

Data Rationalization in the Capital Markets Sector

Industry Analysis and Recommendations



People matter, results count.

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1. Introduction

The capital markets industry has long been awash in data, which has truly become the lifeblood of the industry. However, deriving business value from burgeoning data volumes amid increased budgetary and regulatory pressures is becoming more challenging. Capital market firms are looking for ways to streamline and consolidate data to convert ever-growing amounts of data into useful business information. Organizations are also looking to rationalize the amount they spend on external data providers.

Over the years, IT teams have been building data infrastructure to support specific business functions. Mergers and acquisitions brought even more data sources into the companies' IT landscapes, leading to uncontrolled proliferation of data and driving up the cost of information management. At the same time the business needs have changed. Business users now demand a data infrastructure that delivers relevant information cost-effectively, on-demand, in a format that's easy to process, and from a more manageable number of sources. Recent regulations have forced the capital markets firms to re-evaluate their data management infrastructure –not only to provide required regulatory reports, but to proactively manage their data to deliver benefits such as near real-time risk aggregation, compliance record retention and disposition, centralized reference data management across products, counterparties etc.

“We have many hundreds of databases but really only a small proportion that are driving the business now. Previous mergers have left us with a large number of legacy databases that we have to support as they are still used—however infrequently.”

CIO, U.S. Capital Markets firm

In an effort to control costs, reduce redundancy and make better business sense of their mounting amounts of data, companies are beginning to put in place standards-based data governance frameworks. However, most data infrastructure initiatives are still in early stages, often plagued by lack of consistent approach, long-term vision and business buy-in. Many modernization projects don't get adequate funding due to the fact that it's difficult to demonstrate immediate return on investment (ROI), and companies continue to spend resources just “keeping the lights on” maintaining their existing assets.

2. About Capgemini's Data Management Survey for Capital Markets

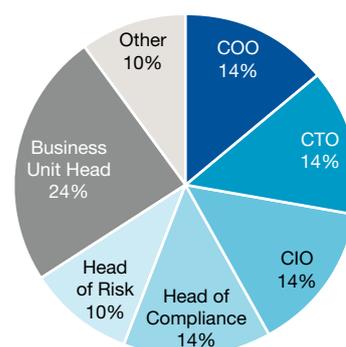
As an advisor to capital markets firms, Capgemini has seen that the cost of data management can be much larger than is popularly recognized in the industry. To take a closer look at how our clients are approaching the urgent need to modernize and restructure redundant data sources, Capgemini conducted a series of phone interviews with over 50 senior IT and business executives from large global capital markets companies in the U.S. and U.K. in Q4 2013. Our research focused on the general aspects of IT infrastructure budgets and policies and specifically zeroed in on data management practices, challenges, risks and rationalization strategies.

Capgemini's Data Management Survey for Capital Markets is aimed to help answer questions from our capital markets clients about how their data management infrastructure cost compares to industry peers and examine potential solutions for rationalizing data infrastructure to gain operational efficiency, manage risk, increase regulatory compliance and reduce the operational costs.

Research Highlights

- Capgemini's Capital Markets Data Management Survey for 2013 includes responses from 50 senior executives from large global capital markets firms in the U.S. and U.K., with multiple respondents per company.
- Respondents' titles and job functions include: Chief Information Officer, Chief Operations Officer, Chief Technology Officer, Head of Compliance, Head of Risk and Business Units Head.
- All interviews were conducted using a telephone research approach to gather feedback on a variety of topics related to data management and provide a unique perspective from senior IT and business leaders.

Exhibit 1: Distribution of survey respondents



Source: Capgemini's Data Management Survey for Capital Markets 2013

Our research confirms that a large opportunity exists for capital markets firms to reduce costs and significantly improve their data quality and consistency by rationalizing their databases and consolidating data sources using a methodical, building-block approach based on industry standards and governance practices. It is also evident that many IT and business leaders still underestimate the true extent of their data redundancy problem, and don't have an immediate plan to address it.

