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A View from the Top: Credit Risk Management Dashboard Reporting for Financial Institutions



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Section 1

Point of view

Point of view

The financial crisis was driven in part by the inability of financial institutions to effectively identify and manage underlying credit risks in sophisticated investment vehicles.

“The 2007-08 credit crunch has been far more complex than earlier crunches because financial innovation has allowed new ways of packaging and reselling assets. It is intertwined with the growth of the subprime mortgage market in the United States—which offered nonstandard mortgages to individuals with nonstandard income or credit profiles—but it is really a crisis that occurred because of the mispricing of the risk of these products. New assets were developed based on subprime and other mortgages, which were then sold to investors in the form of repackaged debt securities of increasing sophistication.

These received high ratings and were considered safe; they also provided good returns compared with more conventional asset classes. However, they were not as safe as the ratings suggested, because their value was closely tied to movements in house prices.”¹

“The strong demand for higher yielding assets, in turn, supported the rapid growth of the ‘originate-and-distribute’ model of credit intermediation, in which underlying credit risk is first unbundled and then repackaged, tiered, securitized, and distributed to end investors. Various entities participated in this process at various stages in the chain running from origination to final distribution. They include, in addition to primary lenders, mortgage brokers, bond insurers, and credit rating agencies...

The apparent disconnect between the true credit quality of the underlying assets and the promised performance of the structured instruments backed by them proved eventually to be a major flaw.”²

¹ Mizen, Paul. “The Credit Crunch of 2007-2008: A Discussion of the Background, Market Reactions, and Policy Responses,” *Federal Reserve Bank of St. Louis Review*, September/October 2008.

² Organisation for Economic Co-operation and Development. *Financial Market Trends*, May 2008, 94(1), p. 13.

Point of view

Technology and reporting constraints were partly to blame for the lack of early warning indicators during the crisis. Going forward, success will depend on the ability of risk managers to accurately assess and address evolving changes in risk.

Within financial institutions, the risks being taken by individual lines of business may have been well understood. However, how those risks were correlated, and their cumulative impact on the organizational risk profile, were not. The lack of a portfolio view of risk is due, in part, to fragmented technology and inadequate risk reporting.

As discussed in the PwC Viewpoint *Risky Business: Why Managing the Risks of Evolving Business Models Is the Key to Avoiding the Next Financial Crisis*, “In many cases, senior management lacked a portfolio view of risks across the organization. For example, a number of financial institutions had several business units that were engaged in similar strategies, trading, or selling similar products. Often, there was no organization-wide understanding of the combined effects of these product offerings. The lack of a portfolio view of risk was often hampered by fragmented technology and/or inadequate risk reporting across the organization. Some institutions did not account for risk premiums when performing balance sheet analyses; as such, risky assets were not closely monitored. This led to refinancing and other transactions that were based upon asset values that may have been either overstated or not adequately hedged against losses.”¹

Effective credit risk management requires the ability to accurately assess and address evolving risks over time.

- Risk managers are challenged to distill vast quantities of data into concise, actionable, and forward-looking views of risk, which facilitates risk mitigation activities and creates opportunities to capitalize on market conditions. For example, organizations that have undertaken FDIC-assisted transactions face significant challenges in understanding the future impact of mandated accounting and loss-sharing treatments on portfolio quality and overall performance trends.
- The failure to respond quickly and appropriately to changes in risk dynamics at both the customer and portfolio level can have devastating results in this volatile environment. For example, banks that failed to fully appreciate the risks that were building up in their mortgage exposures to residential development and commercial real estate experienced higher-than-expected defaults, which in some cases threatened their capital adequacy. From January 1, 2008 to April 15, 2011, the FDIC closed 356 banks.²
- In order to gain a full understanding of operating results and respond effectively to changing risk dynamics, risk managers must be able to quickly assimilate significant portfolio issues and drill into relevant data as necessary.

¹ “Risky Business: Why Managing the Risks of Evolving Business Models Is the Key to Avoiding the Next Financial Crisis,” January 2011, www.pwc.com/fsi.

² FDIC Failed Bank List. www.fdic.gov Accessed April 27, 2011.

Point of view

The Dodd-Frank Act now requires banks to retain a portion of the credit risk for any asset. Regulators are seeking expanded disclosure of risk-related data for analysis.

Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank) requires:

“Skin in the Game:” Companies that sell products like mortgage-backed securities must retain at least 5% of the credit risk, unless the underlying loans meet standards that reduce riskiness. That way if the investment doesn’t pan out, the company that packaged and sold the investment would lose out right along with the people they sold it to.

Better Disclosure: Issuers must disclose more information about the underlying assets and to analyze the quality of the underlying assets.”¹

“A regulatory requirement to track and report timely, consistent, and fully aggregated data on risk exposures could also promote better risk management by the firms themselves. And increased public disclosure of such data would provide investors and analysts with a more complete picture of individual firms’ strengths and vulnerabilities, as well as of potential risks to the system as a whole, thereby facilitating more effective market discipline.

The Federal Reserve is expanding its already-extensive commitment to the collection and analysis of financial data. For example, efforts are under way to construct better measures of counterparty credit risk and interconnectedness among systemically critical firms.”²

Chairman Ben Bernanke, June 16, 2010.

¹ Brief Summary of the Dodd-Frank Wall Street Reform and Consumer Protection Act, http://banking.senate.gov/public/_files/070110_Dodd_Frank_Wall_Street_Reform_comprehensive_summary_Final.pdf

² Chairman Ben S. Bernanke, Remarks on “The Squam Lake Report: Fixing the Financial System” Chairman Ben S. Bernanke At the Squam Lake Conference, New York, New York, June 16, 2010
Remarks on “The Squam Lake Report: Fixing the Financial System”

Point of view

Market participants, in addition to regulators, are demanding higher levels of transparency. Better credit risk management data is crucial to this.

The marketplace now demands high levels of transparency around risk trends and management practices.

- Firms listed on the New York Stock Exchange must now reveal their risk assessment policies.¹
- Standard & Poor's has incorporated risk management capabilities as a factor in assigning ratings.²
- Other stakeholders, including executives, board members, investors, shareholders, and customers are now demanding accurate and timely views into the drivers of future performance.

Global mortgage investors will likely remain on the sidelines until they perceive improvements in the reliability of credit-risk assessments. These improvements will largely be driven by enhancements in mortgage credit policies, data management, and analytics.

