Case Studies in Enterprise Architecture Migration
Self-Funding Architectures to Advance Corporate Strategy

- The Self-Funding IT Architecture Ideal
- Realizing the IT Simplification Dividend
- Case Studies in Enterprise Architecture Migration
- Enterprise Architecture Visualization Tools
- Enterprise Architecture Groups
Note to Members

This project was researched and written to fulfill the research requests of several members of the Corporate Executive Board and as a result may not satisfy the information needs of all member companies. The Corporate Executive Board encourages members who have additional questions about this topic to contact the Council staff for further discussion. Descriptions or viewpoints contained herein regarding organizations profiled in this report do not necessarily reflect the policies or viewpoints of those organizations.

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A Note on Profiled Companies

The case studies contained in this book are modified versions of material first presented in the summer of 2001 as part of the Working Council’s annual meeting series. Information, particularly with regard to financial measures and vendors, is accurate as of that date.
Too Much with Too Little

Faced with increased budgetary scrutiny, CIOs are endeavoring to strike a difficult balance: supporting the corporation’s legacy IT environment while at the same time marshalling and deploying resources against more strategic priorities. Many of these strategic priorities entail building out IT architectures to enable next-generation enterprise capabilities—customer relationship management, enterprise portals, and the further “digitization” of myriad business functions and processes. After a half-decade of double-digit IT budget expansion—driven by successive waves of Y2K, ERP, and e-business investment—corporate IT growth has dramatically slowed down, remaining in the mid–single digits throughout 2001 and 2002. In this environment, corporate IT groups are being asked to deliver step-function leaps in IT capability with only modest increases in their IT budgets.

Protecting the Seed Corn

In response to these resource constraints, CIOs are engaging in concerted cost-cutting efforts in an attempt to liberate funds for architecture build-out. By reprioritizing the discretionary development queue around fast-payback digital business productivity projects and by seeking out quick-hit IT operational cost-efficiencies, CIOs are meeting near-term efficiency goals. However, corporate IT functions risk undermining their ability to respond to future business directions by cutting funding of foundational projects of long-term strategic value in a shortsighted attempt to meet these cost-cutting targets.

The Self-Funding Enterprise Architecture Ideal

To balance the company’s near-term cost-cutting mandates and long-term strategic needs, the CIO’s goal is to attain a self-funding IT architecture in which transparently documented IT cost savings are diverted to fund the build-out of next-generation IT capabilities.
The Self-Funding Architecture Ideal

Executive Summary: The Self-Funding IT Architecture Ideal

The IT Leader’s Quest to Advance Strategic Investments Through Operational Efficiencies

Multiyear Strategic Initiatives

1. Reaffirm “Breakthrough” Strategic Projects

BU-Led Discretionary Queue

2. Realize Digital Business Productivity Gains

IT Operations and Services

3. Streamline IT Operational Costs

4. Subsidize Next-Generation Enterprise Architecture

- Standardize Infrastructure
- Rationalize Applications Portfolio
- Consolidate User Support
- Renegotiate Vendor Contracts
- Hardwire Asset Management
- Eliminate “Rogue” Purchasing
- Exploit Outsourcing Opportunities

Savings

Sales
Manufacturing/Distribution
Employee Self-Service
Procurement

MyAccount.com
MyJob.com
E-Auction

Customer Address Tax Transaction Processing Data Retrieval Data Translation Connectivity Application Business Rules Exception Handling Returns Non-Resident Tax

Standard Logging Device Templates Presentation Authentication and Eligibility Security Credit Verification Promotions Workflows

MyJob.com

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Establishing a Simplified, Standardized Enterprise IT Architecture…

Over the course of its research, the Working Council found that companies typically follow a common multistage progression in their IT architecture ambitions. The first step in this representative enterprise architecture migration is the creation of a rational IT foundation. This is a two-part undertaking. First, companies concentrate on simplification, encompassing both the reduction of existing systems and the proactive imposition of architectural discipline during the IT planning process. Second, companies focus on the standardization of a global applications “backbone” and global business processes. By engaging in these multiyear, enterprise-wide IT simplification and standardization efforts, companies are freeing resources previously deployed toward the maintenance of overly complex legacy system portfolios. In turn, companies are redeploying resources to create flexible, efficient IT foundations that can accommodate future growth of the corporation’s core business.

…and Adopting a Principled Approach to “Externalization”…

Progressive companies supplement their simplification and standardization initiatives by outsourcing and monetizing both IT assets and peripheral business processes. This “externalization” strategy enables improved focus of scarce corporate resources on the deployment of technologies that improve performance in core businesses.

…Results in a Simplification “Dividend” That Funds the Migration Toward New, Customer-Centric Business Models

Using the “simplification dividend” of funds and staff freed by the creation of a streamlined IT architecture and the externalization of IT and noncore business processes, some companies are making transitional IT investments aimed at revenue growth. These companies are seeking to use IT to improve service quality and consistency, enabling role-based segmentation and other customer-centric growth opportunities.

A Note on Profiled Cases

Knowing that “enterprise architecture” is a very broad term, an explanation of case study selection criteria is necessary. The Working Council has selected the companies represented below as enterprise architecture exemplars because they have demonstrated three key characteristics:

1. **Operational Efficiency**: Each has realized a clear cost-savings “dividend” from its IT simplification efforts.

2. **Alignment of IT and Business Strategy**: Each recognized a misalignment between the key elements of its corporate and IT strategies and put in place IT organizational and governance structures to systematically redirect efforts and resources to enable the corporate strategic vision.

3. **Self-Funding Architecture Migration**: Each has established a particular architecture self-funding mechanism, tracking and diverting some portion of its simplification dividend toward the build-out of a “to-be” architecture.
Executive Summary: The Self-Funding IT Architecture Ideal

**Perfected Business Processes**
Streamlined IT architecture reduces SG&A costs, improves business process quality and cycle speed, and frees resources for reinvestment in core competencies.

**Customer-Centric Revenue Streams**
Holistic views of customer activity across channels and product lines enable cross-selling and micro-segmentation while enhancing loyalty and price realization (and potentially stock multiple).

**Working Council Featured Case Studies**
- **FedEx**
  - Service Personalization
  - Reorganization for One Face to the Customer

- **U.S. Department of the Navy**
  - Externalization
  - IT Asset Monetization

- **BP**
  - Externalizing Business Processes

- **KeyCorp**
  - IT-Enabled Business Process Standardization for Low-Cost-Provider Status

- **Dow**
  - Embedding Enterprise Architecture Across the Systems Life Cycle

**Profiles in Enterprise Architecture Migration**

**Corporate Restructuring**

**IT Streamlining**

**Fitful Journeys to Alignment**
# Member Self-Diagnostic: Creating a Self-Funding Enterprise IT Architecture

The following questions are intended to facilitate discussion between senior IT, line IT, and corporate management over the progress of the corporation toward creating a self-funding enterprise IT architecture.