3. Key Findings



The research revealed the following key points:

- **Spend on IT:** As a percentage of revenue, the annual IT budget is around 3.1%, ranging from 1.5% for smaller financial institutions to around 6% for large firms.
- **Total Spend on Data:** On average 17.5% of the global IT budget is allocated to data infrastructure, ranging from 15% to 25% annually.
- **Spend on Data Management:** The budget for data infrastructure and administration comprises over half (52%) of the total annual data spend.
- **Spend on Data Providers:** The amount allocated to data provider vendors is around 48% of total annual data budget.
- **Data Governance Challenges:** Only around 50-60% of applications comply with the data governance and tools standards prescribed by organizations.
- **Complexity:** There's evidence of multiple instances of many databases across the organizations, adding cost and complexity to the IT operation.
- **Cost Reduction:** IT leaders express clear desire to drive out costs in data infrastructure. An overwhelming majority of respondents (82%) state that they are looking to consolidate, streamline and drive down data infrastructure operations cost by 20-25% annually.

4. IT Spending Continues to Rise

IT spending continues to represent a significant percentage of companies' budgets. For multi-billion dollar corporations, this translates into hundreds of millions of dollars being allocated annually to support IT projects. Not surprisingly, data infrastructure represents a significant portion of the global IT budgets. The Capgemini research participants indicate that on average 17.5% of their IT spending is allocated to data infrastructure, with an even split across data vendors (48%) and data management (52%).

“Our level of spend is very high but even then I do not think it is enough. We need to invest more on innovation technologies as opposed to keeping the lights on, but with so much legacy it is a real challenge.”

CIO, U.S. Capital Markets firm

In a company with an overall IT budget in excess of \$800 million (based on the \$812 million average reported by participating IT and business leaders), this suggests a data infrastructure spend in excess of \$142 million. The research didn't differentiate between cloud-based or physical data infrastructure components – it aimed primarily at assessing the overall level of annual investment that companies dedicate to their data management.

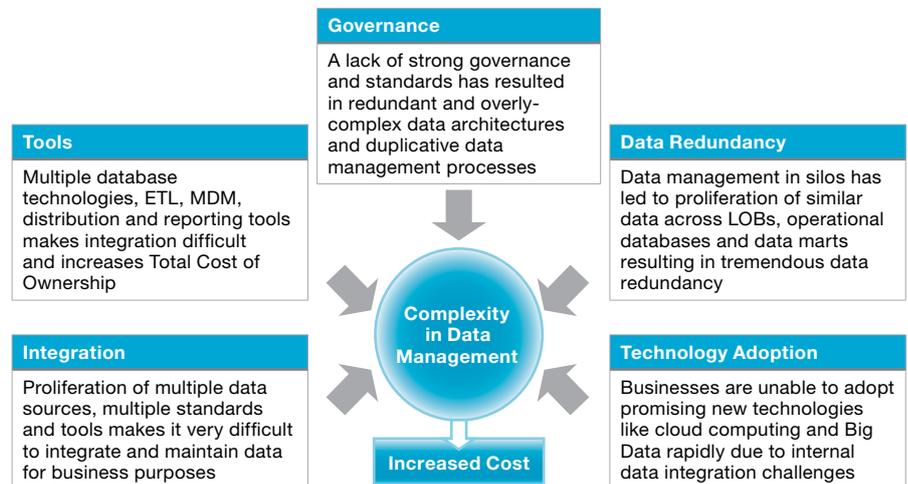
Exhibit 2: A Sample Business Case for a Financial Firm with \$100 Billion Annual Revenue

Spend on IT	3.1% of revenue	\$ 3.1 billion per year
Total spend on data	17.5% of the global IT budget	\$ 550 million per year
Spend on data management	52% of total data spend	\$ 290 million per year
Spend on data providers	48% of total data spend	\$ 260 million per year
Potential cost savings	15-20% of total data spend	\$ 80-110 million per year
Additional benefits from optimizing data management	<ul style="list-style-type: none"> • Improved data governance • Increased transparency • Timely availability of data • Improved compliance with regulation • Single view of across multiple data dimensions 	

5. What's Causing Complexity in Data Management?

The largest complexity in data management in Capital Markets firms stems from the lack of transparency into the data landscapes. Let us consider a typical Capital Markets firm with 10,000 active databases. On average, let us assume that each of these databases have a 100 tables with 20 columns each. This means that the organization needs to manage 20 million columns of data. Semantic reduction of this data, using data profiling techniques, into a manageable number of business concepts critical to the business is a foundational stepping stone towards dealing with the specific complexities listed below.