- Data integrity, both in terms of completeness and accuracy, has been an industry challenge; such problems continue to persist as data passes through lenders' operations and to third-party service providers, mortgage investors, and guarantors. However, leading practitioners are focused on improving data quality.
- To manage data generated from multiple systems and stored in multiple databases in a variety of formats, leading practitioners have implemented better information technology (IT). These fixes are improving credit analytics and management reporting, helping to prevent extensive delays in information reaching senior management because of expensive aggregation and error-checking processes.
- Leading practitioners have improved their credit decision-making policies to satisfy the transparency requirements of third parties with vested interests in the decisions made by lenders.
- Because good data and better reporting help senior management identify problems early, leading practitioners are making IT investments in loss mitigation and other IT initiatives. These lenders recognize that such investments may lead to revenue generation if they help to avert big-dollar credit losses.

¹ <http://www.nyse.com/pdfs/finalcorpgovrules.pdf>

² Standard & Poor's. 2010. Guide to Credit Rating Essentials: What are Credit Agencies and how do they work. Standard & Poor's Financial Services LLC.

Point of view

Leading financial institutions are upgrading technology infrastructure and risk reporting capabilities.

Financial institutions have made tremendous investments, in both time and money, to gather detailed risk-centric data.

- Detailed customer, transactional, and product data have been collected in response to management improvement initiatives related to FDIC-assisted transactions and regulatory requirements such as Basel II.
- In many cases, financial services firms have only recently fully scrubbed, standardized, and consolidated such data into a single central repository. This repository facilitates credit risk management at an enterprise level.
- Many organizations have not yet leveraged this repository of data beyond basic reporting and regulatory compliance considerations. For these organizations, the true value of these investments has yet to be realized.

Well-designed credit risk management dashboards can enable firms to further leverage their data-related investments to improve and accelerate decision making, and require little additional investment.

- Reporting capabilities have evolved and become more sophisticated over time, enabling end users to better manage and interpret complex information.
- Dashboard reporting, coupled with drill-down capabilities, enables users to:
 - Summarize the most relevant metrics.
 - Call attention to key areas of concern.
 - Access detailed information that is required to understand root causes and underlying trends.
 - Identify, escalate, and potentially mitigate the impact of newly arising credit risk concerns earlier in the process.

Information used in risk management decisions should be comprehensive, accurate, accessible, and based on high-quality data.

- Data should be transformed into meaningful metrics that are reflective of the nature of the business and key risk drivers and that can readily be understood by all business process participants.
- Metrics should measure and allow for essential risk identification, risk-adjusted performance measures, portfolio management activities, and capital allocation decisions.

Point of view

Credit risk reporting frameworks vary across institutions. As financial institutions move to improve, we recommend that several basic principles form the basis for design.

Organizations' credit risk reporting frameworks vary extensively across the industry.

- In some cases, organizations continue to rely upon more traditional forms of reporting to deliver management information to decision makers, including detailed reports, management summaries (such as Microsoft PowerPoint® presentations) and supporting analyses.
- A growing number of leading practitioners have begun to leverage dashboards to summarize key measures of risk and performance, augmented by more traditional reporting tools.
- The most advanced institutions have embraced dashboards that communicate information both numerically and graphically, which are organized in a manner to facilitate interpretation, and contain layers of reporting designed to address the needs of different internal audiences.

In order to create a robust and scalable reporting and analytical platform for management reporting and monitoring purposes, there are a number of basic tenets that form the basis of the design approach.

- End user needs and expectations should form the basis for business requirements and design considerations.
 - Existing legacy system constraints must be considered, but should not limit the final target operating model.
 - Roll out of the system should be evolutionary (vs. “big bang”), with additional capabilities phased in over time.
 - Reporting capabilities should be designed to accommodate both on-screen dashboard views and traditional physical and electronic reports.
 - The level of detailed data imported into the repository may vary across data types, but must be consistent with envisioned drill down and scenario modeling needs and capabilities.
 - The envisioned solution should be structured to accommodate changes over time, as new needs and requirements are identified.
-

Point of view

A well-designed credit risk dashboard can enable financial institutions to make better business decisions by providing timely and actionable information, increasing visibility of risks across the organization.

Effective credit risk dashboards provide management with the tools necessary to measure and communicate risk appetite.

In addition, clearly established risk baselines can help financial institutions identify issues that may arise from the cumulative impact of enterprise-wide risks and evolving business models over time.

Actionable information

- Converts complex, detailed data into manageable and easily consumable information, in a user-friendly format.
- Allows for multiple levels of reporting, including executive-level dashboard views and standard reports with drill-down capabilities and heat-map functionalities.
- Allows for timely identification and escalation of critical issues.

Increased productivity

- Improves the accuracy and consistency of reports circulated to different constituencies, eliminating the need for manual reconciliation of conflicting data.
- Reduces the time and effort associated with ongoing report production while accelerating delivery timelines.

Benefits of a credit risk management dashboard

Better analytics to inform management decisions

- Enables reporting of trend analyses, forecasting, and monitoring of key business and financial metrics.
- Provides early-warning alert mechanisms to ensure that management is made aware of key areas of focus.
- Facilitates more accurate interpretation of risk events and trends, including understanding the directional changes in trends.

Enhanced performance and competitiveness

- Creates measurable performance improvements through proactive management of both positive and negative trends and events.
- Reinforces strategic goals through the monitoring and reporting of consistent performance measures.
- Provides the timely data and analysis needed to grow revenue by only accepting risks consistent with organizational risk appetite and risk/reward strategies.

Section 2

Competitive intelligence

Competitive intelligence

Many sophisticated financial institutions are advancing their capabilities to manage risk-centric information by embracing core dashboarding concepts.