## Simplification

1. Has the IT organization created a formal set of architecture principles to help focus its efforts on creating a standard, efficient enterprise IT architecture?

   - [ ] Yes
   - [ ] No

2. Does the IT organization maintain a comprehensive, enterprise-wide systems inventory, as well as a set of enterprise architecture blueprints describing both the “as-is” and “to-be” states of the IT architecture?

   - [ ] Yes
   - [ ] No

3. Does the IT organization utilize a scorecard of architecture-related metrics to measure progress against simplification and standards compliance goals, updated at least quarterly?

   - [ ] Yes
   - [ ] No

4. Is a significant portion of senior IT staff’s compensation linked to the achievement of architecture simplification goals?

   - [ ] Yes
   - [ ] No

5. Has the IT organization chartered a central, enterprise-level architecture group or steering committee?

   - [ ] Yes
   - [ ] No

6. Is the involvement of the architecture group forward-integrated into the company’s strategic planning process and project life cycle in order to facilitate alignment between corporate strategy and business unit IT project queues and avoid redundant development?

   - [ ] Yes
   - [ ] No

7. Does the architecture compliance screening process include a formal interoperability review, ensuring that all applications and infrastructure projects are compatible with the existing and planned architecture?

   - [ ] Yes
   - [ ] No

## Standardization

8. Has the IT organization consciously articulated the trade-off between systems customization and speed of system rollout?

   - [ ] Yes
   - [ ] No

9. Has the IT organization minimized local customization of systems and IT services by elevating IT tasks to the regional or global level whenever possible from a logistical and economic standpoint?

   - [ ] Yes
   - [ ] No

10. Has the IT organization deployed standard applications and infrastructure to help create standard business processes, e.g., finance, supply chain, and merger and acquisition integration?

    - [ ] Yes
    - [ ] No

11. Are architecture planning and project management viewed as core disciplines of IT (i.e., kept in house) while other IT competencies are externalized?

    - [ ] Yes
    - [ ] No

12. Has the IT organization examined standard messaging and data architecture as potential alternatives to or complements for application architecture and infrastructure standardization?

    - [ ] Yes
    - [ ] No
Externalization

13. Do externalization contracts employ SLAs such as hardwired cost reductions, gain/painsharing, and innovation bonuses to ensure continued performance of vendors in providing cost-efficient service delivery?

Yes  No

14. Does the IT organization employ multivendor SLAs that hold teams of vendors responsible for service delivery in an attempt to avoid vendor “finger pointing”?

Yes  No

15. Is the IT organization able to monitor the performance of vendors against SLAs in (near) real time?

Yes  No

16. Has the IT organization investigated the possibility of IT asset monetization strategies to liberate funds, staff time, and management attention for deployment against more strategic IT priorities?

Yes  No

17. Does the IT organization (fully or partially) redeploy savings generated by externalization or asset monetization toward IT investments designed to increase the productivity of the company’s core business?

Yes  No

Service Personalization

18. Has the IT organization created a multiyear road map for deploying a standardized, customer-facing IT architecture that enables “one face” to the customer and role-based customer segmentation?

Yes  No

19. Has the company put in place an IT organization to support the creation of this architecture, including “twinned” IT and customer-facing project staff and cross-functional executive-level governance?

Yes  No

20. Does the IT organization dedicate resources to creating reusable architecture components for customer-facing activities such as cross-channel complaint resolution and customer service e-learning?

Yes  No

Diagnostic Scores

<table>
<thead>
<tr>
<th>Number of “Yes” Answers</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>16–20</td>
<td>Enterprise Architecture Exemplar</td>
</tr>
<tr>
<td>11–15</td>
<td>Mature Approach to Enterprise Architecture</td>
</tr>
<tr>
<td>6–10</td>
<td>Developing Enterprise Architecture Competency</td>
</tr>
<tr>
<td>1–5</td>
<td>Nascent Enterprise Architecture Competency</td>
</tr>
</tbody>
</table>
Introduction: Realizing the IT Simplification Dividend

Multiple years of systems building without an overarching IT blueprint and architecture standards have left companies with an impressive wealth of e-business functionality, but they have also yielded a tremendous amount of systems complexity and redundancy. Driven by spiraling costs of application maintenance and enhancement for these systems that threaten to crowd out future strategic projects, companies are seeking to simplify, standardize, and externalize portions of their IT architectures to create a rational IT foundation for the corporation’s next-generation strategic initiatives.
A Non-IT Architecture Analogy

Perhaps no better analogy exists for the importance of architecture (IT or otherwise) than the story of the Winchester Mystery House—the home of Sara Winchester, heiress to the Winchester rifle fortune, located in San Jose, California. Having been told by a medium that the ghosts of those killed with Winchester rifles would return to haunt her if she ever stopped building, Mrs. Winchester’s house eventually extended over 24,000 square feet, encompassing 160 different rooms and including six kitchens, 47 fireplaces, and 10,000 windows.

Plenty of Advanced “Functionality”…

Portending the technological innovation that would define the city now known as “the heart of Silicon Valley,” the building effort of the Winchester House, begun in 1884, resulted in numerous examples of cutting-edge “functionality.” Building innovations pioneered during construction include wool wall insulation, internal cranks to open and close doors, gas lights, intercoms, a water recycling system, automated watering systems, a grand ballroom built without nails, and a (patented) no-clog sink.

…But No “Interoperability”

The downside of this massive construction effort was poor “interoperability” between the individually constructed sections. The house features 13 abandoned staircases (some with steps that are only two inches high), 65 doors leading to blank walls, 24 skylights embedded in floors, and enough keys to fill two large buckets.

An Unfortunate Division of Labor

An examination of the task allocation of workers assigned to build the house reveals the critical flaw. While a total of 147 builders worked on the house, there was no single architect. Each worker, the best in his craft, focused on his part of the house with no knowledge of what the other 146 builders were doing. So for all of its ambition, the state-of-the-art Winchester Mystery House, constructed over a period of 38 years at a cost of $5.5 million by the best technical talent money could buy, yielded rather inhospitable results due to its lack of a master blueprint.
Why Is IT Architecture Important?

The Winchester “Mystery House”

Vision of a state-of-the-art abode…

- 160 Rooms
- 6 Kitchens
- Gas Lights

…built without a “blueprint”…

Winchester House Workforce, 1884

- 47 Fireplaces
- 10,000 Windows
- Intercoms

…yields inhospitable results

- 65 Doors to Blank Walls
- 13 Staircases Abandoned
- 24 Skylights in Floors

$5.5 Million Total Cost Over 38 Years

Source: Alex Cullen, John Hancock; www.winchestermysteryhouse.com.
The IT Analog

Hitting Close to Home
Unfortunately, the construction of the Winchester Mystery House provides an excellent analog for a distressingly large number of corporate IT departments. Spurred by the meteoric rise of e-business, these enterprise IT environments are crippled by years of uncoordinated application and infrastructure build-out. They also typically lack an overarching blueprint, a repository for enterprise-level standards, or a standard procedure for approving technology requests. To be fair, this approach to corporate IT has yielded its share of innovative functionality, but it has also resulted in tremendous system complexity and redundancy across the enterprise.