Exhibit 3: The five major causes of complexity in data management



Integration

The volume of digital information in today's business environment is truly unprecedented, and it's growing faster every day. Companies are able to use data to track business transactions, identify trends, analyze and manage risk and aggregate a vast variety of information in real time for reporting and compliance purposes. However, all too often the tools that are used to capture, store and process this data are inconsistent, storing data in different formats, utilizing different taxonomies and structures. Data integration problems cause unforeseen business issues such as the inability to view a single transaction across systems, or inaccurate aggregation and reporting of essential data leading to excessive risk exposure.

The role of data aggregation in the global financial crisis

A recent example of weak data aggregation capabilities can be seen from the analysis of the global financial crisis that began in 2007. Many of the financial services firms' IT groups found themselves unable to compile and analyze risk exposure information across business lines and between different legal entities, resulting in serious financial consequences for the banks and the financial system as a whole. As part of the recovery effort, the financial services industry is working on implementing a number of initiatives aimed at strengthening the data aggregation capabilities, including a Legal Entity Identifier (LEI) – a system designed to identify all parties participating in financial transactions across the globe. This type of system can only be built when companies' data sources are integrated and governed in a sustainable way across and between organizations.

Tools

Without a set of consistent management methods and processes throughout the enterprise, various business units, groups and IT teams tend to use disparate technologies and tools to gather and handle data assets. Naturally, lack of standard processes and tools exacerbates data integration problems, resulting in low data quality and compliance challenges. It also creates inefficiencies in having to maintain and support multiple database management and warehousing solutions, such as Extract, Transform and Load (ETL) or Master Data Management (MDM) tools. The data management rationalization process includes transforming the way organizations approach the toolset and talent used to manage information and setting up processes that can be utilized company-wide, to gain control, save costs and strengthen their data management capabilities.

Data Governance

Data governance is often referred to as a discipline for analyzing, managing, controlling and protecting the company's information. Clearly, no governance can take place without an in-depth understanding of what information exists within multiple sources in the organization, what data elements are critical to the business success and which entity is accountable for the quality of the data. The key to a successful governance model is a common, standard, enterprise-wide model for managing people, processes, tools and technologies involved in handling the corporate data.

Data Redundancy

Inconsistent data management practices across systems often lead to data quality and consistency issues.

Redundant heterogeneous IT systems, with a multitude of devices and sources often capturing esoteric information, all with a lack of standards or consistent aggregation or reporting all create redundancy problems. There's no "quick win" approach to eliminating redundancy. The solution for streamlining the information sources within the organization is to establishing and following solid governance practices throughout the enterprise.

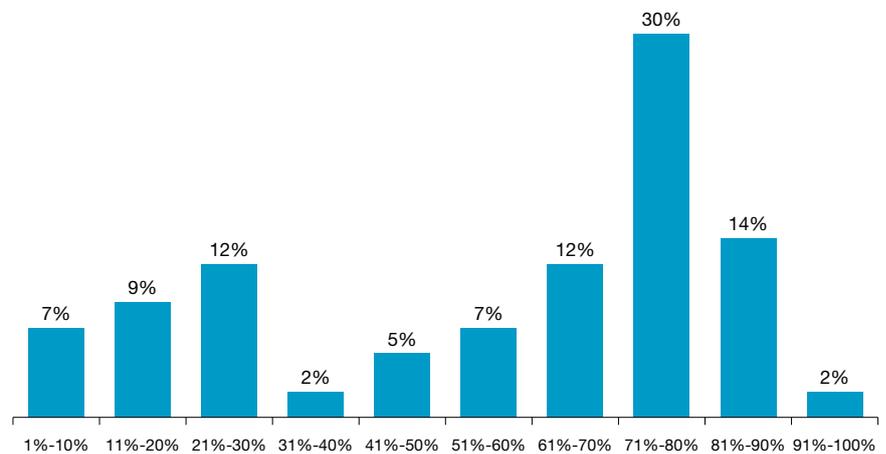
Technology Adoption

Cloud computing, mobile, big data are the latest technology trends that are quickly gaining popularity for their potential to save costs, improve customer satisfaction and better respond to emerging business trends and opportunities. However, they are adding even more complexity to the already complicated and cluttered IT landscape. IT leaders are finding it increasingly difficult to integrate new, forward-looking technologies into their enterprise infrastructure. Before major initiatives such can be tackled, organizations need to rationalize their existing IT environments, focusing specifically on data architecture and processes.