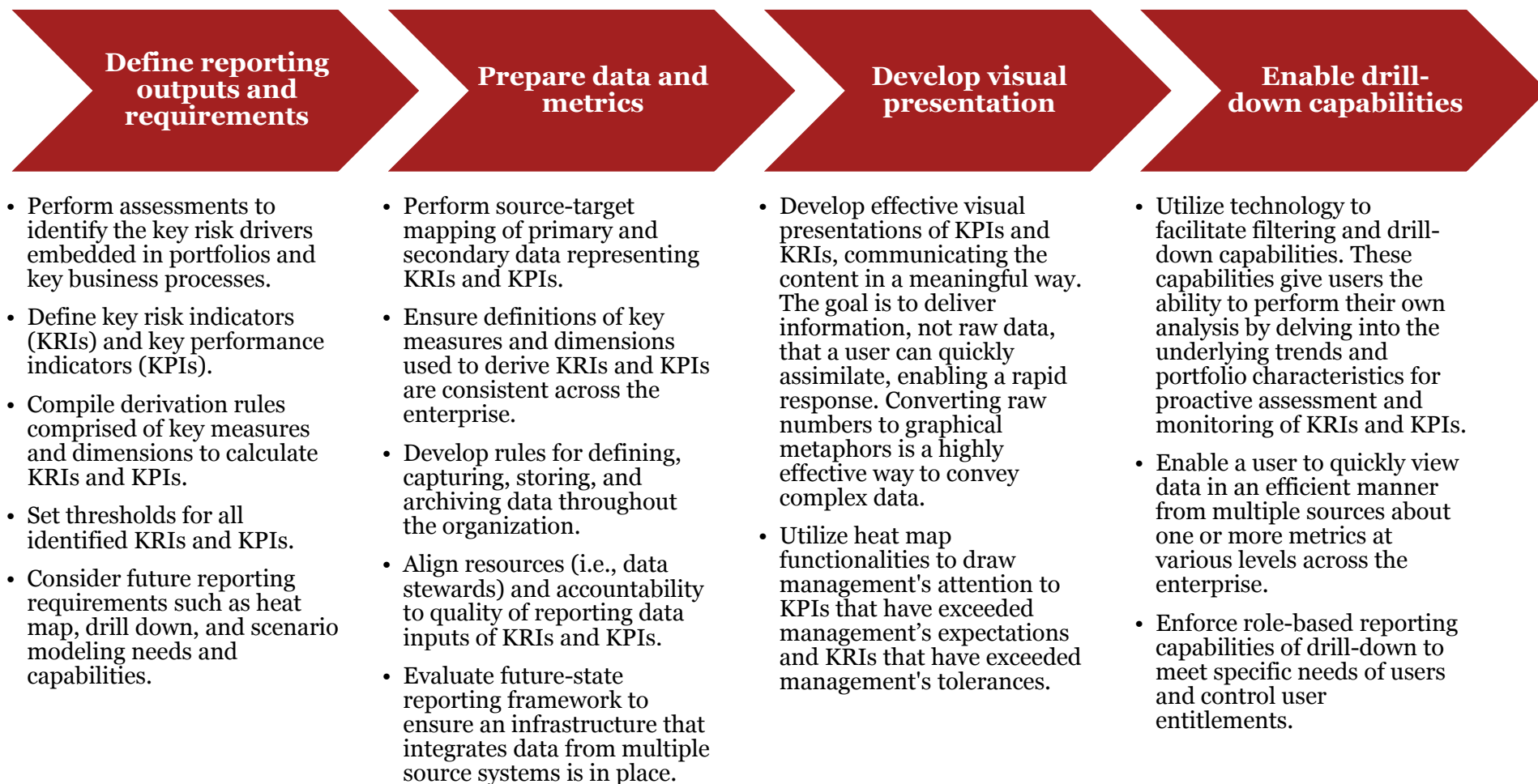
Core dashboarding concept	Examples of what we see in the industry		
	Financial institution A	Financial institution B	Financial institution C
Infrastructure	Implemented an integrated/consolidated data mart to house all data	Leveraged quarterly and monthly reports to gather and consolidate historical data into centralized data repository, implemented for prospective data capture	Leveraged existing processes to extract data from various sources and store in centralized data repository
Data management	Developed a “customer run book” to organize and socialize key corporate definitions and terminology	Reconstructed historical data through the development of derivation rules comprised of available data points	Performed data gap analysis to identify alternate sources for historical and prospective data capture
Measures and dimensions	Implemented a shared repository for all standard metrics/measures, including definitions and calculations	Defined control measures and reporting formats at the enterprisewide level and at each business unit across geographic regions	Defined leading and lagging key performance indicators aggregated at the portfolio level and filtered to the product level
Reporting (storyboarding)	Implemented solution to extract data in meaningful chunks across key performance metrics	Implemented a reporting tool with drill-down capabilities and heat map functionality	Implemented reporting tool with heat map capabilities that automatically update each time the underlying data change
Traceability	Implemented solution to drill down from high-level data into customer-level details (accounts, balances, activities)	Designed, piloted, and implemented solution to support roll-up and drill-down analysis of risk and controls	Designed one-time data entry point for data capture to enable the automated calculation of roll-up and drill-down views
Policies and standards	Streamlined corporate policies and procedures framework	Streamlined the business risk, compliance, and control reporting framework used globally across business units and at the corporate level	Delivered standard credit risk management reporting framework used across the consumer lending and mortgage portfolio

Section 3

A framework for response

A framework for response

The structure and development of a well-designed credit risk and performance reporting dashboard consists of four elements.



A framework for response— Linking risk and performance

Well-designed dashboards support the identification of key risks and trends and the evaluation of root causes in order to draw linkages to key performance considerations.

When defining the desired dashboard reporting outputs, internal as well as external metrics should be considered.

Leading credit risk reporting suites incorporate common performance measures, such as growth, risk, return and external drivers (e.g., agency ratings, industry statistics). Report suites then apply the measures across the credit risk management lifecycle, from acquisition to servicing and portfolio management to collections.

Reporting should organize and deliver information in a manner consistent with how management runs the business.

