



Complexity + Integration in Financial Services: Can Software Meet the Challenge?

A Financial Insights White Paper

Sponsored by IBM

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Analyst: Bill Bradway

Overview

For financial institutions, the next generation of software and related system architectures will change how systems are developed, integrated, sourced, and acquired. In order to examine the strategic integration requirements facing banks and financial markets firms, this white paper describes how software can support complex integration needs, allowing financial institutions to solve today's problems and build for the future. IBM has invested several \$billions in its software platform. As the financial industry's largest combined software and services vendor, IBM has a unique set of software assets, relevant industry experience, and services-led offerings.

Introduction

A combination of economic, strategic business, and technological influences are changing the relationships between the business users and IT organizations of financial institutions and between IT organizations and their suppliers. At the core of these changes are two fundamental principles:

- The continuous need to integrate complex sets of data, disparate source systems and uses for the data, and business processes; and
- The evolution of new IT architectures based on Internet standards and information integration requirements.

These principles affect the associated relationships between the business end users and IT providers that must leverage value from these new architectures.

Over the past three years, financial institutions have gone through a transitional period with their business strategies. Some institutions are in a continuous acquisition mode to expand into new markets, products, or both. Figure A illustrates the magnitude of this merger activity, and the subsequent integration efforts, over the last 20 years for five of the six largest U.S. banks. Still other

institutions are using this period to better assimilate recent investments and to reconcile their business strategy with IT spending priorities. During this transition, IT organizations face several conflicting challenges: they must contain costs, manage increasing complexity, satisfy new regulatory compliance requirements, and deal with changing business priorities.

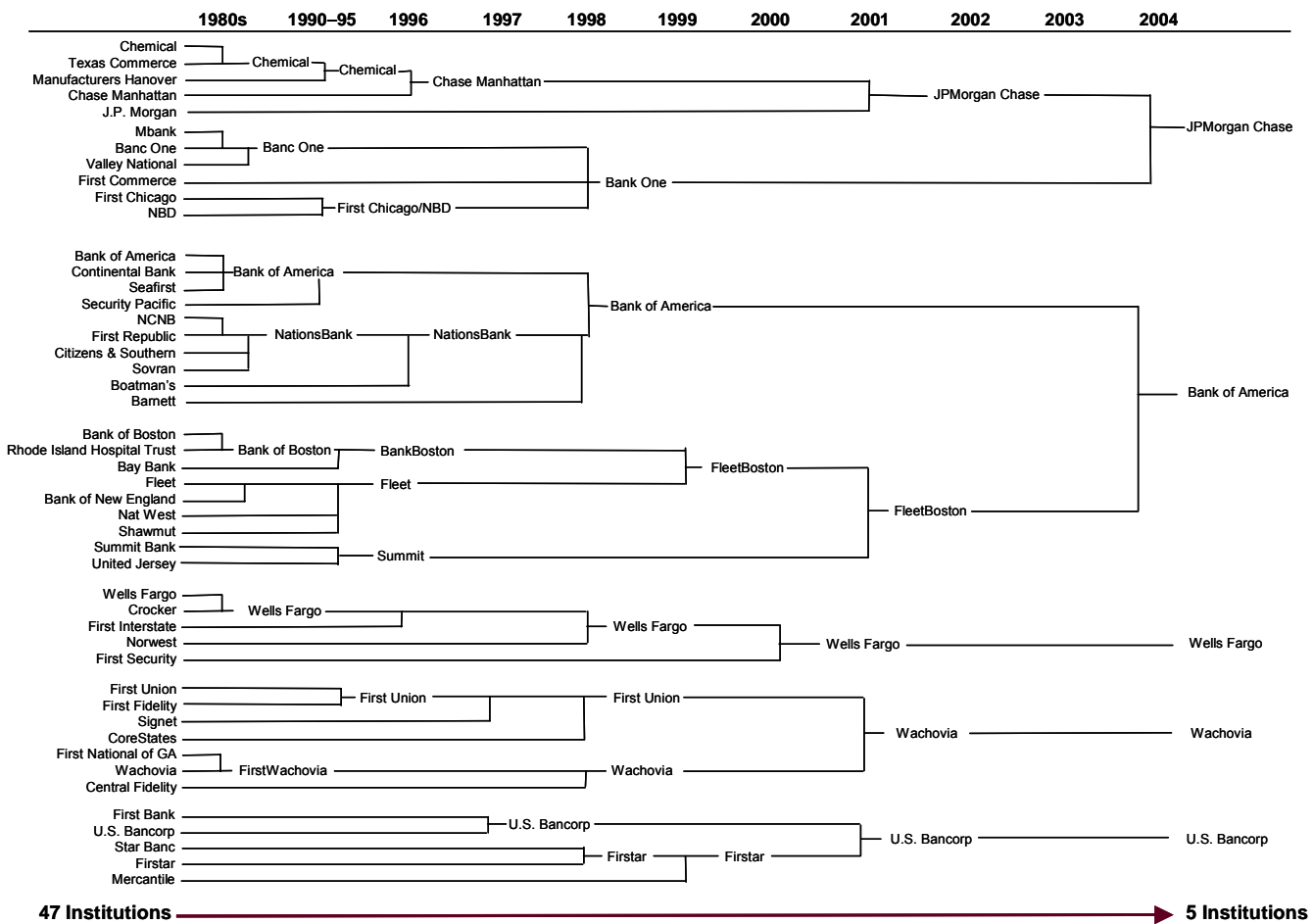
This white paper seeks to engage both business and IT executives at banks and financial markets institutions in a dialogue about how to solve the complex integration requirements facing their institution.