6. Companies Are Slow to Adopt Standards for Data Management

An overwhelming majority of surveyed financial firm executives (86%) suggest that their organizations have a set of approved standards for data management and integration tools. Standardization is a proven way to reduce operational cost and minimize risk, however the respondents also reveal that two out of five of existing applications (41%) don't adhere to those standards. Over a third (35%) of research participants say that less than half of their IT systems meet the prescribed data management standards.

Exhibit 4: What percentage of applications adhere to prescribed standards for data management and integration tools?



Source: Capgemini's Data Management Survey for Capital Markets 2013

This data suggests that despite the growing understanding of the importance of consistent data management, many companies are still very early in the process of standardizing and optimizing their IT infrastructure and may not have the right expertise and methodology to implement an enterprise-wide data governance practice.

“ *We have recently implemented a standard for data management and integration tools which has really helped the business get greater control of data and systems. But to be honest not all of the applications adhere to the standard yet—that will take a lot more time. And time is money in this business.”*

CIO, U.S. Capital Markets firm

Underestimating the Problem

One surprising observation that surfaced while reviewing the study came from the discussion on the overall number of databases and database instances. The majority of surveyed IT and business leaders state that their companies have between three and four instances of various types of databases (enterprise, pricing, security, transaction etc), while their IT teams are supporting an average of 20 databases across the entire organization. Such low number is in stark contrast with industry data and Capgemini’s experience with large enterprise clients, which suggest that global financial services organizations would typically maintain thousands – or even tens of thousands of production and non-production databases. We feel that this gap is illustrative of how data and its related IT budget tends to grow much faster and more insidiously than most organizations realize.

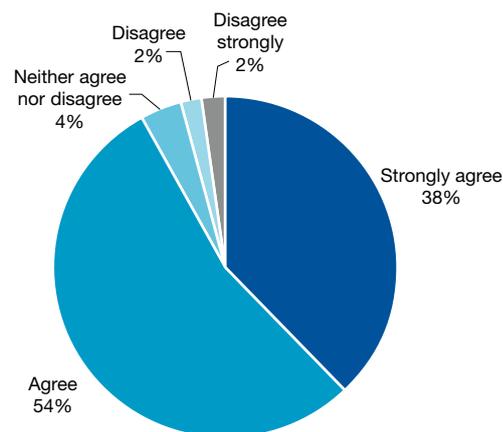
Most legacy applications were traditionally built to use their own databases, and for each production application, IT usually maintains additional instances for development, training and testing/QA. As a result, a number of databases can quickly reach into thousands, with each instance requiring administration, maintenance, upgrades and support.

Perhaps the fact that IT leaders are not aware of the extent of the database redundancy and complexity problem suggests that they don’t see data management as a priority until a major crisis forces them to address it.

7. Companies Count on Consolidation to Save Costs, but Few are Taking Immediate Action

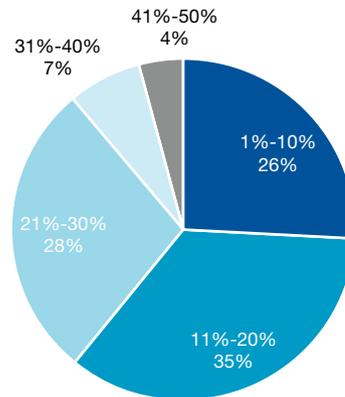
Despite the differences in interpreting the number of database instances, research data confirms that there's a clear need among financial services firms to drive out costs in data infrastructure. Nearly all respondents (92%) state that they are looking to consolidate and streamline their data infrastructure landscape in order to reduce costs and gain efficiency. Industry data suggests that well-planned and carefully executed consolidation projects can deliver savings between 20 and 30%.¹ The Capgemini research participants concur that their organizations are targeting an average of 21.5% in cost reduction.

Exhibit 5: How strongly do you agree with the following statement? We are looking to consolidate, streamline and drive operations cost down in our data infrastructure



¹ Gartner Inc., "IT Key Metrics Data 2014: Key Industry Measures: Banking and Financial Services Analysis: Current Year" Jamie K. Guevara, Linda Hall, Eric Stegman, , 16 December 2013

Exhibit 6: What percentage cost savings are you targeting given Gartner says 20-30% cost savings are possible?