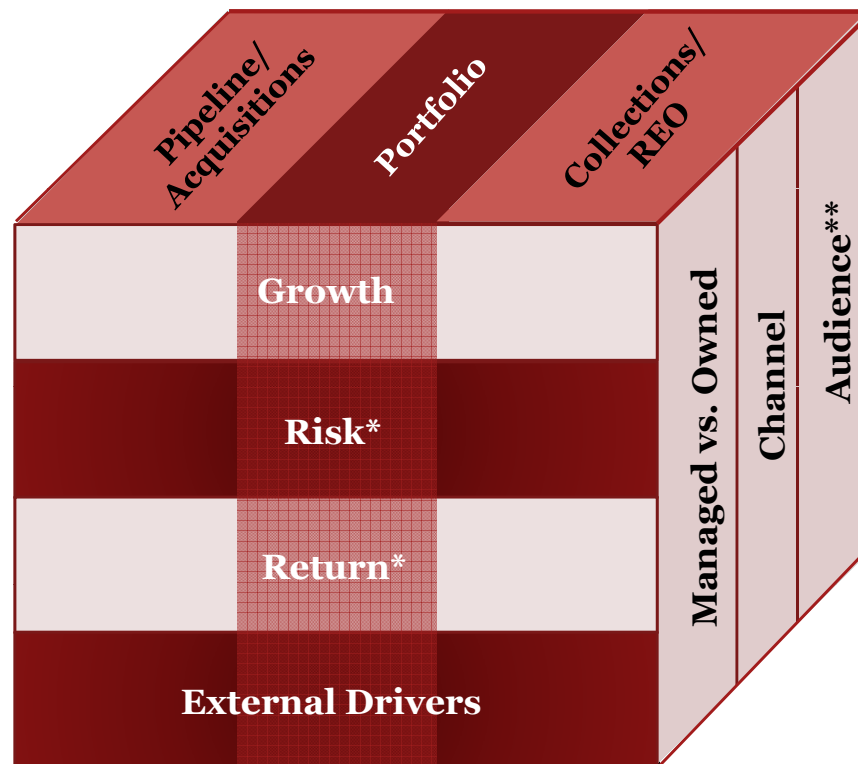
Dashboards should inform management of evolving risk trends and related performance issues from various stakeholder perspectives:

- Internal stakeholders - Business owners and risk management will assess performance against policies, business plans, and longer-term strategic goals by business, product, and channel (e.g., economic capital, RAROC, EBITA, limits, and market penetration vs. risk profile).
- External stakeholders - Shareholders, regulators, and analysts will focus on broader performance measures such as ROE, ROA, growth, and risk.

The end-state vision of a dashboard solution should not be dictated by existing data constraints.

In designing the dashboard, consider longer-term as well as immediate requirements:

- Fully articulate current and future reporting needs.
- Design an end-state solution that addresses all requirements, with phased delivery of functionality and content.
- Identify gaps in the currently available data.
- Prioritize data needs.
- Design and implement processes to capture new data requirements.



*Basel II Embedded

** Includes Corporate Risk, Executive Mgmt, Line of Business and Business Risk

A framework for response— Prepare data and metrics

Leveraging credit risk management dashboard reporting as part of a data governance framework is essential to data management and the monitoring and remediation of data quality.

Data management

Consolidated enterprisewide credit data into a single, structured centralized data repository.

Homogenize data into a single enterprisewide view to ensure agreement and acceptance of data characteristics and usage.

Enforce SPOT (single point of truth), via common data definitions, metadata, and metric calculations.

Enforce consistency and control in the ongoing maintenance and application of data usage enterprisewide through standardized tools and techniques.

Data quality monitoring

Ensure supply chain is well equipped to manage large volumes and types of data through a ready response system of data quality checks.

Design a scalable and repeatable process to standardize and update data, eliminate duplicate records, and create a single view of data.

Employ a data steward to be in charge of data quality to ensure alignment to standards and identification of issues for remediation.

Data quality remediation

Publish accurate and consistent data impacting organizational decisions enterprisewide.

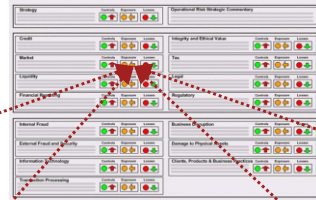
Agree to and present accurate and timely reporting of business drivers and metrics to key stakeholders, internally and externally.

Data governance framework

A framework for response—Develop visual presentation

A robust dashboard solution enables organizations to tailor credit risk reporting for individual audiences, allowing each audience to view relevant key risk indicators and drill down into the details as needed.

Illustrative



- **Enterprisewide risk dashboards** are designed “top down” to highlight key areas of risk and avoid over-monitoring.