Background

Today's enterprise IT infrastructure was built incrementally over time. Older systems continue to be used, in nearly all cases combining with newer systems to get the work done. All of these heterogeneous systems—computing platforms, networks, storage, and programming languages—coexist, which works fine as long as the

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Figure A: Large Bank Consolidation Waves (1985–2004)



Source: *Financial Insights*

systems remain largely independent and operate within their own narrow domains. As long as these domains are largely based on transactions, the departmental as well as systems boundaries can be clearly drawn. In pursuit of competitive advantage, however, financial institutions have become based more on relationships. Many of these traditional boundaries have been stretched or have reached a wall of limits. These conditions often result in redundant, overlapping business functions and contradictory or nonconforming information or service delivery that yields poor results or unhappy customers, and sometimes both.

These legacy systems contain considerable domain expertise and business logic that has evolved over time. The evolution of these systems is not about their outright replacement, but rather the exploitation of their underlying business rules upon which to base new or modified applications that can benefit business processes across the enterprise. In the end, the financial services sup-

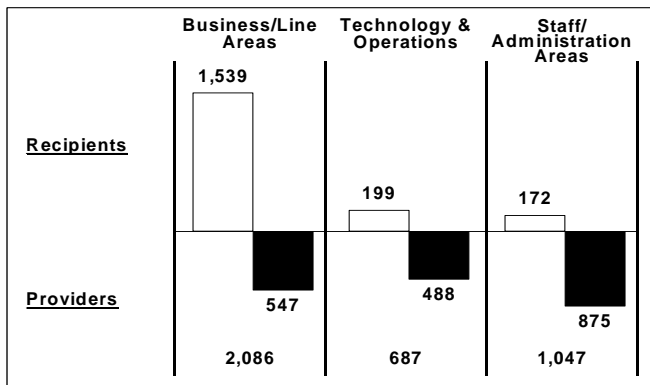
ported by these applications have become relatively easy to duplicate and difficult to differentiate. Indeed, most financial services offerings end up as a commodity and become largely indistinguishable from each other.

The Old Approach to Integration

Beginning as early as the 1980s and continuing today, the time-tested use of systems integration projects has been the standard approach to integrating structured (database information, for example) and unstructured data (such as documents, images, and reports) across disparate applications. Much of this unstructured content, however, is difficult to store and access with traditionally structured data (transaction and operational records).

The traditional integration project worked with applications that had been developed using older application development methods, tools, and often an older programming language, such as assembler. Systems inte-

Figure B: M & A Interdependency Analysis



Source: Chase Manhattan Corporation (1996)

Integration consultants had their own proprietary integration practice methodologies and toolsets. For financial institutions, this differentiation was hit or miss, making long-term integration benefits difficult to achieve.

Driving the demand for the rapid integration of two banks is the expected cost savings and a desire to reduce the risk of customer attrition. These integration projects can yield thousands of interdependencies (see Figure B) between systems that affect lines of business, IT and operations, employee and customer interactions, and administrative areas. In the 1996 merger between Chase Manhattan and Chemical Bank, almost 4,000 major system interdependencies were identified. This merger formed a \$500 billion bank: about one-half the size of the bank that will be formed by the JP Morgan Chase and Bank One deal in 2004.

The need for effective integration capabilities remains simple to understand, yet so difficult for many institutions to achieve consistently.

New Approach to Integration

Is IT a strategic resource for financial institutions? If IT is focused where strategic value can be created, the answer is yes. The challenge for financial institutions and their technology suppliers is to continuously refine opportunities around strategic value. Business and IT executives grasp the magnitude of the challenges, invariably wishing that more could be done faster and at a lower cost while protecting current investments. This faster-lower cost quest is perpetual and requires effective processes and tools that will have a long and productive impact on the variety of integration demands.

Objectives

The CIO is responsible for two basic business objectives:

- Reducing operating costs by making the business more efficient, and
- Increasing the opportunities for growth by enabling improved business agility and responsiveness to customers.

The two are not mutually exclusive, but when budgets get tight, the costs of operating, maintaining, and adapting systems takes priority, squeezing the budget for new initiatives. This scenario constricts business flexibility and limits choices. In a flat or restricted IT budget environment, the only way to add strategic value is to simplify existing systems with ongoing maintenance, thereby reducing the costs of supporting and adapting them to meet new business needs. This challenge can only be resolved by fixing the systemic issues within IT. This is one of the key issues driving the discussion of service-oriented computing. There is neither the time nor the budget available to rebuild a financial institution's entire infrastructure. What institutions need is an approach that allows the incremental adoption of open, standards-based, and flexible architectures. The approach needs to support the integration of information, business processes, and staff.

Business Drivers

Table 1 summarizes the major business drivers behind the need for comprehensive integration capabilities at banks and financial markets firms. The variety of demands that this mix of drivers presents argues for a new approach to integration. Although we see a continuous evolution in systems architectures over time, other drivers and objectives are at work, too, not the least of which is a growing emphasis on standards. The drivers listed in Table 1 sustain this evolution and support the complex integration requirements necessary to develop future computing architectures for financial services

To be considered as a legitimate software platform capable of meeting the breadth of integration requirements in financial services, a vendor must have three key deliverables or capabilities.

- 1) The software platform must support a service-oriented architecture.
- 2) A set of integration capabilities related to information integration must be met.