“ We initially were targeting around 15% cost savings but we think that we can achieve more than that now and are looking at 21%. Maybe Gartner is right.”

CTO, U.K. Capital Markets Firm

However, like all changes, data infrastructure modernization does not happen overnight. Projects that involve identifying and consolidating multiple data sources require careful planning, methodology and phased approach. Less than a third of all respondents (28%) say that their organizations have a fully developed roadmap for rationalizing their application data, while an additional 62% state that they are in the process of identifying the necessary tasks and timelines, and expect to have a modernization roadmap completed within 6 to 12 months.



8. Rationalization Strategies That Work: Understand the Current Challenges and Move Forward with Greater Clarity

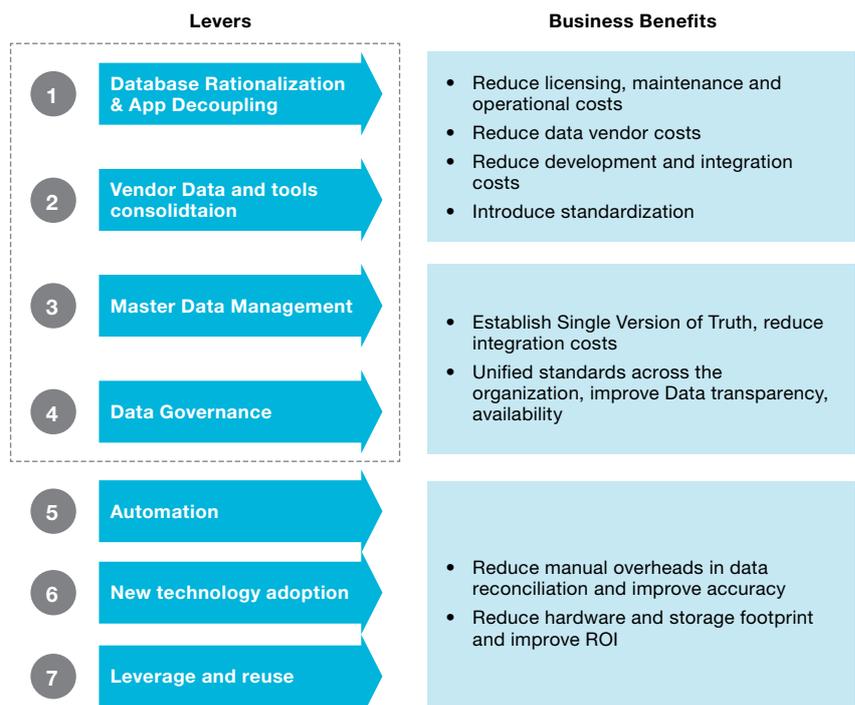
Capgemini's Capital Markets Data Management Survey clearly shows that the need for data rationalization is real and urgent. However, regaining control over information proliferation is not an easy task and cannot be solved overnight. Companies that carefully address their data problem can gain significant savings; achieve better risk management, reduced costs and better data quality.

“As we are looking to generate greater efficiencies within the operation; consolidate, streamline and drive operations cost down in our data infrastructure. We also want to put more focus on innovation.”

CTO, U.K. Major Capital Markets Firm

Capgemini offers a variety of services designed to understand the organizations' current challenges, assess existing data infrastructure, analyze existing redundancy issues, create consolidation plans and build a phased approach to establishing consistent data management practices.