October, 2007											
Tier 1				Tier 2				Tier 3			
Loan Outstanding (\$ in Millions)				Loan Outstanding (\$ in Millions)				Loan Outstanding (\$ in Millions)			
Product 1	Product 2	Product 3	Product 4	Product 1	Product 2	Product 3	Product 4	Product 1	Product 2	Product 3	Product 4
1,234	5,678	9,012	1,345	1,234	5,678	9,012	1,345	1,234	5,678	9,012	1,345
2,345	6,789	0,123	1,456	2,345	6,789	0,123	1,456	2,345	6,789	0,123	1,456
3,456	7,890	1,234	1,567	3,456	7,890	1,234	1,567	3,456	7,890	1,234	1,567
4,567	8,901	2,345	1,678	4,567	8,901	2,345	1,678	4,567	8,901	2,345	1,678
5,678	9,012	3,456	1,789	5,678	9,012	3,456	1,789	5,678	9,012	3,456	1,789
6,789	0,123	4,567	1,890	6,789	0,123	4,567	1,890	6,789	0,123	4,567	1,890
7,890	1,234	5,678	1,901	7,890	1,234	5,678	1,901	7,890	1,234	5,678	1,901
8,901	2,345	6,789	2,012	8,901	2,345	6,789	2,012	8,901	2,345	6,789	2,012
9,012	3,456	7,890	2,123	9,012	3,456	7,890	2,123	9,012	3,456	7,890	2,123
10,123	4,567	8,901	2,234	10,123	4,567	8,901	2,234	10,123	4,567	8,901	2,234
11,234	5,678	9,012	2,345	11,234	5,678	9,012	2,345	11,234	5,678	9,012	2,345
12,345	6,789	0,123	2,456	12,345	6,789	0,123	2,456	12,345	6,789	0,123	2,456
13,456	7,890	1,234	2,567	13,456	7,890	1,234	2,567	13,456	7,890	1,234	2,567
14,567	8,901	2,345	2,678	14,567	8,901	2,345	2,678	14,567	8,901	2,345	2,678
15,678	9,012	3,456	2,789	15,678	9,012	3,456	2,789	15,678	9,012	3,456	2,789
16,789	0,123	4,567	2,890	16,789	0,123	4,567	2,890	16,789	0,123	4,567	2,890
17,890	1,234	5,678	2,901	17,890	1,234	5,678	2,901	17,890	1,234	5,678	2,901
18,901	2,345	6,789	3,012	18,901	2,345	6,789	3,012	18,901	2,345	6,789	3,012
19,012	3,456	7,890	3,123	19,012	3,456	7,890	3,123	19,012	3,456	7,890	3,123
20,123	4,567	8,901	3,234	20,123	4,567	8,901	3,234	20,123	4,567	8,901	3,234
21,234	5,678	9,012	3,345	21,234	5,678	9,012	3,345	21,234	5,678	9,012	3,345
22,345	6,789	0,123	3,456	22,345	6,789	0,123	3,456	22,345	6,789	0,123	3,456
23,456	7,890	1,234	3,567	23,456	7,890	1,234	3,567	23,456	7,890	1,234	3,567
24,567	8,901	2,345	3,678	24,567	8,901	2,345	3,678	24,567	8,901	2,345	3,678
25,678	9,012	3,456	3,789	25,678	9,012	3,456	3,789	25,678	9,012	3,456	3,789
26,789	0,123	4,567	3,890	26,789	0,123	4,567	3,890	26,789	0,123	4,567	3,890
27,890	1,234	5,678	3,901	27,890	1,234	5,678	3,901	27,890	1,234	5,678	3,901
28,901	2,345	6,789	4,012	28,901	2,345	6,789	4,012	28,901	2,345	6,789	4,012
29,012	3,456	7,890	4,123	29,012	3,456	7,890	4,123	29,012	3,456	7,890	4,123
30,123	4,567	8,901	4,234	30,123	4,567	8,901	4,234	30,123	4,567	8,901	4,234
31,234	5,678	9,012	4,345	31,234	5,678	9,012	4,345	31,234	5,678	9,012	4,345
32,345	6,789	0,123	4,456	32,345	6,789	0,123	4,456	32,345	6,789	0,123	4,456
33,456	7,890	1,234	4,567	33,456	7,890	1,234	4,567	33,456	7,890	1,234	4,567
34,567	8,901	2,345	4,678	34,567	8,901	2,345	4,678	34,567	8,901	2,345	4,678
35,678	9,012	3,456	4,789	35,678	9,012	3,456	4,789	35,678	9,012	3,456	4,789
36,789	0,123	4,567	4,890	36,789	0,123	4,567	4,890	36,789	0,123	4,567	4,890
37,890	1,234	5,678	4,901	37,890	1,234	5,678	4,901	37,890	1,234	5,678	4,901
38,901	2,345	6,789	5,012	38,901	2,345	6,789	5,012	38,901	2,345	6,789	5,012
39,012	3,456	7,890	5,123	39,012	3,456	7,890	5,123	39,012	3,456	7,890	5,123
40,123	4,567	8,901	5,234	40,123	4,567	8,901	5,234	40,123	4,567	8,901	5,234
41,234	5,678	9,012	5,345	41,234	5,678	9,012	5,345	41,234	5,678	9,012	5,345
42,345	6,789	0,123	5,456	42,345	6,789	0,123	5,456	42,345	6,789	0,123	5,456
43,456	7,890	1,234	5,567	43,456	7,890	1,234	5,567	43,456	7,890	1,234	5,567
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45,678	9,012	3,456	5,789	45,678	9,012	3,456	5,789	45,678	9,012	3,456	5,789
46,789	0,123	4,567	5,890	46,789	0,123	4,567	5,890	46,789	0,123	4,567	5,890
47,890	1,234	5,678	5,901	47,890	1,234	5,678	5,901	47,890	1,234	5,678	5,901
48,901	2,345	6,789	6,012	48,901	2,345	6,789	6,012	48,901	2,345	6,789	6,012
49,012	3,456	7,890	6,123	49,012	3,456	7,890	6,123	49,012	3,456	7,890	6,123
50,123	4,567	8,901	6,234	50,123	4,567	8,901	6,234	50,123	4,567	8,901	6,234
51,234	5,678	9,012	6,345	51,234	5,678	9,012	6,345	51,234	5,678	9,012	6,345
52,345	6,789	0,123	6,456	52,345	6,789	0,123	6,456	52,345	6,789	0,123	6,456
53,456	7,890	1,234	6,567	53,456	7,890	1,234	6,567	53,456	7,890	1,234	6,567
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57,890	1,234	5,678	6,901	57,890	1,234	5,678	6,901	57,890	1,234	5,678	6,901
58,901	2,345	6,789	7,012	58,901	2,345	6,789	7,012	58,901	2,345	6,789	7,012
59,012	3,456	7,890	7,123	59,012	3,456	7,890	7,123	59,012	3,456	7,890	7,123
60,123	4,567	8,901	7,234	60,123	4,567	8,901	7,234	60,123	4,567	8,901	7,234
61,234	5,678	9,012	7,345	61,234	5,678	9,012	7,345	61,234	5,678	9,012	7,345
62,345	6,789	0,123	7,456	62,345	6,789	0,123	7,456	62,345	6,789	0,123	7,456
63,456	7,890	1,234	7,567	63,456	7,890	1,234	7,567	63,456	7,890	1,234	7,567
64,567	8,901	2,345	7,678	64,567	8,901	2,345	7,678	64,567	8,901	2,345	7,678
65,678	9,012	3,456	7,789	65,678	9,012	3,456	7,789	65,678	9,012	3,456	7,789
66,789	0,123	4,567	7,890	66,789	0,123	4,567	7,890	66,789	0,123	4,567	7,890
67,890	1,234	5,678	7,901	67,890	1,234	5,678	7,901	67,890	1,234	5,678	7,901
68,901	2,345	6,789	8,012	68,901	2,345	6,789	8,012	68,901	2,345	6,789	8,012
69,012	3,456	7,890	8,123	69,012	3,456	7,890	8,123	69,012	3,456	7,890	8,123
70,123	4,567	8,901	8,234	70,123	4,567	8,901	8,234	70,123	4,567	8,901	8,234
71,234	5,678	9,012	8,345	71,234	5,678	9,012	8,345	71,234	5,678	9,012	8,345
72,345	6,789	0,123	8,456	72,345	6,789	0,123	8,456	72,345	6,789	0,123	8,456
73,456	7,890	1,234	8,567	73,456	7,890	1,234	8,567	73,456	7,890	1,234	8,567
74,567	8,901	2,345	8,678	74,567	8,901	2,345	8,678	74,567	8,901	2,345	8,678
75,678	9,012	3,456	8,789	75,678	9,012	3,456	8,789	75,678	9,012	3,456	8,789
76,789	0,123	4,567	8,890	76,789	0,123	4,567	8,890	76,789	0,123	4,567	8,890
77,890	1,234	5,678	8,901	77,890	1,234	5,678	8,901	77,890	1,234	5,678	8,901
78,901	2,345	6,789	9,012	78,901	2,345	6,789	9,012	78,901	2,345	6,789	9,012
79,012	3,456	7,890	9,123	79,012	3,456	7,890	9,123	79,012	3,456	7,890	9,123
80,123	4,567	8,901	9,234	80,123	4,567	8,901	9,234	80,123	4,567	8,901	9,234
81,234	5,678	9,012	9,345	81,234	5,678	9,012	9,345	81,234	5,678	9,012	9,345
82,345	6,789	0,123	9,456	82,345	6,789	0,123	9,456	82,345	6,789	0,123	9,456
83,456	7,890	1,234	9,567	83,456	7,890	1,234	9,567	83,456	7,890	1,234	9,567
84,567	8,901	2,345	9,678	84,567	8,901	2,345	9,678	84,567	8,901	2,345	9,678
85,678	9,012	3,456	9,789	85,678	9,012	3,456	9,789	85,678	9,012	3,456	9,789
86,789	0,123	4,567	9,890	86,789	0,123	4,567	9,890	86,789	0,123	4,567	9,890
87,890	1,234	5,678	9,901	87,890	1,234	5,678	9,901	87,890	1,234	5,678	9,901
88,901	2,345	6,789	10,012	88,901	2,345	6,789	10,012	88,901	2,345	6,789	10,012
89,012	3,456	7,890	10,123	89,012	3,456	7,890	10,123	89,012	3,456	7,890	10,123
90,123	4,567	8,901	10,234	90,123	4,567	8,901	10,234	90,123	4,567	8,901	10,234
91,234	5,678	9,012	10,345	91,234	5,678	9,012	10,345	91,234	5,678	9,012	10,345
92,345	6,789	0,123	10,456	92,345	6,789	0,123	10,456	92,345	6,789	0,123	10,456
93,456	7,890	1,234	10,567	93,456	7,890	1,234	10,567	93,456	7,890	1,234	10,567
94,567	8,901	2,345	10,678	94,567	8,901	2,345	10,678	94,567	8,901	2,345	10,678
95,678	9,012	3,456	10,789	95,678	9,012	3,456	10,789	95,678	9,012	3,456	10,789
96,789	0,123	4,567	10,890	96,789	0,123	4,567	10,890	96,789	0,123	4,567	1