Table 1: Business Drivers behind Complex Integration

Regulation	New regulatory requirements are created from the likes of Basel II, Sarbanes Oxley, and the Patriot Act. New business opportunities can result from new regulations, such as Check 21.
Enterprise Performance Management	Critical to long-term survival, this involves improving the precision, consistency, timeliness, and value of business metrics. Enabling technologies must better distribute business metrics, allowing management to make more responsive and innovative decisions.
Merger Integration	Cost savings and eliminating customer attrition and business risk are paramount and scrutinized externally for poor execution. Failure to execute well can materially affect the survival odds for the acquirer
Risk Management	At both the customer and portfolio level, a variety of risk dimensions must be analyzed to manage risk levels (product, geography, customer segment). Enabling technologies and compliance requirements place a premium on quality and consistency.
Customer-Centric	Effectively attracting and retaining customers is essential to organic growth, which must be achieved to balance merger growth. Without such a balance, an institution is less appealing to investors.
Supply Chain	Integrating an institution's own supply chain as well as offering to enrich customer supply chain capabilities is a compelling opportunity with competitive advantage.
Distribution Models	Channels have become increasingly diverse and challenging, yet customers have come to expect seamless, transparent execution. Rationalizing channels onto a common infrastructure that will support future business requirements across all channels is the goal.
Business Reengineering	Business reengineering intersects strategy and IT priorities. Without it there is nothing to automate. Institutions need to extend the integration of business process management beyond individual departments or lines of business to the enterprise to improve service and productivity.

Source: Financial Insights

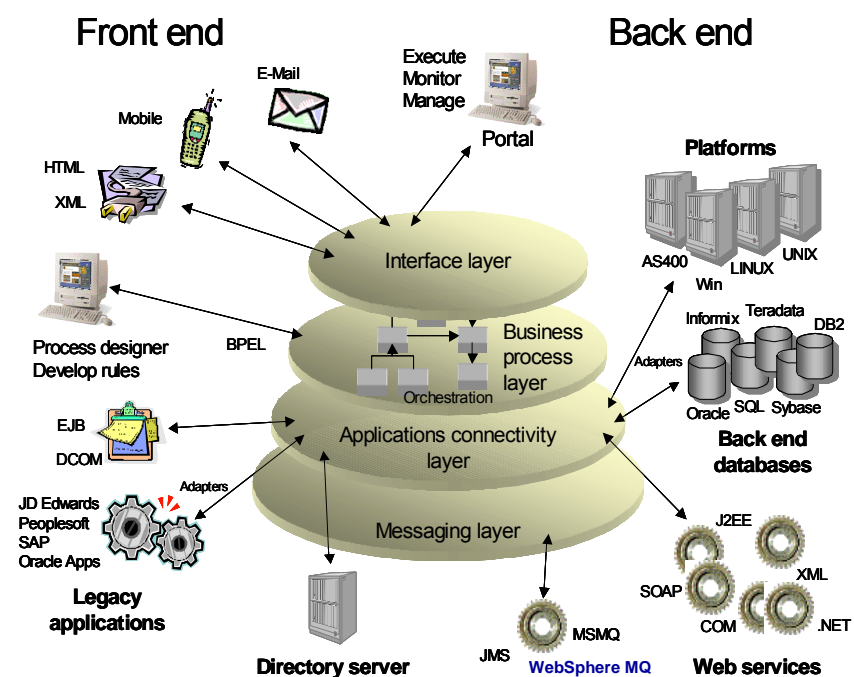
3) The platform must be adaptable to industry-specific solutions that have a long-term value proposition for institutions.

Service-Oriented Architecture

The requirements of integration, cost containment, and business agility make the case for a service-oriented architecture (SOA) that can be assembled and reassembled using predefined, standardized components as business demands require. This capability is the kernel of a new approach to integration.

Service-oriented architectures (see Figure C) consist of composite applications that are standards-compliant program modules or components, often referred to as services. The modules are bits of self-contained business logic that do work and that may have been recovered from one or more legacy systems (remember that this is where the business

Figure C: Conceptual View of a Service-Oriented Architecture



Source: iBolt, Financial Insights

logic, rules, and policies of the enterprise reside today). If this logic can be leveraged from legacy systems incrementally, the complexity of these production systems can be transferred to the new architecture with limited risk or disruption. “Incremental” is what has been missing with most integration and interconnection technologies. When we describe what a component can do, how to communicate with it, and what to expect from it, we have produced what is referred to as a “service.”

In the service-oriented architecture, the integration point is the service specification or the interface, and not the implementation behind it. Service-oriented architectures have been around for several years, but the difficulty has always been in establishing a common, agreed-to set of standards (semantics and protocols) that could easily traverse computer platforms and networks.

Both the IT organizations and business line management need to understand the magnitude of this opportunity. Moving to a software platform that supports today’s complexities and has the flexibility to meet future demands is essential. Figure C illustrates the multiple layers that are associated with the industry’s evolving computing architectures. It is this multilevel environment that institutions should be building toward. The challenge of integrating information, disparate source applications, and business processes is not trivial and requires a robust software environment, consistent use of standards, and rigorous discipline across the enterprise. The challenge is worthy of top management’s attention.

In order to fulfill the necessary connectivity and functionality associated with this future computing architecture, IBM has expanded its software family of offerings (see Table 2). These offerings, when combined with IBM’s Rational Unified Process (RUP), provide an institution with a software development platform to tackle the complex integration requirements that bridge the need to maintain existing IT investments and still build for the future.