The Complexity Conundrum
One financial services institution the Working Council interviewed during the course of its research provides a representative example of the complexity inherent in a typical large corporate IT environment. A chief architect–led complexity audit yielded some shocking results: a “spaghetti chart” showing that the company was supporting 40 development languages, more than 20 middleware solutions, and at least 1,500 distinct application interfaces.

The Economics of Simplification
While the IT ramifications of this magnitude of applications complexity are significant, the business implications are even more frightening. A benchmarking study of 32 Australian banks reveals that the number of applications for a particular product line—in this case, mortgage processing—is directly correlated with the break-fix rate for those applications. As a result, banks with fewer applications for mortgage processing, and consequently fewer application interfaces, enjoy higher service quality. This correlation underscores the fact that the economics of supporting complex architectures are clearly unfavorable.
Introduction: Realizing the IT Simplification Dividend

The Enterprise Application Mystery House

Visual Schematic of Representative Fortune 500 Corporation Applications Environment

**IT “Mystery”**

- 40+ development languages
- 20+ middleware solutions
- 1,500 application interfaces

Impact of Systems Complexity on Service Quality

Mortgage Processing

Source: Corporate Executive Board research.
Case Studies in Enterprise Architecture Migration

Taken Over by the M&E Weed

Reaping the Whirlwind

In addition to the near-term problems presented by undisciplined Internet-era systems deployment, the long-term consequences of application complexity are also significant. Years of unplanned, undocumented code changes on generations of legacy systems are catching up with many corporate IT organizations. A representative large financial services company estimates that its maintenance staff spends upward of 80 percent of its time reading and understanding legacy code, and only 5 percent of its time actually fixing that code. This inefficiency results from decades of methodological bad habits—code written in complex legacy languages, the lack of standard maintenance and enhancement (M&E) processes, the absence of incentives for developers to create complete and accurate documentation, and layers of ad hoc patches that exacerbate code complexity.

Constrained by the Cost of Legacy Maintenance

M&E costs for these complex legacy application environments—exacerbated by growth in the complexity of e-business applications and the demand for shorter, faster, more distributed development work—are draining already constrained IT budget dollars and precluding companies from engaging in the new development required to build their next-generation IT architectures. Correspondingly, the proportion of total U.S. developer labor devoted to maintenance work rose from 47 percent in 1990 to 73 percent in 2000.

Out with the Old, in with the (Simpler) New

Consequently, companies’ efforts to build out enterprise e-business architectures and digitize business and IT processes require that corporate IT functions free up funds by obsessively “cleaning house.” This can be achieved by retiring obsolete systems that are costly to maintain and by refocusing on simplification to root out inefficient maintenance spending that is growing like kudzu,* choking off new development spending and reducing service quality.

For a more in-depth treatment of how companies are reducing applications M&E expenses with an eye toward funding next-generation enterprise IT capabilities, please see the Working Council’s upcoming study, Reducing Applications Maintenance and Enhancement Costs.

* Kudzu (Pueraria lobata) is a fast-growing Japanese vine, common in the southern United States, that once introduced into a garden tends to grow so quickly that it starves the other vegetation of necessary light and nutrients.
**M&E Costs Crowding Out Strategic Projects**

**Largely inefficient maintenance work...**

Maintenance Programmer Allocation of Time

Large Financial Services Company

- 80%
- 15%
- 5%

Eighty percent of programmer time spent on code understanding

Actual Fix
Regression Test and Re-Fix

**...driven by historical methodology problems...**

Root Causes of Legacy Code Complexity

- Code written in complex legacy language
- Patchwork of enhancements exacerbate code complexity
- Inconsistent documentation standards and processes
- No programmer incentives to complete documentation

**...threaten to delay new capabilities**

**Software Maintenance Labor**
Percentage of Total U.S. Software Developers

<table>
<thead>
<tr>
<th>Year</th>
<th>1990</th>
<th>1995</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>47%</td>
<td>52%</td>
<td>73%</td>
<td></td>
</tr>
</tbody>
</table>

**IT “Kudzu”**

“Maintenance was really draining resources from our new development—not to mention the performance of some of these old, convoluted systems and how that affected customer service. Especially in a company like ours with our focus on quality, and especially as we push our “digitization” mandate, it’s totally necessary to free up resources from maintenance and redeploy dollars and resources to these more strategic initiatives.”

GE Business Executive, 2001


Introduction: Realizing the IT Simplification Dividend
Establishing a Simplified, Standardized Enterprise IT Architecture...

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Fitful Journeys to Alignment

Profiles in Enterprise Architecture Migration

Working Council Featured Case Studies

Perfecting Business Processes
Streamlined IT architecture reduces SG&A costs, improves business process quality and cycle speed, and frees resources for reinvestment in core competencies.

Corporate Restructuring

IT Streamlining

Simplification
KeyCorp
Focused Systems Simplification

Embedding Enterprise Architecture Across the Systems Life Cycle

Standardization
Dow
IT-Enabled Business Process Standardization for Low-Cost-Provider Status

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Customer-Centric Revenue Streams
Holistic views of customer activity across channels and product lines enable cross-selling and micro-segmentation while enhancing loyalty and price realization (and potentially stock multiple).

Next IT Budget/Upgrade Cycle → Next Board Meeting

Introduction: Realizing the IT Simplification Dividend

KeyCorp: Focused Systems Simplification

In service to a larger corporate cost-cutting effort aimed at improving the company’s efficiency ratio, KeyCorp’s IT group launches an ambitious systems simplification effort. Using a formal set of architectural principles, a detailed architecture integrity scorecard, and a gainsharing incentive plan for IT executives, the initiative results in a 20 percent reduction in application maintenance and enhancement costs and first-year savings of $7 million.
Company Background

KeyCorp Inc., the Cleveland, Ohio–based superregional financial services firm, has $7.4 billion in revenues and 21,200 employees.

Broken Promises to Wall Street

An aggressive acquisitions strategy allowed the company to grow from approximately $15 billion in assets to $83 billion across the past decade, placing KeyCorp in the upper decile of North American banks. However, while KeyCorp managed to preserve its corporate identity during the banking industry consolidation of the 1990s, it failed to keep its promises to Wall Street.

The Efficiency Imperative

Lagging behind other major regional banks in terms of its efficiency ratio—the amount of money required to generate $1 in revenue—KeyCorp launches its enterprise-wide “Competitiveness Initiative” in November 1999, an ambitious cost-cutting effort with the goal of improving pretax earnings by $170 million by 2002.