A framework for response—Develop visual presentation

The design of the credit risk management dashboard should reflect the requirements of all end users to provide meaningful, actionable information that can be assimilated quickly.

Several key success factors should be considered in the design process.

- Reporting should reflect the unique risk drivers and characteristics of the business.
- Data should be synthesized in a manner that focuses attention on the key messages underlying the numbers.
- Reporting should be timely to be valuable.
- Reports should be tailored to accommodate the specific needs of each user group.
- Visual tools (such as heat maps) accentuate KPIs and KRIs that warrant further attention, such as heat maps highlighting metrics and directional changes in trends outside of management's tolerances.

Customizing the CRM dashboard helps ensure relevance to the end user.

- The level of customization will depend on:
 - Target audience
 - Anticipated reporting needs
 - Complexities of the organization and its product offerings
- Key requirements for customization:
 - Understand and capture the business drivers and decision criteria of each audience
 - Identify and capture leading and lagging indicators related to business drivers
 - Deliver the information in a manner that facilitates analysis and decision making

Visuals should:

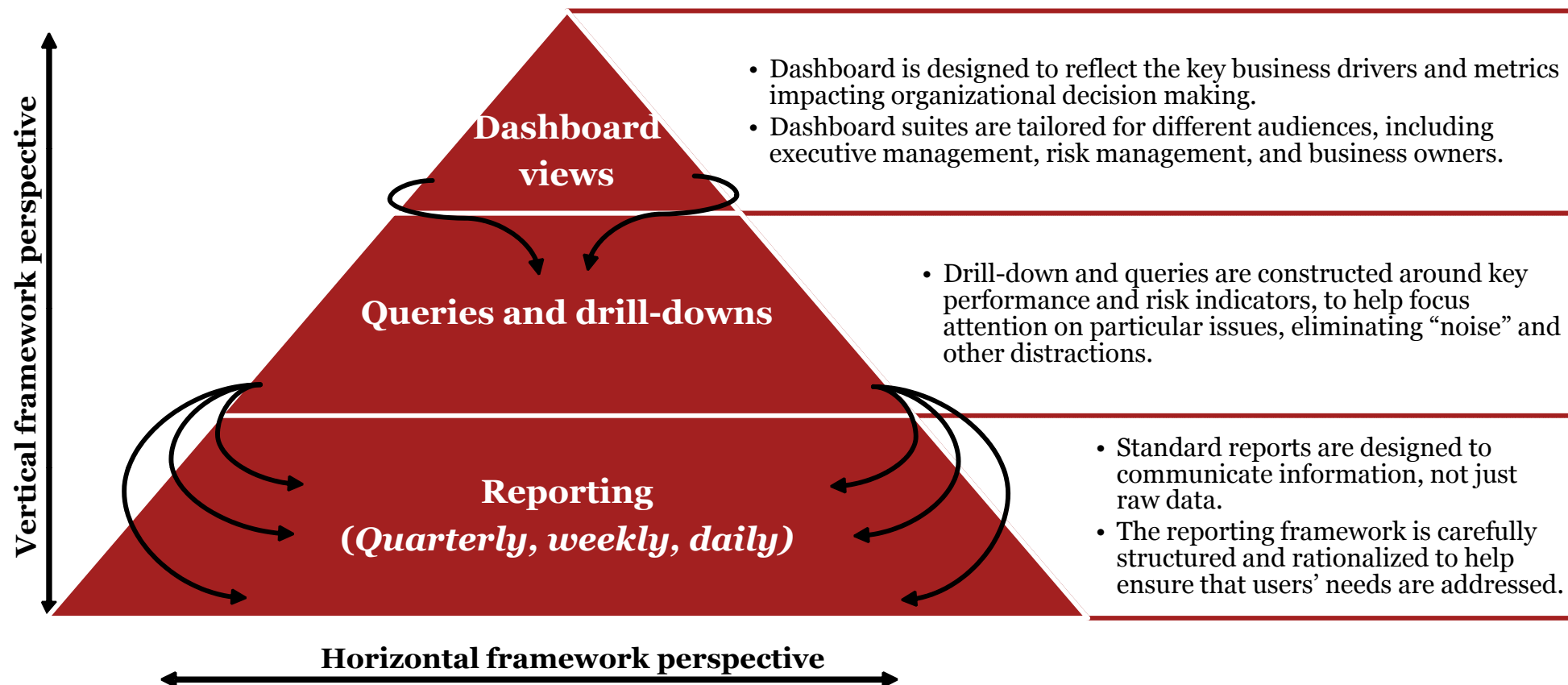
- Leverage a tiered model enabling a series of management, operational and functional views that drive decision making.
- Enable easy navigation for all levels of management and functional staff to effectively use the technology.