Software Integration Capabilities

An effective software platform needs to address the multilayer connectivity and process-related demands illustrated in Figure C. IBM’s approach to using software as the key to effective integration incorporates six interlinked capabilities (see Table 3) that are essential to meet complex integration projects.

Table 2: IBM Software and SOA

SOA Requirement	Services
Enterprise service bus	WebSphere Messaging (WMQ, WBI Brokers)
Portal service	WebSphere Portal
SOAP service request (J2EE, .Net)	WebSphere Web Services Gateway
Business-to-business interactions	WebSphere Business Integration Connect
Service flow	WebSphere Business Integration Server
Information	DB2 UDB, DB2 Data Warehouse, DB@ Information Integrator, DB2 Content Manager
Collaboration	Lotus Workplace
Existing application connectivity	WebSphere Business Integration Adapters
New service logic	WebSphere Business Integration Server Foundation

Source: IBM, *Financial Insights*

The ability to support the variety of integration demands facing financial institutions is essential to achieve consistency and value. These six integration capabilities are not new requirements, but combining these capabilities within a comprehensive offering that meets the SOA requirements, together with appropriate financial industry experience and best practices, can conquer today’s challenges while building for the future.

Table 3: Software Integration Capabilities

Capability	Description
Model	Map business process, functions, and data
Transform	Extract, transform, load data from applications or processes
Access	Engage necessary computing resources anytime, anywhere with any device
Collaborate	Allows personalized interaction with dynamic information, processes, and people
Integrate	Interoperate across applications, processes, and data sources
Manage	Model, monitor, and control resources, measure against end-to-end objectives

Source: IBM, *Financial Insights*

Implementation Issues

Many financial institutions have a tale of woe about a runaway systems integration project that left a sour after-taste, especially among business executives and the institution's CFO. There are some key issues to sort through before a financial institution embarks on a complex integration project that relies on software as a key component of the project.

First, an institution must have a clear business objective. While obvious, too often this step is not well understood at the outset of a project. Clear agreement among line management, the CFO, and the CIO is essential.

Second, understanding the limits of the institution's staff is an important planning criteria for any integration project. Solid commitments are needed to complete the project. Adding external resources in the midst of an integration project is a troubling sign.

Finally, a vision of where the institution is headed with its IT architecture and business application environment is important. Without such a vision, the argument for the software toolset flavor of the moment can lead to less than expected results. A well-defined vision will lead to the best set of software tools and associated processes for tackling integration projects, complex or simple.

Costs

The annoying wrinkle in the pace of approving projects is the return on investment and/or cost benefit analysis. Long the favorite of the CFO for weeding out marginal or weak projects, a careful analysis of project costs and expected benefits is both prudent and part of the successful institution's standard practices.

The business and IT sponsors of any integration project should not be excused if the institution does not have the necessary methods and tools for preparing cost estimates and benefits. These methods and tools should measure the benefits during the project's various phases.

Software-related costs should be easier to budget and monitor than services-related

costs. However, the right software platform and integration tools combined with a well-defined and detailed project plan should yield reliable cost estimates.

Business Benefits

Business and IT executives still remember the financial costs to meet Y2K requirements and some of the Internet-related initiatives that fizzled at their institutions. Naturally, consideration for a new approach to complex integration needs to be evaluated by defining and measuring the expected benefits. Table 4 provides a framework for examining the potential benefits. This table aligns the benefits with the software integration capabilities described earlier in Table 3. This benefit analysis requires the commitment to a service-oriented architecture. We recommend each institution begin by benchmarking its current software capabilities and then evaluating the targeted results along each capability. Requiring business and IT groups to quantify hard-dollar bene-

Table 4: Business and IT Benefits Analysis Framework

Capability	Business Benefit	IT Benefit
Model	<ul style="list-style-type: none"> • Rapid change processing • Specifications for IT • Process simplification 	<ul style="list-style-type: none"> • Business needs clearly defined, simulated, documented • Re-use, leverage assets
Transform	<ul style="list-style-type: none"> • Enable rapid changes, faster time to market • Simplify models, lower cost • Minimize disruption risk 	<ul style="list-style-type: none"> • Leverage existing applications • Improved user satisfaction • Reduce development time and cost; maintenance efficiencies
Access	<ul style="list-style-type: none"> • Secure real-time access • Employee productivity up • Extend to customers, partners, suppliers 	<ul style="list-style-type: none"> • Secure, personalized access • Single point of interaction • Broader support for all forms of content; remote device support
Collaboration	<ul style="list-style-type: none"> • Employee productivity up • Reduced support costs • Faster, better decisions 	<ul style="list-style-type: none"> • Secure, open, integrated access • Customized, roles-based portals • Integrated collaboration process
Integrate	<ul style="list-style-type: none"> • Better customer service • Faster, better decisions • Eliminate manual errors • Accelerate merger savings 	<ul style="list-style-type: none"> • Reuse of existing information • Lower total cost of ownership • Rapid adaptation to new requirements
Manage	<ul style="list-style-type: none"> • Closed loop business process management • Measure resource usage • Highest ROI 	<ul style="list-style-type: none"> • Better operational performance • Justify investments • Lower total cost of ownership

Source: IBM, *Financial Insights*

fits is always relevant and pushes an institution's pursuit of excellence. Soft benefits, which help justify the case, should not be the basis for adoption.