Exhibit 7: Levers to Reduce Cost and Improve Efficiency

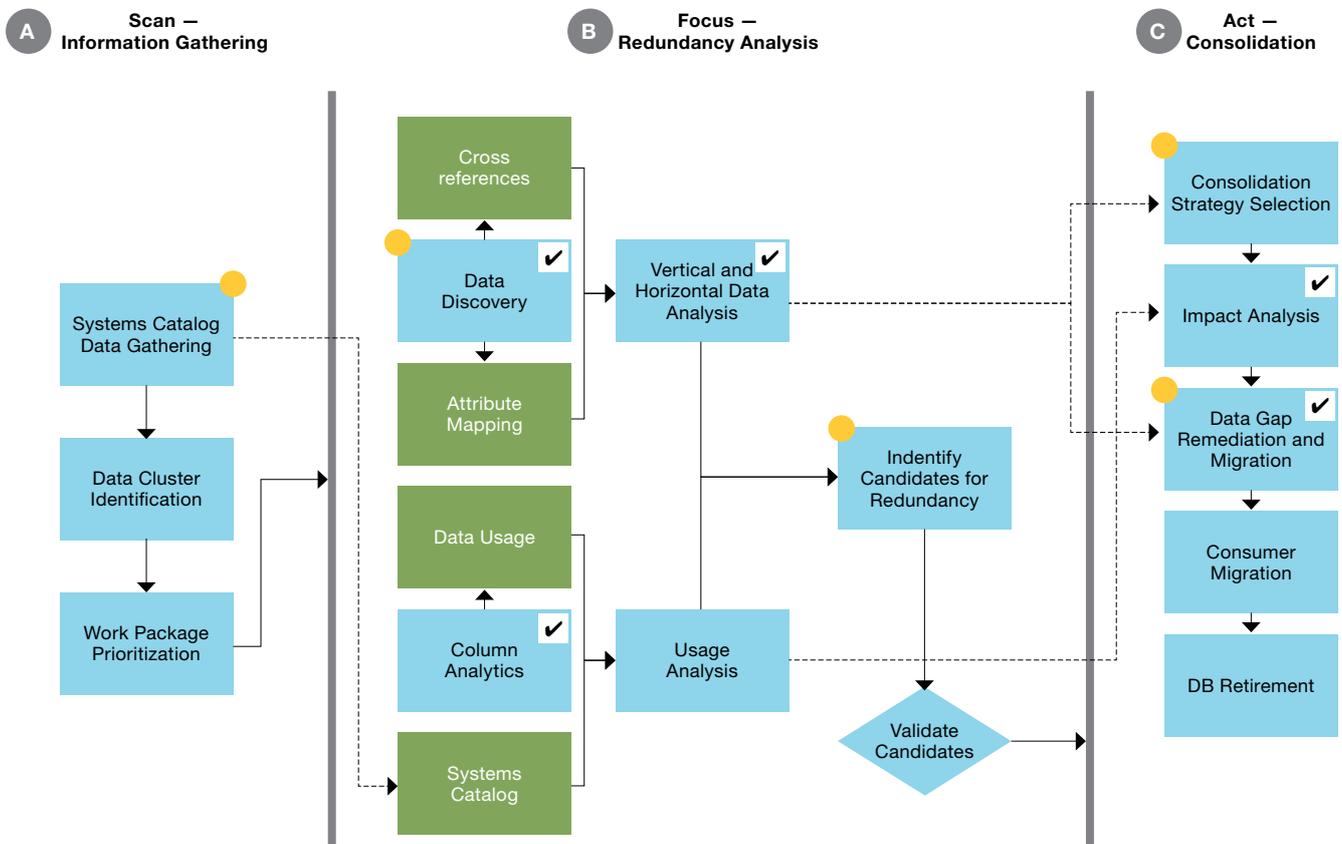


Scan: Discover and Profile Enterprise Data Sources

The transformation process begins with discovering all existing enterprise data sources and understanding the extent of database redundancy and duplication. Applying industry tools can accelerate and automate data source analysis; however the most important element of the discovery phase is a structured approach that can help understand and catalog data subject areas, connect data sets with supported business processes and identify data owners, producers, consumers, usage patterns and volume.

From there, it is possible to analyze data stores based on supported functionality, subject areas and product types to identify potential overlaps and group data stores in clusters based on similarity of content, functionality, consumers etc. Once data clusters have been identified, they can be prioritized for further analysis based on factors like potential duplication, total cost of ownership, return on investment, or platform alignment.

Exhibit 8: Capgemini's Transformation Process



Source: Capgemini Analysis 2014

Focus: Apply a Common Model and Identify Data with Redundant Sources

After the information gathering phase is completed, the next step is to perform thorough redundancy analysis. Capgemini experts can help you conduct automatic data discovery and profiling to identify cross-referencing points and map similar columns across databases. For each column, it is essential to understand what type of information is being stored, what subject areas it refers to and what business processes and activities it supports, as well as how frequently this data is being used. As part of vertical and horizontal data analysis, Capgemini experts can help conduct focused coverage analysis to find any existing overlap of information across multiple data sources and measure the amount of overlap. These findings, along with data usage analysis and input from stakeholders and other sources such as the Systems Catalog serves as basis for identifying redundant databases.