Look and feel are a function of the client need, corporate culture and related business investment in technology.

Layouts should be tailored to maximize visual impact through graphical use including items such as tables, charts, speedometers, and traffic signals.

A framework for response—Enable drill-down capabilities

An effective credit risk reporting dashboard should include a comprehensive and cohesive set of reports that “roll up” to views of the business. These views should be tailored for different audiences, communicating key messages in order to support decision making.



Building out vertical reporting functionalities enables a given audience (e.g., department, division, or business unit) to drill down into the data or roll it up to present a dashboard view. Once an organization has overcome the technical hurdles associated with building these vertical functionalities, it can enhance the power and effectiveness of the credit risk and performance reporting process by extending the functionalities horizontally to business units and subsidiaries across the enterprise.

Section 4

How PwC can help

How PwC can help

Core competencies—Credit risk management

Credit risk dashboard design	<ul style="list-style-type: none">▪ Identify risk areas.▪ Design and help implement a more transparent and actionable dashboard reporting framework, including creating mock-up examples of key performance indicators and report pages. Design considerations include target audiences, information needs, tiered levels of reporting detail, and delivery frequency and medium.▪ Test mock-up examples with key stakeholders to validate and refine the conceptual design.▪ Tailor credit risk management dashboard reporting frameworks to address specific business objectives and risk drivers to deliver meaningful content.▪ Construct key performance indicators to provide additional detail on the drivers behind each of the risk areas.
Technology selection and implementation	<ul style="list-style-type: none">▪ Assist with assessment and selection of reporting and dashboard vendor solutions, including software, hardware, and networking components, through implementation.
Credit risk dashboard implementation	<ul style="list-style-type: none">▪ Help implement enterprisewide credit and market risk management systems.▪ Support the critical aspects of business intelligence, enterprise risk management, and data management that underlie successful management reporting.
Data governance	<ul style="list-style-type: none">▪ Establish enterprise data standards, definitions, and business rules.▪ Design data governance functional responsibilities and processes.
Data integrity and cleansing	<ul style="list-style-type: none">▪ Identify root causes of data integrity issues.▪ Design enhanced process to improve data quality and integrity at the source.▪ Provide resources and tools to assist with data cleansing.

How PwC can help

PwC is distinguished by the depth and breadth of its professionals

Experience

Our teams have significant experience in credit risk management dashboard reporting.

- We have leveraged our credit risk management experience across financial services to assist clients in designing and implementing a more transparent and actionable dashboard reporting framework.
- We have established formal networks of technology partners to support the critical aspects of business intelligence, enterprise risk management, and data management that underlie successful management reporting.
- We stay on the forefront of industry issues, developing thought leadership on operational implications and solutions, and gathering intelligence on best practices (e.g., addressing requirements driven by SOP 03-3, 141R, or the FASB and IFRS Financial Instruments impairment and measurement exposure drafts).
- PwC has worked with clients to tailor credit risk management dashboard reporting frameworks to address specific business objectives and risk drivers to deliver meaningful content.
- Our approach to visual reporting is designed to effectively convert significant volumes of complex, raw data into concise, manageable and actionable information and to deliver that information in easily consumable formats.

Specialists

The core members of PwC's credit risk management practice have served in various capacities at leading banks and financial services companies, providing us with unique perspectives and insights into credit risk management practices.

- We have advised many of the largest financial services companies in credit risk management issues, including risk management technology, data management, and reporting for banks, investment banks, and hedge funds.
- Each of our senior team members has more than 25 years of experience in consulting and industry risk management. Many have held senior level positions, spanning across traditional financial services organizations, as well as energy/utility companies, credit card companies, commercial leasing companies, commercial factors, and asset-based lenders.
- Our credit risk practitioners are experienced in all facets of credit risk management, including credit and lending origination and approval process design, portfolio management methodologies and processes, credit risk management metrics and reporting, credit risk identification and measurement tools and methodologies, special assets management, credit review processes, data quality, and Basel II/III.
- Many of our team members also have financial technology and operations experience, covering trading systems, investment banking, asset management, mergers, integration, and risk.

How PwC can help

Our Financial Services Advisory practice

PwC is an advisor to 44 of the world's top 50 banks and 46 of the world's top 50 insurance companies, and is the leading service provider to investment managers, pension funds, and hedge funds around the world. This diverse client base provides us with unique access to develop peer insights and to understand from experience what works in specific client circumstances. In the United States alone, we are able to call upon our 800-person Financial Services Advisory practice and more than 3,000 financial services professionals.

Accountability and cost effectiveness

Our approach to serving our clients provides them with a single point of accountability, which creates an efficient and effective day-to-day working arrangement and, most importantly, best positions our clients for success. We have significant experience in helping to drive complex programs, and believe that we can work successfully in a cost-effective manner to meet your organization's needs and objectives.

Trusted brand

We offer a truly independent view, without prejudice or favor regarding specific vendors, solutions, or approaches. We approach each situation and develop the most appropriate solutions depending upon the client's individual circumstances.

Global footprint

PwC's global footprint benefits clients in terms of consistent service delivery and quality by taking advantage of the best ideas, resources, and solutions from around the world.

How PwC can help

Client needs and issues

We look across the entire organization—focusing on strategy, structure, people, process, and technology—to help our clients improve business processes, transform organizations, and implement technologies needed to run the business.