Future Outlook

Banks and financial markets institutions know the future is a mix of certainty and the unknown. By positioning their institution to master the certain and be the best prepared for the unknown is the desire of the best management teams. The past 20 years have proven time and again that complexity is part of the financial industry landscape. Preparing for even more complexity, especially the unknown, demands an effective game plan.

While more than one option is available to financial institutions, IBM has established clear market-share leadership in application development platform software (IDC, June 2003). Three primary attributes underpin IBM's software platform:

1) Provide a comprehensive integrated development environment;

2) Enable automated, on demand, management of the IT infrastructure; and

3) Enhance productivity for both IT staff and end users.

IBM's strategy for the financial services industry addresses key requirements for each industry segment. Central to this strategy is an understanding of the key business initiatives facing banks and financial markets institutions. To address the needs of financial institutions, IBM has developed middleware solutions, which are customized combinations of IBM core middleware and industry-specific middleware (adapters, data models, and architecture).

Table 5 summarizes IBM's key, industry-specific, initiatives. IBM has about 50,000 staff dedicated to the financial industry on a global basis. The quality of staff dedicated to financial services is just as important as the quantity. Institutions need the right expertise and should examine how well their suppliers provide this expertise. In exploring future requirements, business and IT management should agree on the relevant field experience for software-based integration projects built with a service-oriented architecture.

Table 5: IBM's Key Initiatives by Financial Industry Segment

	Initiative	Description
Banking	Core Systems Transformation	Differentiating measures of success for lines of business and IT; operational excellence starts in the back office, creating an ongoing need for better core systems capabilities.
	Multichannel Transformation	Many institutions, particularly banks and those like banks, postponed the day of reinvestment for their branches, but that day has now arrived. Successful integration with all channels is complex but a significant differentiator for institutions with vision and strategies.
	Customer Insight	Bringing business intelligence value to customer relationship strategies, including wealth management; focus on supporting institution-specific requirements based on the strategy.
	Payments	Covers a range of payment-related solutions: item processing, image presentment, credit card solutions, EMV implementations, payment hub framework.
	Risk and Compliance	Credit, operational, and regulatory risk are focus at customer, portfolio and enterprise levels
Financial Markets	Trade Process Transformation	Cost reduction pressures have driven institutions to turn over every stone to improve efficiencies for trading processes, such as post trade processing, exception management, and corporate actions.
	Risk and Compliance	Credit, market, operational, and regulatory risk are key focal points at customer, portfolio, and enterprise levels.
	Customer Insight	Bringing business intelligence value to customer relationship strategies, including wealth management; focus on supporting institution-specific requirements based on the strategy.
	Payments	Provide a range of payment-related solutions, such as a payments hub framework for wholesale payments.

Source: IBM Financial Services Sector, Financial Insights

IBM Software Meets Integration Complexity

IBM has made a corporate commitment to partner with independent software vendors for business application requirements. This commitment allows IBM to select and work with software partners that embrace its software platform and best practices. In addition to the WebSphere, DB2, and Lotus capabilities listed in Table 2, IBM's Rational Unified Process provides a flexible process framework for development, including reference tools for modeling and design that can automatically generate code for specific operating environments. IBM's Tivoli software helps companies manage workloads, allocate capacity, maintain service levels, and securely manage large heterogeneous, distributed networks while protecting the integrity and privacy of information. The combination of IBM Software—WebSphere, DB2, Tivoli, Lotus, and Rational—forms the foundation for IBM's approach to SOA requirements. This approach covers integration projects and traditional software development requirements. IBM, together with its software partners, seeks to effectively collaborate and achieve the benefits from successfully integrating data, business processes, business applications, and people.

IBM's approach to collaboration aligns with its "On Demand" enterprise initiative. In this case, the IBM software platform is the source behind IBM's industry specific, pre-built content and information integration capabilities. The advantage to financial institutions takes the form of lower cost, more timely execution, and better leverage of its IT resources.

IBM's key initiatives for the banking and financial markets are steeped in complexity and variety. To cover this complexity and variety, IBM carefully selects key software partners according to the business requirements (see Table 6). An important consideration is the commitment of the software partners to work with IBM and use its software platform offerings.

For its part, IBM's multiplicity of resources for its partners includes an important, often overlooked, capability—enhancing the partner's application performance—tied to an improved ability to integrate with other business applications, related processes, and operating platforms. This extends the partner's value beyond its original design criteria.

A brief review of IBM's key initiatives with software partners for banking and financial markets precedes a case study. The case illustrates how a business can benefit

by leveraging an institution's infrastructure through a successful integration initiative. The business drivers were customer-centric and distribution models (see Table 1, page 4).

Banking Initiatives

IBM's software banking partners cover both retail and wholesale business requirements in all major regions. A special emphasis on the linkage between core systems transformation, multichannel integration, and customer insight initiatives provides banks with powerful leverage. Payments is a stronghold that banks cannot afford to relinquish to other players. Its importance directly relates to the top line at banks, accounting for up to 35% of revenues in some cases. Risk and compliance are ever-present and ever-changing demands that must never disappear from management's thinking.