Perform, Excel, Grow

The centerpiece of this initiative is the “Perform, Excel, Grow” (PEG) program, a grassroots cost-cutting effort that generates 8,000 discrete cost-savings ideas, 2,000 of which were actually implemented by the company. Early results from PEG include:

• The consolidation of 23 lines of business into 12

• The elimination of over 2,300 FTE positions

Raising the Bar

These early successes contributed to a restated goal for the company’s Competitiveness Initiative. By 2002, KeyCorp hopes to improve pretax earnings by $300 million, with the PEG program contributing $200 million in cumulative savings that will be reinvested in revenue-generating opportunities.

A Commitment to Simplification

KeyCorp’s commitment to PEG is underscored by the prominent mention of the program on the cover of the company’s annual report for 2000. Titled “Fulfilling Our Promise: The Power of ‘PEG,’” the report clearly highlights the importance of the PEG program to KeyCorp’s future. In addition, the company’s CEO consistently articulates PEG’s organizing principle: using cost savings yielded by PEG simplification efforts to fund the development and deployment of revenue-generating technologies.
A Long-Range Efficiency Play

**CEO program for “stem to stern” cost reduction…**

“The PEG Initiative [Perform, Excel, Grow] is dramatically reducing our expense base and enhancing our ability to generate revenue. We have identified more than $260 million in annual savings, $200 million of which will fall to the bottom line. The remaining $60 million will fund projects that invest in our technology to develop our higher-growth businesses and increase revenue generation.”

Henry L. Meyer III
President and CEO

…mobilizes entire organization in streamlining efforts

**Early Milestones in PEG Program**

- 2,000 Cost-Savings Ideas
- Consolidated 23 Business Lines into 12
- 2,300 FTE Eliminated
- $200 Million Cost-Savings Target

A Declaration of Architecture Principles

IT in Service to PEG

To enable the corporate PEG initiative, KeyCorp’s IT group, Key Technology Services (KTS), was asked by the company’s CEO to contribute its share to the company’s quest for greater efficiency. In response, the CTO and Chief Architect develop a four-pronged IT strategy. The first element in this plan is an unambiguous declaration of a handful of guiding IT architecture principles.

Elevating Architectural Simplicity to a Strategic Goal

These principles, which are clearly delineated in the company’s annual IT strategic plan, reflect a single overarching theme: the simplification of the technology environment as a means to an end—the creation of a standard enterprise applications architecture and infrastructure. The net effect of these principles is to permanently link simplicity with better, faster, cheaper IT performance. Every resource allocation decision made by KTS invokes the filter of the eight guiding architecture principles.

Building an Efficient IT Platform

The first four of KeyCorp’s IT principles aim to create an IT platform that delivers high service levels to the business. These principles include:

1. A commitment to using technology for cycle-time reduction and process predictability

2. The embrace of open standards and nonproprietary development approaches

3. Proactive management of system reliability, scalability, and security

4. The use of standard applications and infrastructure

Hardwiring a Life-Cycle-Cost Perspective

KeyCorp’s remaining architecture principles are focused on educating business and IT executives about the importance of minimizing the life-cycle costs of complexity. These include:

5. The adoption of an enterprise total cost of ownership (TCO) perspective; business unit–based IT leaders must articulate the total life-cycle cost of maintaining any nonstandard application, including not only system development, implementation, and maintenance costs but also the cost to train IT staff and end users to work with new systems

6. A mandate to retire duplicative systems and reduce code complexity

7. Adoption of packaged applications with strict limits on acceptable customization

8. The commitment to the reuse of existing technologies whenever possible
KeyCorp Elevates Simplicity to a Strategic Goal

KeyCorp’s 2001 IT Strategic Plan (Representative Overview)

**Guiding IT Architecture Principles**

**Focus on Platform**

1. Use of technology for cycle-time reduction
2. Embrace of open standards and nonproprietary approaches
3. Proactive management, high scalability, and security
4. Standard applications and infrastructure

**Focus on Life Cycle**

5. Enterprise TCO perspective (particularly with applications)
6. Systems simplification, code reduction, and retirement
7. Minimal package customization
8. Culture of reuse

* The Working Council does not endorse or recommend technology vendors. The technologies listed here are for illustrative purposes only and do not necessarily represent the technologies used by profiled companies.

Source: KeyCorp; Working Council research.
Inventorying Complexity and Redundancy

Getting the Lay of the IT Land

The second practice in KeyCorp’s simplification strategy is an end-to-end systems-mapping exercise. To create an architecture baseline that would allow KTS to make informed decisions on the simplification of its IT environment and demonstrate to business units the long-term ramifications of supporting TCO-prohibitive niche technologies, KeyCorp builds an inventory of its applications, middleware, and infrastructure.

Visualizing Systems Complexity

With the goal of identifying all of the systems it maintains, KeyCorp undertakes an end-to-end systems-mapping effort. This effort requires six months and three FTEs, and yields a map of 90 percent of applications enterprise-wide. The resulting IT “snapshot” reveals some shocking truths about the complexity and redundancy of Key’s IT environment, including the fact that as of July 2000 KeyCorp was maintaining:

- 740 applications, only 200 of which ran across all platforms at KeyCorp
- 1,500 discrete application interfaces
- 43 different application development and deployment environments
- 21 different messaging and middleware systems
- 9 different types of departmental servers
- 13 different operating systems

This mapping exercise gives unquestionable empirical precision to the complexity of KeyCorp’s IT environment and becomes a critical tool in persuading reluctant business leaders to surrender nonstandard systems.

In addition to the end-to-end systems map, KeyCorp’s IT group utilizes two other tools to help senior business unit and IT management visualize the unnecessary complexity of the company’s IT environment:

- A Systems Redundancy Snapshot: A three-tier architecture chart that includes logos of manufacturers, designed to highlight both the existing redundancy within architecture tiers and the missed opportunities for economies of scale.
- An Application Interface Complexity Map: A “spaghetti” map of application interfaces, used to dramatize the overwhelming complexity of the company’s application portfolio.

A Note on Architecture and IT “Visualization Tools”

Members interested in other enterprise architecture visualization tools should refer to Appendix II to this research (pages 107–125). Members with a broader interest in visualization tools for the IT function should see the Working Council’s Visualizing IT Value Creation: Tactics for Communicating IT Contributions to Corporate Strategy. All visualization tools from these publications are also available via the Working Council’s Web-based Graphics Database, also at www.cio.executiveboard.com.
### End-to-End Systems Mapping

#### KeyCorp’s Systems Portfolio, July 2000

**Illustrative**

### Application Development and Deployment (43 Environments)

<table>
<thead>
<tr>
<th>Client Server</th>
<th>Internet</th>
<th>Mainframe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fat Client</strong></td>
<td><strong>Web Application Server</strong></td>
<td><strong>Mainframe</strong></td>
</tr>
<tr>
<td>- C</td>
<td>- Java/NetDynamics</td>
<td>- Assembler</td>
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<tr>
<td>- Visual Basic</td>
<td>- Java/Dynamo</td>
<td>- DYL 280</td>
</tr>
<tr>
<td>- Visual Basic Script</td>
<td>- Cold Fusion</td>
<td>- FOCUS</td>
</tr>
</tbody>
</table>

