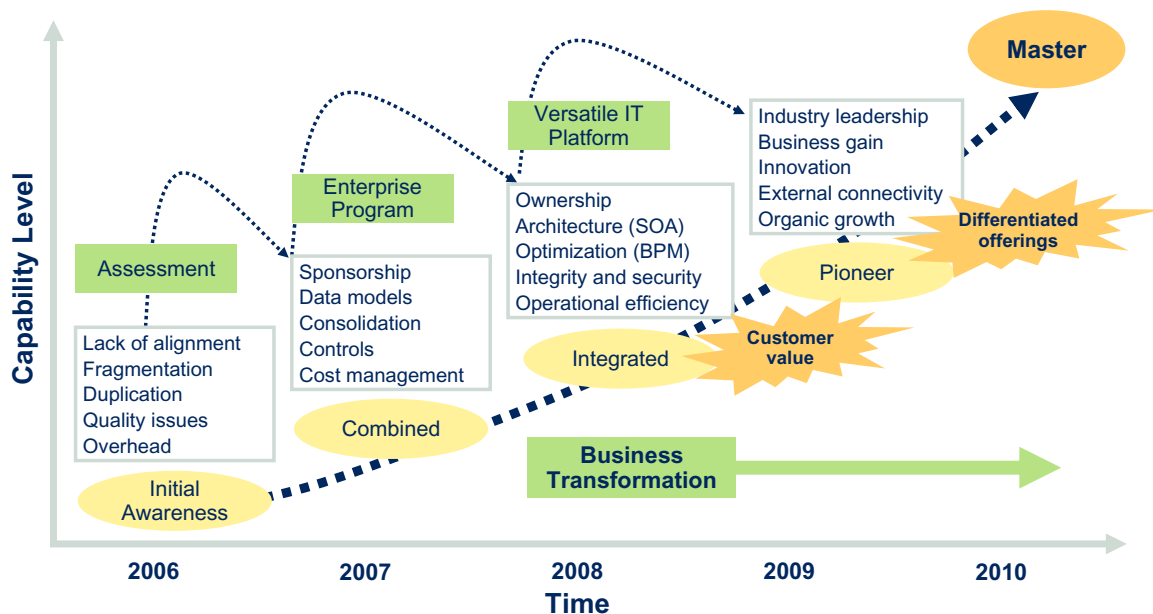


Exhibit 3
Source: TowerGroup

Exhibit 3
Levels of Capability in Data Governance in the Banking Industry (2006-10)
Source: TowerGroup

Based on the capability assessments, banks prioritize their data improvement initiatives and inscribe them in their mainstream portfolio of business and technology projects. Project implementation must be coordinated with existing program management office (PMO) resources. Given the growing complexities of their enterprise and networked systems, banks are gradually replacing dysfunctional and ad hoc data



repositories with a combination of architected data structures. Rather than pursue separate, long-haul data projects, banks should take a phased approach that delivers practical business value and drives organizational change through manageable transitions.

Data Management Tools

In their technology shops, banks have been evolving traditional data infrastructure platforms such as relational data models, database software, data warehouses, message-oriented middleware, standardized definitions, functional dependencies and characteristics of data elements (metadata), a glossary, and elementary data objects. Data initiatives provide new opportunities for realigning, innovating, and optimizing business processes and application systems. Cohesive data governance architectures are converging with business process management (BPM) tools, enterprise rules engines, and solutions to achieve a more pervasive and unobtrusive integration across the bank. Examples of these architectures are operational data stores that banks implement as a centralized repository or as virtual links with real-time extraction from the primary data storage sources. More traditional tools include configuration management, in-line validation, data backup, and recovery utilities for business continuity and disaster recovery.

Many banks have also implemented business intelligence (BI) solutions to streamline enterprise reporting and mask the complexity of underlying information systems. A cascade of performance dashboards implemented throughout the organizational levels supplement information systems by providing consistent monitoring and communications. Thus, collective knowledge prompts cohesive actions that permeate various decision and operational levels. A new information layer with multidimensional data mining and intuitive presentation features has been emerging for meaningful interaction for customers and internal users.

Widespread use of the Internet and unstructured data has elevated the role of intelligent search engines. To mitigate the hidden cost of structured and open information searches, optimization tools rationalize and improve the performance of routine queries. Rather than reinventing the wheel, banks employ data models that are prepopulated with standard financial services entities, functional relationships, event-driven workflows, and process templates. These models often incorporate intuitive visual diagrams with drag-and-drop features for easier understanding and functional flexibility.

New Waves of Data

Bank executives and IT leaders should evaluate the actual costs and opportunities stemming from their diverse data structures. Risk and compliance imperatives have obliged many banks to build enterprise architecture and taken much of the data budget and attention. Going forward, leading banks will pursue more holistic data governance strategies that benefit their business operations and customer value proposition.

Information is a key factor in shaping customers' experience because it connects and manifests the value of all bank resources. A comprehensive, customer-centric classification of relationship and financial transaction data puts customers in control of their data flows. Customer transactions and lifestyle events trigger targeted, just-in-time prompts based on personalized preferences. Built-in relevance alleviates a bank's burden of continually plowing through all internal and external data to pull information of doubtful significance. Customers also congregate in online communities that are organized around common information interests and topical channels. Localized, community-based information networks are introducing novel and nondeterministic data flows that embed financial transactions in collective lifestyle motives.



Most banks are making organic business growth their top priority. To this purpose, personalized information flows enable the deepening of customer relationships through tailored products, services, and incentives within a holistic pricing approach. As electronic data gets richer and accommodates natural language patterns, the scope of customer interactions will broaden to context-relevant multimedia dialogues.

Banks must steer through a series of disruptive technology innovations that will emerge over the next five years. These structural innovations will fundamentally shift the scope, structure, and dynamics of the banking business. Amid these pervasive business and technology shifts, there is no such thing as “data” governance; rather, there is just sound, effective, and responsible enterprise governance. In the evolving world of banking and adjacent industries, actionable data is becoming a mission-critical asset that fuels growth. As primary consumers of technology and information, banks should influence the convergence of diverse industry initiatives to rationalize and facilitate the agile exchange of data.

Summary

Growing complexity in the financial services industry, coupled with increasing volumes and diversity in electronic transactions, is clashing with legacy and fragmented banking systems that encircle a maze of duplicative and inconsistent data repositories. TowerGroup estimates that the total technology and administrative cost of poor data quality and unavailable information across all affected banking activities can be staggering. Data governance starts with leadership and a thorough capability assessment that forms a business vision to leverage information strategies for organic growth. As executive sponsors, business champions, and data owners engage in promoting a data culture, banks establish an integrated platform to drive business transformation and customer value. By adopting advanced data management methods and tools, banks reaffirm a sound, effective, and responsible enterprise governance approach that promotes organic growth.



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