Table 6: IBM's Software Partners by Key Industry Initiative

	Initiative	Software Partner
Banking	Core Systems Transformation	Fidelity Information Services, Fiserv, I-flex, AFS, Temenos
	Multichannel Transformation	Argo, S1, Siebel, Kana, PeopleSoft, Chordiant, Wincor Nixdorf, Uniquare, PureEdge, Cisco, Callidus
	Customer Insight	SAS, Siebel, e.Piphany, Unica, Experian, Ascential, PeopleSoft, MarketSoft, Chordiant, DWL, Kana
	Payments	SWIFT, Bottomline Technologies, SIA, IntraNet, Systar, Searchspace, Mantas, Intercope, G4
	Risk and Compliance	Ascential, Algorithmics, SAS, Sungard, Informatica, Mantas, Systar, DeskNet, Searchspace, Centerprise
Financial Markets	Trade Process Transformation	Systar, IntraNet, SWIFT, Intercope, Sungard, Murex, SmartStream, Traiana, Front Capital Systems, Moneyline Telerate, Calypso, Apama
	Risk and Compliance	Ascential, Algorithmics, SAS, Sungard, Informatica, Mantas, Systar, iLumin, Centerprise, Persistence
	Customer Insight	Siebel, Front Capital Systems, Caplin, apr smartlogik, SAS, Ascential
	Payments	SWIFT, Bottomline Technologies, IntraNet, Systar, Intercope, G4

Source: IBM Financial Services Sector

Financial Markets Initiatives

The business volatility that institutions in the financial markets must cope with underlies the demand for operational and infrastructure efficiency. This initiative touches multiple applications, from trade-order management through the middle office and into the back office. There is a continuous need to improve. Risk and compliance, as with the banks, only becomes more complex and the stakes get higher. Customer insight is aimed at delivering better value in the front-office environment.

Case Study: Charles Schwab Uses Grid Computing in On Demand Customer Analytics

In just 30 years, Charles Schwab, Inc. has grown from a startup discount stockbroker into an industry leader serving diverse investor segments. Its business model has continually been refined and modified during these 30 years with a single focus on offering the best possible set of services for the individual investor. In 2004, Schwab, with assets totaling over \$1 trillion, serves investors, collaborates with over 5,000 independent financial planners, and generates revenue in excess of \$4 billion. Its financial offerings now include banking and credit services through affiliated subsidiaries.

In the mid to late 1990s, Schwab modified its organizational structure to make business decisions around customer segments. At the beginning of 2004, it refined its customer segment offerings to better match the needs of diverse investor types. The firm focuses on three primary segments. Within each segment, different levels of services are available based on investor preferences.

- Schwab Independent Investing™— investors select from a range of accounts, products, tools, and research that fit their needs.
- Schwab Advised Investing™— Investors receive the tailored advice they require, selecting the type of advice relationship, support, and followup that fits the investor's needs.
- Schwab Active Trading— Active traders have fingertip access to online resources, such as streaming quotes, real-time news, and interactive charting, and online premium research.

Schwab executives identified a problem that affected all of its customers and independent financial advisors: the time it took to calculate a portfolio analysis against the investor's desired investment objectives. The traditional

approach to this problem required a dedicated platform that retrieved data from a host of internal and external sources. Once data was assembled, the solution required eight to ten minutes to produce the results of the portfolio analysis.

Schwab worked with IBM to engineer a grid computing solution based on a services-oriented architecture. This approach utilized unused capacity across hundreds of servers. The virtual server model now allows Schwab representatives to run the same portfolio analysis in about 15 seconds. The production version uses IBM Server Allocation for WebSphere, which automatically and intelligently monitors application workload and routes traffic to one server or another according to its workload at a given point in time. This dramatic reduction in time allows Schwab to deliver better information faster. The customer gains the benefit by making better decisions, and Schwab wins when its customers win, as noted by the benefits described in Table 7.

In a second, separate initiative, Schwab business and IT executives focused on the demands of maintaining content for its customers on its Web site. While Schwab and

Table 7: Benefit Analysis at Charles Schwab

Business	Standards-based architecture provides a new level of responsiveness, positioning Schwab to quickly and dynamically respond to changes in the marketplace and to deliver new services that add customer value.
	An enhanced customer experience is consistent across multiple customer touch points and channels.
	The right information is delivered to customers and advisors in a timelier manner, enabling better investment decisions.
Technology	The grid-enabled system has reduced processing time from 8–10 minutes to 15 seconds, dramatically changing the character of its customer interactions.
	Resilient, less-proprietary, underlying IT environment allows company to quickly roll out new functions without major disruptions to the infrastructure.
	Embracing open standards, such as XML, has enabled Schwab to speed development and reduce costs.
	Evolving its services-oriented architecture has shortened its time to market while minimizing its impact on existing applications.
	Virtualization by using grid technology has positioned the company for future growth with an evolving, on-demand environment.

Source: Charles Schwab, Inc.

its Web site continued to win awards for customer satisfaction and quality, the cost of maintaining the content was becoming an untenable burden. By 2001, the Schwab sites contained over 3,500 pages and over two million lines of code.

After evaluating several options, Schwab selected IBM DB2 Content Manager as the foundation for a new content authoring environment to reduce the time and cost of integrating all data and content elements for its Web sites. The time savings has been dramatic, as the time to add content dropped from 27 to 35 days to 6 to 9 days, depending on complexity. Business users are now actively involved in content creation, which has sparked creativity and new opportunities.

Strategic Value of Integration

We believe it is important for business and IT executives to recognize the strategic value of business opportunities that are stymied by complex integration business factors. We offer three such opportunities to illustrate how institutions can create business value. The ability of market-leading institutions to achieve success on opportunities like these is noteworthy and separates the leaders from the rest of the pack. All three opportunities are relevant for banks and financial markets institutions. Common to each example is the need to find a solution that understands three things:

- The relevant information, business processes, and new integration demands,
- Existing IT infrastructure and applications, and
- How to develop and deliver an on-time, on-budget outcome.