### Messaging and Middleware (21 Systems)

<table>
<thead>
<tr>
<th>Middleware</th>
<th>Mainframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC-5</td>
<td>HP-AIX</td>
</tr>
<tr>
<td>DECS</td>
<td>HP-UNIX</td>
</tr>
<tr>
<td>MDI</td>
<td>OS/2</td>
</tr>
<tr>
<td>Notes (API)</td>
<td>IPlanet</td>
</tr>
<tr>
<td>QCall (Telephony)</td>
<td>Sun Solaris</td>
</tr>
</tbody>
</table>

### Development Languages

- COBOL 19%
- Other 18%
- C/C++ 4%
- MS/Visual Basic 12%
- Assembler 8%
- COBOL 390 8%
- DYL280 7%
- Access 2.0 6%

### Database Platforms

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Number of Databases</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM</td>
<td>372</td>
</tr>
<tr>
<td>Microsoft</td>
<td>243</td>
</tr>
<tr>
<td>DR/2000</td>
<td>71</td>
</tr>
<tr>
<td>Access</td>
<td>200</td>
</tr>
<tr>
<td>Oracle</td>
<td>50</td>
</tr>
<tr>
<td>Sybase</td>
<td>7</td>
</tr>
</tbody>
</table>

### Operating Systems (13 Systems)

<table>
<thead>
<tr>
<th>Tier-2 Manufacturer</th>
<th>% of Servers Running</th>
<th>Tier-3 Manufacturer</th>
<th>Number of Units Running</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM-AIX</td>
<td>5.3%</td>
<td>Microsoft-DOS</td>
<td>3.000</td>
</tr>
<tr>
<td>HP-UX</td>
<td>1.49%</td>
<td>OS/2</td>
<td>1.900</td>
</tr>
<tr>
<td>Sun Solaris</td>
<td>3.96%</td>
<td>Microsoft/Windows 3.1</td>
<td>3.000</td>
</tr>
<tr>
<td>NCR-UNIX</td>
<td>0.29%</td>
<td>Microsoft/Windows 95</td>
<td>12.000</td>
</tr>
<tr>
<td>Total UNIX</td>
<td>11.07%</td>
<td>Microsoft NT</td>
<td>6.500</td>
</tr>
</tbody>
</table>

### Desktop (4 Systems)

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Percentage of Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM</td>
<td>35%</td>
</tr>
<tr>
<td>Compaq</td>
<td>40%</td>
</tr>
<tr>
<td>Apple</td>
<td>1%</td>
</tr>
<tr>
<td>Dell</td>
<td>24%</td>
</tr>
</tbody>
</table>

---

**Indefensibly Complex**

“The business heads had never seen the complexity of our systems laid out in an understandable fashion. They’re very pragmatic—no one could seriously defend having nine different mid-tier platforms.”

Bob Dutile
SVP of Enterprise Architecture

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*The Working Council does not endorse or recommend technology vendors. The technologies listed here are for illustrative purposes only and do not necessarily represent the technologies used by profiled companies.*

Source: KeyCorp; Working Council research.
Integrating Architecture into the IT Scorecard

To ensure that architecture principles are reflected in systems funding and prioritization decisions and to monitor the ongoing progress of its systems simplification efforts, KTS designs a scorecard of architecture-related metrics that is integrated with its existing monthly IT balanced scorecard.

A Quarterly Systems Snapshot...

KeyCorp reviews its progress on architecture goals using a quarterly update on simplification of the application portfolio and platform and communications technologies.

1. Complexity: This snapshot includes an update of the “redundancy coefficient,” the number of redundant technologies supporting a single product or business process, as well as an update on the number of technologies and interfaces in each architecture layer.

...Complements Monthly Architecture Compliance Reviews...

A formal review of the architecture scorecard occurs on a monthly basis, aimed at diagnosing the overall “health” of the IT architecture. Key categories of metrics include:

2. Architecture Compliance: Measures the number of projects compliant with enterprise architecture principles and standards, as well as spending on noncompliant projects as a percentage of total project spending.

3. Reuse: Monitors the percentage of project requirements fulfilled via reuse of existing technologies and the corresponding decrease in technology selection time; also tracks the number of applications used by more than one line of business.

4. Package Usage: Tracks the percentage of applications purchased versus built and the absolute number of customizations of those technologies.

...And a Summary of Internal Service Metrics

To supplement its measurements of organizational compliance with architecture principles, KeyCorp also tracks metrics that focus on the performance of the architecture group itself on a monthly basis. These include:

5. Service Quality: Examines the percentage of projects completed on time and on budget, as well as break-fix expense as a percentage of the total IT budget and the failure rates of new applications. KeyCorp believes that break-fix expense and early-life failures are key indicators of the success of its simplification efforts, as a more streamlined architecture should yield fewer breaks and early-life-cycle failures.

6. Architecture Backlog: Measures the architecture groups’ responsiveness to the line by tracking the number of architecture requests under consideration, completed and outstanding, as well as the average days required to review exception requests and the number of exceptions requested versus granted.
Architecture Integrity Scorecard

Selected KeyCorp Architecture Metrics Categories

Illustrative

1. **Complexity (Quarterly)**
   - Redundancy Coefficient (Redundant Platforms at Each Layer)
   - Reduction in Technology Interfaces

2. **Architecture Compliance (Monthly)**
   - Number of Projects Compliant with Standards
   - Total Spent on Noncompliant Projects as a Percentage of Total Project Spending

3. **Reuse (Monthly)**
   - Percentage of Project Requirements Fulfilled via Reuse
   - Number of Applications Used by More Than One Line of Business
   - Decrease in Technology Selection Time

4. **Package Usage (Monthly)**
   - Percentage of Applications Purchased Versus Built
   - Number of Customizations

5. **Service Quality (Monthly)**
   - Percentage of Projects On Time/On Budget
   - Break-Fix Expenses as Percentage of Total IT Budget
   - Early-Life-Cycle Failures

6. **Architecture Backlog (Monthly)**
   - Number of Architecture Requests
     - In Progress
     - Completed
     - Outstanding
   - Average Days to Review Exception Request
   - Number of Exceptions Requested, Granted

Source: KeyCorp; Working Council research.
Sharing the Gains

Putting IT’s Money Where Its Mouth Is

Realizing that well-documented architecture principles and metrics are necessary but not sufficient to guarantee the achievement of its simplification goals, KeyCorp provides senior IT staff with a clear financial incentive to reduce architecture complexity.

Aligning Individual and Corporate Interests

Under KeyCorp’s short-term incentive compensation (STIC) plan, IT cost reductions exceeding PEG target levels are partially diverted into an incentive pool for IT leadership. The majority of the incentive payout for these IT leaders is pegged to achievement of year-over-year IT cost reduction goals, while the remainder is based on overall KeyCorp performance.