Act: Consolidate Redundant Sources and Migrate Data to Target Platform

The implementation phase begins with identifying consolidation strategies for various duplication and overlap scenarios. The decision to eliminate or consolidate various data sources needs to take into account potential impact of eliminating redundant data on consumers and identify key changes required for the environment, business, operations and support processes. Any data gaps that occur during consolidation need to be remedied. Capgemini experts can help you define the migration approach and steps, including identifying all consumers who need to be migrated to the target database and outlining required transformation in consuming system to leverage target system data. After the systems have been consolidated and data migration finalized, the Capgemini experts can help you identify which systems are candidates for retirement, validate reduced data usage, purge data, retire the database as well as corresponding hardware and software and remove retired assets from system inventory.

9. Data Infrastructure Rationalization Journey

Application Portfolio Rationalization initiatives are undoubtedly among the top items on any CIOs agenda. Faced with budget pressures, IT organizations are looking for ways to streamline their application landscape, reduce the number of obsolete and redundant systems and consolidate data sources to improve accuracy, consistency and transparency. With our many years of experience in guiding Financial Services clients through all aspects of IT landscape modernization projects Capgemini can help you create and implement a comprehensive plan for your data infrastructure rationalization initiative using our proven, structured approaches with standard methodologies and tools.

Exhibit 9: Capgemini Solution Enablers

Systems Catalog	<ul style="list-style-type: none"> Standardized and proven application checklists and questionnaires to enable rapid information gathering on data stores Automated data discovery tools to enable centralization of documented and un-documented metadata
Data Discovery	<ul style="list-style-type: none"> Preconfigured data discovery /profiling modules to identify data redundancy Cross-referencing business rules libraries to perform vertical/horizontal coverage analysis
Semantic Models	<ul style="list-style-type: none"> Semantic models for Client, Product and Transaction data which are used to establish Common Information Models and drive cross-referencing and redundancy analysis
Consolidation	<ul style="list-style-type: none"> Industry-leading Wide Angle Application Rationalization (WARP) methodology to drive application rationalization and data consolidation Application retirement and data archiving services
Data Migration	<ul style="list-style-type: none"> Proven Data Migration Methodology and Proprietary Data Migration Workbench for automated data migration Automated generation of data migration and reconciliation routines reduce risk and improve time to market

About the Authors



Alope Paskar leads the Capital Markets team for North America and the U.K. within Capgemini's Financial Services Global Business Unit. In this role, Alope is responsible for overseeing business operations, client relationships, sales, and delivery for Capital Markets in the two regions. Previously, Alope served in two leadership roles within the financial services team at Capgemini, first as Head of the Asia Pacific business unit and more recently as Vice President of India and China Operations.

With over 22 years of global experience in the financial services industry, Alope has worked extensively in implementing global delivery and business operations across multiple locations including the U.S., India, Philippines and China. He graduated from Calcutta University with a major in Economics and has an MBA from the XLRI School of Business and Human Resources in Jamshedpur, India.



Arindam Choudhury leads the data management solutions competency focused on Capital Markets for the Business Information Management practice within Capgemini's Financial Services Global Business Unit. In this role, Arindam is responsible developing, marketing and implementing industry solutions for our Capital Markets customers.

With over 17 years of global experience in the financial services industry, Arindam has worked extensively in the data management space developing innovative solutions for his clients that helped reduce the total cost of ownership and improve efficiency. Arindam has helped develop industry-leading utility solutions for data management for financial services organizations. He graduated from National Institute of Technology, Surathkal, India with a major in Electronics and Communication.



About Capgemini

With 130,000 people in 44 countries, Capgemini is one of the world's foremost providers of consulting, technology and outsourcing services. The Group reported 2013 global revenues of EUR 10.1 billion.

Together with its clients, Capgemini creates and delivers business and technology solutions that fit their needs and drive the results they want.

A deeply multicultural organization, Capgemini has developed its own way of working, the Collaborative Business Experience™, and draws on Rightshore®, its worldwide delivery model.

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