Client needs	Issues we help clients address
Build effective organizations	<ul style="list-style-type: none"> ▪ Rethinking strategy in terms of markets, geographies, channels, and clients ▪ Restructuring organizational models in terms of structures, policies, and roles ▪ Establishing effective strategic sourcing and procurement ▪ Realizing competitive advantage through effective sales operations inventory planning ▪ Transforming the close and consolidation process to work for rather than against you
Manage risk, regulation, and financial reporting	<ul style="list-style-type: none"> ▪ Building a risk-resilient organization ▪ Managing ERP investment and project execution risk ▪ Safeguarding the currency of business; keeping sensitive data out of the wrong hands ▪ Affirming capital project governance and accountability ▪ Assessing and mitigating corruption risk in your global business operations ▪ Accounting and financial reporting ▪ Third-party assurance ▪ Taxation
Reduce costs	<ul style="list-style-type: none"> ▪ Driving efficiency through shared services ▪ Redesigning finance to realize efficiency and competitive advantage ▪ Taking control of cost through effective spend management and cash forecasting practices ▪ Driving sustainable cost reduction
Leverage talent	<ul style="list-style-type: none"> ▪ Defining and implementing an effective HR organization ▪ Rethinking pivotal talent
Innovate and grow profitably	<ul style="list-style-type: none"> ▪ Reshaping the IT function into a source of innovation ▪ Transforming business information to drive insight and fact-based decision making ▪ Evaluating acquisition and divestiture strategies to position for the future ▪ Realizing deal synergy and value ▪ Developing sustainability programs that add value



How PwC can help

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Appendix

Select qualifications

Select qualifications

Credit risk management strategic reporting dashboard framework—Top-10 financial institution

Issues	<p>The credit risk and collections reporting packages of a top-10 financial institution were comprehensive and detailed, but key messages were being diluted because there was no visibility into the trends underlying the data. The bank engaged PwC to assist in developing requirements for a credit risk and performance dashboard and reporting framework. A key objective was to provide accurate and timely risk and return information to support decision making by executives in credit risk management, finance, and the lines of business.</p>
Approach	<p>The PwC team designed an overall reporting framework and developed mock-up examples of key performance indicators and report pages. Once the straw man was in place, the team interviewed key stakeholders to validate and refine the conceptual design.</p> <p>As a second phase of the engagement, PwC assisted the client in developing a gap analysis to compare data requirements for the reporting framework to current data availability. The client then developed a short-term tactical plan to implement the reporting framework based upon current data availability and launched a longer-term initiative to expand data availability to facilitate the full reporting suite. The final deliverables included:</p> <ul style="list-style-type: none">▪ Complete credit risk and performance dashboard and reporting framework, including target audiences, information needs, tiered levels of reporting detail, and delivery frequency and medium.▪ Mock-up of dashboard templates for the mortgage and consumer portfolio to present information at meaningful levels of aggregation.▪ Detailed outline of business requirements, including report descriptions and purpose, metric calculations, target audience, and data required. PwC also developed an interim solution that allowed for the framework to be immediately operationalized.
Benefits	<p>As a result of the initiative, the bank was able to improve the quality of its credit risk management and collection reporting immediately, facilitating better identification of risks that could impact short- and long-term performance. The framework also allowed the bank to communicate more effectively using a fresh, action-oriented, visual approach to reporting and analysis, with the goal of focusing management's attention on key business levers for mitigating risk and enhancing revenue.</p>

Select qualifications

Enterprise performance and risk reporting enhancement initiative—Global financial institution

Issues	<p>A global banking institution was prompted by regulators to enhance its reporting standards. The bank had a manually intensive process in place for aggregating, analyzing, and reporting performance and risk information across the enterprise to senior management. The regulators conveyed their expectations for the bank to enhance the timeliness and accuracy of reporting, and to expand its scope to include benchmarking based on industry metrics and more analysis across operating entities. PwC was engaged to advise the bank on how to enhance and align the organization's risk and performance reporting framework to meet regulatory expectations and standard industry practices.</p>
Approach	<p>PwC assisted with the design, development, and implementation of a risk and performance reporting pilot for the organization. Working alongside the client to identify the pilot population of entities, PwC helped to outline a streamlined approach for establishing an effective and efficient reporting framework across all operating entities. The approach consisted of (1) a current-state assessment of the pilot entities to identify gaps in existing reporting framework based on regulators expectations and (2) leveraging the current-state gap analysis, design of the future-state reporting framework with integrated data housing facility coupled with a controlled framework to assess, evaluate, and make appropriate decisions based on the data. PwC facilitated the development and implementation of the reporting framework. We also assisted the institution with assessing whether unused reports were decommissioned, duplicative reports were consolidated, and regulatory requirements were met throughout the development and implementation of the reporting framework. PwC provided the institution with a roadmap outlining a timeline tied to key activities for implementing the framework across all reporting entities.</p>
Benefits	<p>As a result of this initiative, the client was able to provide more timely and accurate performance and risk data to the board and executive management, enabling more effective oversight and more timely decision making. By distributing aggregated information and analysis, the bank also enhanced and shared its knowledge across all operating entities.</p> <p>Having a sound performance and risk reporting framework in place improved the client's strategic decision making as well as planning, monitoring, and evaluation processes. Finally, as a result of the initiative, the client developed a strong case to present to regulators that their expectations are being met.</p>

Select qualifications

Credit risk and performance reporting proof of concept—Top-10 financial institution

Issues	<p>A top-10 US bank employed a highly manual credit risk reporting process that was static in nature. Cycle times from close-of-books to report distribution were deemed excessive. Furthermore, end users were presented with binders of information each quarter but lacked the ability to mine the data to identify the true risk drivers of credit events. These constraints diminished the value and impact of the information delivered.</p> <p>The bank's portfolio credit risk management group wished to demonstrate to executive management the value of alternative approaches to credit risk reporting. The group engaged PwC to assist in developing a working model of a credit risk management dashboard.</p>
Approach	<p>To create a compelling view of the breadth of potential capabilities and functionality offered by a robust credit risk management dashboard, PwC, in collaboration with internal stakeholders, constructed a risk reporting framework comprised of eight core areas of risk focus. A multi-tiered set of views was designed to communicate key messages and provide perspectives of underlying credit risk drivers to multiple internal audiences. Key performance indicators were developed to provide additional detail on the drivers behind each of the risk areas. This inventory of reports and views was then embedded in an off-the-shelf dashboard reporting solution and populated with internal data sourced from the Basel II data warehouse.</p>
Benefits	<p>Access to a working model of a risk credit management dashboard positioned the portfolio credit risk management group to better demonstrate the strengths and value of a robust reporting tool. Furthermore, the design and build-out process highlighted the challenges, timelines, resource needs, and potential costs of building a fully functional reporting solution.</p>

www.pwc.com

"A View from the Top: Credit Risk Management Dashboard Reporting for Financial Institutions," PwC FS Viewpoint, July 2011. www.pwc.com/fsi

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