Driving Incentives Deep into the IT Organization

Demonstrating its commitment to simplification, KeyCorp’s incentive plan is notable not only in the absolute number and multiple tiers of IT staff included, but also in the proportion of their compensation at risk.

Three tiers of the IT leadership structure, or roughly 70 KTS staff, are eligible for KeyCorp’s gainsharing incentive plan. As part of the plan, KeyCorp places a very significant portion of pay at risk—ranging from an amount equal to 15 percent of total compensation for vice presidents up to 45 percent of total compensation for KeyCorp’s CTO.

Helping the Company Help Itself

Some of the representative IT cost-savings ideas pursued by KeyCorp in 2000 include:

- Outsourcing field support for branch offices
- The creation of a central project management office
- The rationalization of contractors, and hardware vendors, and telecom service providers

The success of KTS’s cost-cutting efforts allow both KeyCorp and the company’s IT leadership to reap a handsome simplification dividend. Based on KTS’s success in reducing systems complexity—and therefore reducing cost—the eligible IT staff realized 115 percent of their projected incentive payout for 2000.
An Architecture Gainsharing Incentive Scheme

Cost reductions exceeding targets linked to aggressive incentive program...

Actual IT Costs Versus PEG Targets  Allocation of IT Savings Pool  Incentive as Percentage of Base Salary

<table>
<thead>
<tr>
<th>IT Costs</th>
<th>Target</th>
<th>Realized</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bank-Retained Savings  Leadership Incentives

...driven down “three tiers” in IT leadership structure...

CTO  ≈ 45%

IT SVPs (7)  ≈ 35%

IT VPs (62)  ≈ 15–20%

...with stellar cost performance reflected in greater than expected executive payout

Leadership Incentive Payout: Projected Versus Actual 2000

Projected Payouts  Actual Payouts

100%  115%

Representative IT Cost-Savings Ideas 2000–2001

- Consolidation of IT management structure
- Outsourced field support for branches
- Creation of a central project management office
- Adoption of a component reuse strategy
- Rationalization of contractors, hardware vendors, and telecom service providers

Source: KeyCorp; Working Council research.
Poised for Systematic Consolidation

Systems Retirement Driven by Corporate Goal of “One Face” to the Customer

KTS plans to conduct the rationalization of its systems on a “bucket-by-bucket” basis. The selection of the initial “bucket” of systems is tempered by the company’s goal of achieving “OneKey”—the enterprise business objective of delivering seamless customer service across multiple channels.

A Phased Retirement Plan for Business Systems

With this goal of “one face” to the customer in mind, KeyCorp begins an ambitious simplification program for business systems in 1999. The initial phase of this effort calls for the reduction of six existing loan origination, servicing, and collection systems to three by 2002. Following this, KeyCorp plans to reduce its 72 customer-facing systems to 17 by 2003, an effort that will allow KeyCorp to realize a 30 percent reduction in annual maintenance and enhancement costs for its customer-facing portfolio.

Simplification from Front to Back

Once the simplification of customer-facing systems is well under way, KeyCorp will concentrate on phasing out redundant legacy operating systems, messaging applications, and applications development tools. The company hopes to reduce its 13 existing operating systems to a single enterprise standard by 2002, and it has targeted all but a handful of non-mainframe development environments for retirement by the end of 2003.
Winnowing the IT Portfolio

KeyCorp Systems Simplification Timeline, 1999–2003

Illustrative

1999

Loan Origination, Servicing, and Collection Applications
- Reduction from six to three applications by 2002
- Expected savings of 15 percent

Customer-Facing Applications
- Reduction of 72 applications to 17 by 2003
- 30 percent reduction in M&E costs

Operating Systems
- Reduction from 13 existing operating systems to enterprise standard
- Simplification of UNIX and desktop operating systems by Q1 2002, and of mid-tier operating systems by Q2 2002

Applications Development Tools
- Retire all non-mainframe applications development environments except Lotus Notes Domino, Web Sphere, and Windows DNA
- Standardize around single version of remaining development tools by Q4 2003

2003

Immediate start on business systems consolidation...

... followed by phaseout of legacy IT platforms

Source: KeyCorp; Working Council research.
Employing PEG Principles

Redressing Architectural “Sins” of the Past

KeyCorp’s adherence to the overarching principles of PEG has yielded a substantial IT simplification dividend. By redressing the “sins of the past” and simplifying an overly complex legacy IT architecture, KeyCorp has been able to improve both IT and corporate performance.

Reduced Complexity Costs

Based on the simplification of its applications portfolio, KeyCorp has enjoyed a 20 percent decrease in applications maintenance and enhancement expenses between 1998 and 2000.

Increased Speed-to-Market

At the same time, KeyCorp has also significantly reduced time-to-market for its development projects, with the percentage of projects delivered within 120 days increasing from less than 40 percent to 60 percent in a matter of months. Certainly, some of this improvement results from reduced project scope. However, a substantial portion of these results are attributable to the reuse of existing solutions and the adoption of packaged solutions with minimal customization. In addition, project time-to-delivery has also dropped as a result of reduced “interface drag”—a reduction in the time required to test applications due to a decline in the number of application interfaces KeyCorp must maintain.

Improved Service Quality

Reduced architecture complexity—particularly of application interfaces—and a well-documented systems architecture increases KTS’s ability to fix systems outages, resulting in a 50 percent reduction in time-to-fix from 4.2 hours to 2.1 hours.

Answering the Efficiency Imperative

In combination, these improvements contribute to greater corporate efficiency. Between 1999 and 2000, KTS’s expenses dropped by 2 percent, from $398 million in 1999 to $391 million in 2000. At the same time, the bank’s revenues increased by 6 percent. In summary, KTS has allowed the company to do more work for less money, contributing to KeyCorp’s larger corporate efficiency goals.
Key’s IT Simplification Dividend

Dramatically reduced costs of complexity…

Application Maintenance and Enhancement Costs

Indexed

<table>
<thead>
<tr>
<th>Year</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs</td>
<td>1.0</td>
<td>0.9</td>
<td>0.8</td>
</tr>
</tbody>
</table>

20% Reduction

…faster time-to-market through reduced “interface drag”…

Percentage of Projects Completed in Fewer Than 120 Days

<table>
<thead>
<tr>
<th>Month</th>
<th>January 2001</th>
<th>February 2001</th>
<th>March 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects %</td>
<td>38%</td>
<td>50%</td>
<td>60%</td>
</tr>
</tbody>
</table>

…and greater speed to resolve problems…

Time to Fix Detected Outages

<table>
<thead>
<tr>
<th>Year</th>
<th>1999</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours</td>
<td>4.2</td>
<td>2.1</td>
</tr>
</tbody>
</table>

…and help IT contribute to larger corporate efficiency gains by doing “more with less”

Technology Service Costs

<table>
<thead>
<tr>
<th>Year</th>
<th>1999</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Millions of Dollars</td>
<td>$398</td>
<td>$391</td>
</tr>
</tbody>
</table>

Dollar Change 1999–2000

<table>
<thead>
<tr>
<th>(2%)</th>
<th>IT Costs</th>
<th>Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>6%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: KeyCorp; Working Council research.
Charter and Structure of KeyCorp’s Enterprise Architecture Group

Company in Brief

Industry
Financial Services

Company Size
• 2001 Revenues: $7.4 billion
• 2001 Employees: 21,200

Dispersion of IT Operations
U.S. Regional: 900-plus branches in the northern U.S.