First, scarcely a week goes by without a development in one market or another that illustrates the changing and deeply entrenched risk and compliance requirements facing financial institutions. In many cases, the regulation of financial institutions is a reaction to a problem or to a systemic industry condition that is exposed to the light of public and/or regulatory scrutiny. Loss exposure and fiduciary responsibility are among the most sensitive to this scrutiny. Institutions have no choice but to face the music—often a dreaded drum roll of new compliance and reporting demands. These demands usually have a

deadline and must be satisfied to avoid new penalties and loss of credibility.

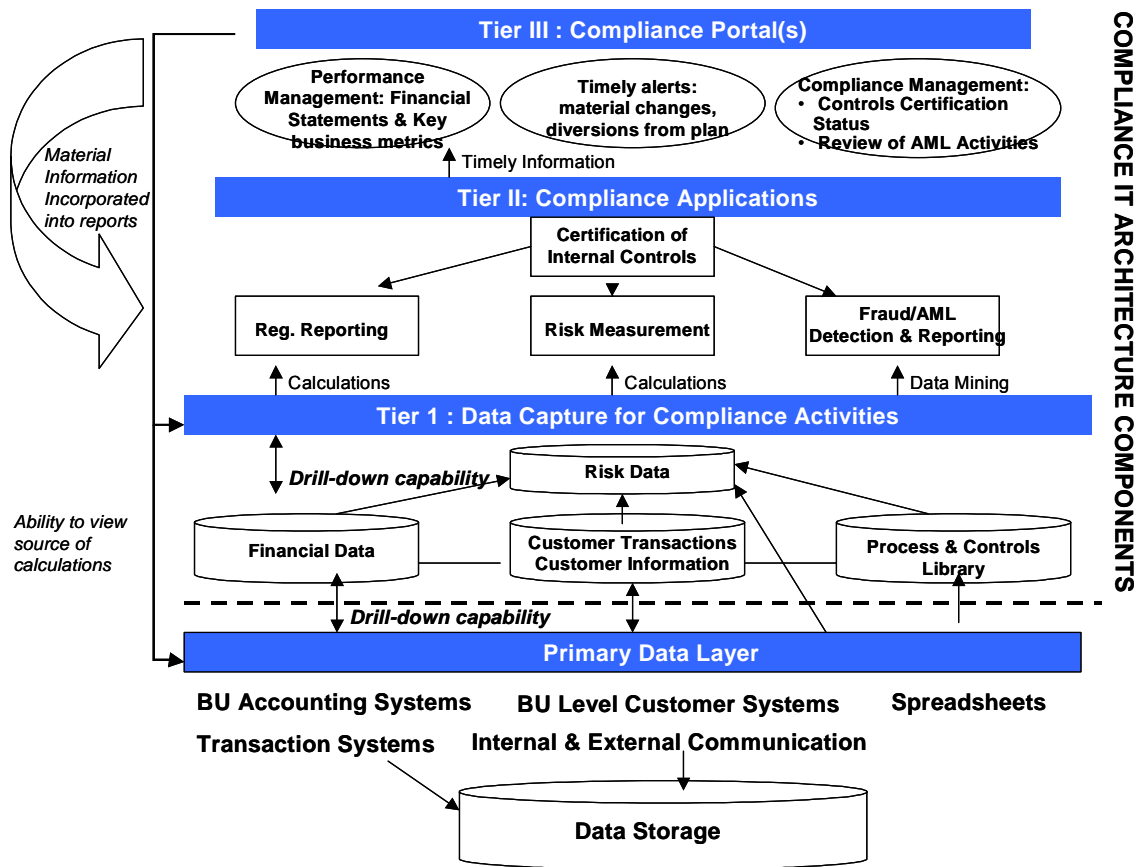
Figure D illustrates Financial Insights' view of the layered IT architecture necessary to address the complexity that faces these compliance demands. Top management cannot ignore these demands and must acknowledge the need for a strong information integration architecture to connect information, processes, and people. Institutions, however, have to accommodate these new compliance requirements without disrupting their customers and revenue streams. Since compliance has no revenue upside, firms look at meeting these demands usually with one eye on costs.

The enterprise-wide focus of these regulations calls for a unified approach to designing a compliance solution architecture. However, the rush to meet tight deadlines for new compliance rules and internal control certifications often leads an institution to tackle compliance implementation(s) with a short-term, piece-meal, narrow-minded approach. Finding a vendor that can address all of these requirements and can deliver the necessary infrastructure and results under deadlines and cost objectives is beneficial, if not necessary.

Our second example addresses the demand for efficient and effective customer service and problem resolution management. This issue is at the core of customer service excellence. Leading institutions are cognizant of the integration requirements across an enterprise. At the heart of effective customer service and problem resolution is the institution's ability to capture all relevant transaction data, customer information, preferences, and policy guidelines. A solution that enables collaboration to produce the right service treatment for the customer also empowers the institution's staff. This exception-based fulfillment needs a fresh, integrated approach to service delivery and the ability to solve a problem in a "one-and-done" experience with the customer. Achieving this result nurtures a customer-for-life culture within the institution and builds a constructive, lower-costing, business model.