Corporate IT Budget
$375 million (2001)

IT Staff Size
• 1,350 staff
• 300 contractors

Source: KeyCorp; Working Council research.
<table>
<thead>
<tr>
<th>Architecture Group Attribute</th>
<th>KeyCorp</th>
</tr>
</thead>
</table>
| **Funds Controlled by Central Architecture Group** | • ≈$3.5 million budget for salaries, expense projects, and research funded via corporate overhead; small percentage of work (< 2 percent, design services for capitalized assets) charged back to line  
• Project budget of ≈$5 million  
• Review ≈$5 million in R&D spending  
• Participate in prioritization of ≈$70 million in capital projects |
| **Architecture Group Size** | ≈18, including administrative staff |
| **Architecture Group Composition and Roles** | • SVP, Enterprise Architecture (One FTE)  
• Enterprise Architecture Managers (Six FTEs)—Domain-specific experts in applications, data and platform, communications, advanced development, process repository, and IT strategy  
• Enterprise Architecture Generalists (Four FTEs)—Technical experts with broad experience in network, application, and data engineering  
• Research Analysts (Two FTEs)  
• Resource Manager (One FTE)—Role currently filled by one of the EA Managers  
• Support Staff (Four Staff Members)—Technical writer, project administrators |
| **Reporting Structure** | • Enterprise Architecture Generalists, Research Analysts, and support staff report to Resource Manager  
• Enterprise Architecture Managers and Resource Manager report to SVP of Enterprise Architecture  
• SVP of Enterprise Architecture is a peer with SVPs of Application Development and IT Operations, reporting directly to the CTO (most senior IT position at KeyCorp) |
| **Frequency of Meeting** | • Semiweekly architecture group participation in new project initiation/estimation/prioritization forum  
• Project-based participation of Enterprise Architecture Generalists  
• SVP participation in biweekly exceptions-based project review process |
| **Type and Frequency of Interaction with Line** | • Regular SVP and VP interactions with business and IT audiences, including weekly exceptions-based project review, monthly executive tables, off-sites, e.g., corporate sales council, enterprise data governance group and client “month in review” sessions with account teams assigned to each of KeyCorp’s four lines of business  
• Project-based participation of Enterprise Architecture Generalists |
| **Date Established** | April 2000 |
| **Charter** | Applications, Data, and Infrastructure |
| **Interoperability Review** | Conducted by enterprise architecture group for every project during design review phase |
| **Incentives for Standards Compliance** | • Currently implicit—“Bureaucracy barrier” erected by SVP to discourage nonstandard deployment of technology  
• Plan to introduce standards compliance as part of IT manager performance reviews in 2002 |

Source: KeyCorp, Working Council research.
John Hancock: Embedding Enterprise Architecture Across the Systems Life Cycle

To enable John Hancock’s ambition to provide both its distributors and customers with easy access to its products, the company forward-integrates the enterprise architecture group’s involvement in the corporate strategic planning process and embeds its involvement throughout the development process. By proactively reviewing business unit development queues, John Hancock avoids more than $6.25 million in redundant development, reuses architectural components across multiple business units, and greatly improves the interoperability of new applications with existing infrastructure.
Company Background

John Hancock Financial Services, a Boston-based insurance and financial services firm, has $9.1 billion in revenues and 8,400 employees. The company demutualized in 2000.

Making Business Easier

In its post-demutualization quest to migrate from being a purveyor of insurance products to a seller of asset management services in order to boost revenues, John Hancock aimed its corporate strategy at becoming “the easiest company to do business with.” The realization of this goal of making customer and partner interactions with the company as frictionless as possible is supported by three pillars:

1. Innovative “Life-Cycle” Products: The first of these pillars is an increased focus on selling “life-cycle” products, combinations of the company’s traditionally stand-alone products that are designed to meet customer demand for complex, all-in-one insurance and financial services solutions. Among these more flexible, integrated products are:

   • Revolution: A variable annuity bundled with long-term-care insurance
   • Unison: A combination of life insurance, asset accumulation, and long-term-care insurance

The underlying logic of this “life-cycle” strategy is that by recombining elements of its basic products, John Hancock will be able to mirror changes in the customer’s lifestyle and life circumstance, allowing the company to increase its share of the customer’s wallet. This strategy has yielded some early successes—John Hancock’s sales of variable annuities jumped 35 percent between 1999 and 2000.

2. Channel Ubiquity: The second strategic pillar is the ability to allow customers to purchase products wherever (and whenever) they want. John Hancock added online sales of term life insurance, variable annuities, and variable life insurance in 2000, and now 70 percent of all sales of term life insurance products occur online.

3. Distributor Enablement: The final pillar of John Hancock’s strategy is distributor enablement. In its pursuit of channel ubiquity, John Hancock is not seeking to grow online sales at the expense of its relationships with distributors. Rather, like many companies that go to market through intermediaries, John Hancock has decided to use the Web to reengage its distributors and independent sales agents. In this spirit, the company aims to increase the number of distribution points for its products by providing distributors with increased Web-based access to product information and self-service functionality via extranets. As a result, the number of representatives selling John Hancock’s products has ballooned from about 5,000 in 1991 to 66,000 in 2000.
### From Insurance to Asset Management

“The goals of our strategy are to sell transformational [life-cycle] products wherever consumers want to buy them and to receive preferential treatment from distributors through the innovativeness of our products and the ease of doing business with John Hancock.”

### 1. Life-Cycle Products
- **Revolution** (1999)—Bundles a variable annuity with long-term-care insurance coverage
- **Unison** (June 2000)—Combines life insurance, asset accumulation, and long-term-care insurance coverage

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales of Variable Annuities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>$850 M</td>
</tr>
<tr>
<td>2000</td>
<td>$1,150 M</td>
</tr>
</tbody>
</table>

### 2. Channel Innovation
- Added online sales of term life insurance, variable annuities, and variable life insurance in 2000-2001
- Ranked number one online insurance carrier for 2000 by Quotesmith and InsWeb

### 3. Distributor Enablement
- Personalized extranets
- 100 percent policy self-service

#### Online Sales as a Percentage of Total Term Life Products

<table>
<thead>
<tr>
<th>Year</th>
<th>Online Sales of Term Life Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>70% of Sales Online</td>
</tr>
</tbody>
</table>

#### Number of Representatives Selling John Hancock Products

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Representatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>5,000</td>
</tr>
<tr>
<td>2000</td>
<td>66,000</td>
</tr>
</tbody>
</table>

Source: John Hancock; Working Council research.
Barriers to Executing the Business Vision

A Harsh IT Reality

IT realities, however, have a tendency to complicate even the most well-laid strategic plans. This was certainly the case for John Hancock in late 1999, as the CEO’s vision of becoming “the easiest company to do business with” was impeded by an existing architecture that was not optimized to support the requisite level of systems integration or e-business functionality. John Hancock’s IT architecture posed three distinct challenges:

1. **Patchwork Integration of Back-End Legacy Systems**: John Hancock’s patchwork integration of legacy back-end systems did not allow it to combine information on multiple product lines, undermining the company’s vision of offering bundled “life-cycle” products in the near term.