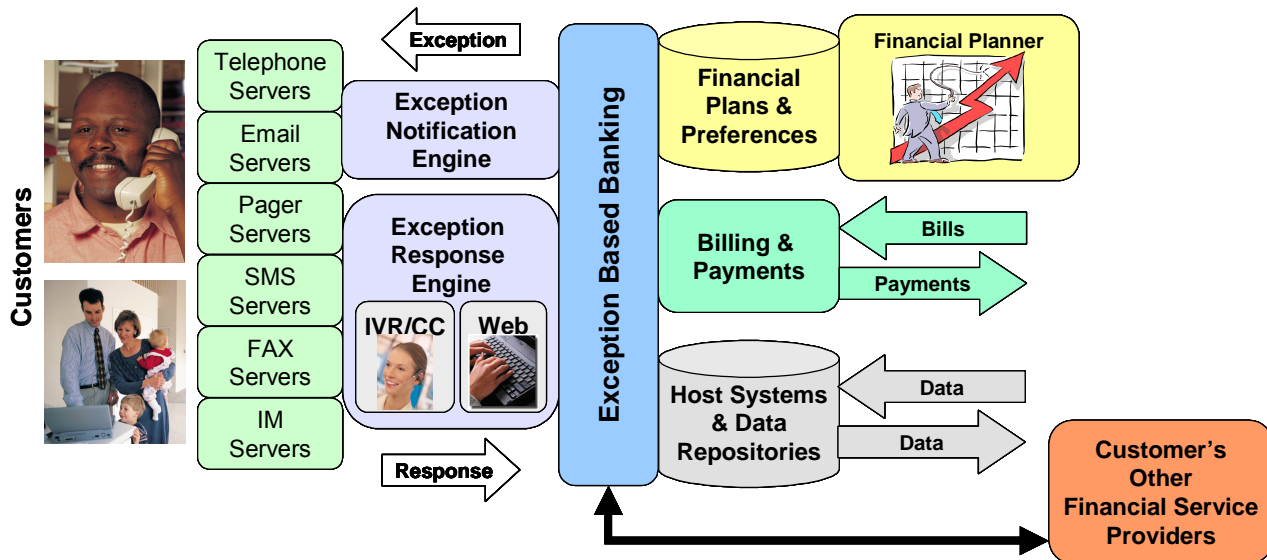
Figure E illustrates the integration demands across the channels and business processes. This challenge is most demanding during live customer interactions. Not only is the customer dealing with a set of expectations, the staff of the institution is as well. Producing a win-win

Figure D: Compliance IT Architecture Components



Source: Financial Insights

Figure E: Delivering Integrated, Exception-Based Service and Services



Source: Financial Insights

for customer, staff, and institution is the desired outcome. However, if the institution does not enable the staff, there is little or no hope of achieving the win-win outcome. At the core in solving this situation is effective integration.

Our third example occurs in treasury management. Companies of all sizes face the treasury swivel-chair dilemma, where information collected electronically at one point is manually entered into company processes at another. Business wants to eliminate these manual interfaces. The ideal replacement for the swivel chair is a real-time, always-on connection to the company's banks that allows the integrated flow of account, transaction, and position information with treasury and the firm's financial processes.

Banks need to develop and execute integrated treasury information strategies, or they face becoming a transaction utility with commodity pricing. The future value derived from the effective use of software to solve integration complexities will yield breakthrough opportunities for banks and their clients. In corporate banking, the development of Web services technologies built atop an XML foundation can yield integrated information management for treasury operations and the financial supply chain for business clients. Integrating the financial and the physical supply chain of corporate clients is possible. Streamlining and integrating information processes can achieve straight-through treasury management (see Table 8).

Essential Guidance

What should financial institution management teams be considering at this point? A universal answer is too general and leaves most executives unsatisfied. Instead, try answering these two questions.

- Where will your institution be in three years with respect to its ability to address, with a high level of confidence, all of the relevant business drivers we listed in Table 1 on page 4?
- Does your institution know with whom and how it will proceed with that high level of confidence?

If an institution is satisfied with its answers to these questions, then execution quality is the next step. If uncertainty exists around answers to either or both questions, then attention needs to be focused where appropriate.

Table 8 Integration Payoff for Treasury Systems

Objective	Description
Eliminate the Swivel Chair	Information that flows without human interference from bank to TMS is less prone to error, is processed more efficiently, and is available earlier.
Enable Process Automation	XML, as both a data and processing format, can automatically kick off information processes on the receiving side (for example, transaction reconciliation or general ledger entry creation), thus eliminating manual intervention.
Normalize Formats	XML and its metadata properties help to translate and process information from disparate formats.
Enable Earlier Market Entry	Automated information flows enable automated reconciliation processes, the benchmark for TMS efficiency. Positions are calculated earlier, allowing more favorable rates through earlier market entry.
Enhance Risk Management Control	An integrated TMS supports same-day funds management and reconciliation, reducing risk and creates a better position to address market changes.
Improve Funds Mobilization	With global funds management, cash pooling and concentration is improved.

Source: *Financial Insights*

Financial institution management teams should, at a minimum, understand their game plan for complex integration requirements. If the plan is to continue with traditional methodologies in systems integration projects, at least benchmark against competitors who follow a different game plan that incorporates a service-oriented architecture and uses a software platform to support its integration and application development requirements.

Finally, business and IT executives should be seeking to leverage every corner of the IT infrastructure to support current and new requirements. Again, the role of a service-oriented architecture will only make this search easier. Sooner or later, institutions that refuse or ignore this approach will become weaker competitors or will be acquired.

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