2. **Lack of Common E-Business Platform**: The lack of a common e-business platform frustrated John Hancock’s goal of channel ubiquity, as the company could not support online sales and consistent customer service across telephone and Web channels.

3. **Multiple Electronic Access Points and Minimal E-Enabled Distributor Support**: Far from fulfilling the company’s ambition of increasing the ease of distributor interaction, the IT architecture actually complicated the lives of distributors. The lack of a single point of access for all distributor needs, a multiplicity of user names and passwords required to access different applications, and the absence of automated self-service functionality negated the promise of simplifying Hancock’s intermediary relationships.

The Genesis of an Architecture Group

It became clear to John Hancock’s IT group that in the absence of fairly significant improvements to its application architecture, IT would be an insurmountable obstacle to achieving the company’s corporate strategy. This situation was sufficiently disturbing to senior business and IT management to result in the creation of a dedicated enterprise application architecture group, the Corporate Architecture Office (CAO), in 1999. This four-FTE group, which includes one director, two senior application architects, and one documentation specialist, was charged with developing a blueprint of a simpler, scalable, more interoperable application architecture and then orchestrating the realization of that architecture.

The CAO reports both to the corporate CIO and to John Hancock’s Enterprise Program Office (EPO), which manages all development spending. It is assisted in its architecture mission by an infrastructure architecture group, composed of a director and four architects, as well as by a network of approximately 50 subject-matter experts. These experts, who reside in John Hancock’s development and infrastructure organizations, are seconded to work on projects as needed, under the auspices of the EPO.
Crowded Architecture Impedes Corporate Strategy

John Hancock’s Current-State Application Architecture

Memo from: CIO
To: Business Unit IT Managers
Subject: Architectural Hurdles to Enterprise Strategy

• Patchwork legacy integration undermines vision of offering packaged products to customers in near term

• Lack of common e-business platforms detracts from ability to offer consistent, automated service across telephone and Web channels

• Lack of single sign-on negates promise of simplifying Hancock’s interactions with distributors

Source: John Hancock; Working Council research.
Embedding Enterprise Architecture Across the Systems Life Cycle

Preventing Architectural “Sins” of the Future

To create the enterprise capabilities necessary to enable the corporate strategy, John Hancock forward-integrates the activities of its enterprise application architecture group into the corporate strategic planning cycle and across the systems life cycle in several ways:

1. **Proactively Reviewing Business Unit Application Queues.** By integrating the architecture review process into the annual planning cycle, the architecture group is able to proactively review each project proposed by business units against the strategic goals embedded in the company’s current and target-state enterprise architecture maps. These maps are color-coded to show enterprise standards, systems slotted for retirement, and architecture gaps. This review process results in three possible outcomes, the first of which is the out-of-hand dismissal of projects that are clearly nonstandard or TCO-prohibitive.

2. **Addressing the Need for New Architecture Standards.** The second possible result of the review process involves projects that rely on capabilities currently missing from the company’s architecture. A project proposal that exposes gaps in the architecture cues the architecture group to begin investigating technologies in search of an enterprise standard.

3. **Consolidating Overlapping Projects.** The third outcome of the review is the discovery of opportunities for collaboration. If a critical mass of overlapping business unit requirements can be batched, the architecture group generates a proposal for a consolidated project, effectively creating a preferred solution that, in most cases, delivers more functionality than individual business units could afford by syndicating development spending.

4. **Building Prerequisite Capabilities.** Illustrating the idea of a self-funding architecture, John Hancock uses resources freed by the weeding out and batching of projects to develop foundational architecture “building blocks,” which can be reused to meet the needs of multiple business units in the future. This allows John Hancock to fund and deploy prerequisite architectural components that would otherwise be delayed or built suboptimally.

5. **Providing Project Design Guidance.** The enterprise architecture group also has leveraged interventions in the scoping and rollout of individual projects. The group is involved as a consultant in the project design phase, providing guidance on technology selection and ensuring that the project team is cognizant of architecture principles and standards as well as opportunities for reuse.

6. **Conducting Compliance Reviews.** A tripartite team consisting of the project’s business unit sponsor, an application architect and an infrastructure architect reviews all projects before they “go live” to ensure that applications being rolled out are compatible with existing or planned infrastructure, surfacing unanticipated incompatibilities that could delay the launch of new functionality.

7. **Ensuring Smooth Application Landing.** The specific criteria covered by this Compliance Review are:

   - **Scalability:** The ability of the application to handle potentially higher traffic loads in the future
   - **Extensibility:** The ability of the application to serve as the platform for the development of future functionality
   - **Skills Leverage:** The existence of requisite end-user and IT skills within the organization to ensure the quick absorption of the new application

8. **Encouraging Enterprise Reuse.** After the initial syndicate of business units has funded and built a standard solution, the enterprise architecture group’s final task is to internally merchandise these as preferred solutions, ensuring that other business units are aware of the favorable speed and cost economics of reusing the existing solution.
Key Activities of Enterprise Architecture Groups

Front-loading architecture in annual planning prevents redundancy and provides early warning on emerging capabilities gaps... ...while integrating architecture into the project process promotes fault-free rollout and enterprise reuse

1. Architecture Project Screens
   - BU Project Proposals
     - TCO-prohibitive projects refused
     - Overlapping requirements batched
   - Avoided Costs Invested
   - Gaps in architecture cue due diligence for new standards

2. New Standards Needs
   - Content Management
     - VIGNETTE
     - INTERWOVEN
     - EPIRE

3. Consolidated Project
   - Agent Portal
     - Quote Generator
     - Personalization
     - Customization
   - Batched requirements designated as preferred solution for other BUs' future opt-in

4. Prerequisite Capabilities
   - Single Sign-On
   - Critical mass of demand observed for next-generation capability
   - Cost savings from consolidation fund development of reusable architecture solution

5. Project Design Guidance
   - Database Extensions
   - Reusable Components
   - Standards Reinforcement
   - Architecture group consults during design phase
   - Advises on component reuse opportunities, contingencies
   - Ensures technology decisions' architectural compliance
   - Gaps in architecture cue due diligence for new standards
   - Critical mass of demand observed for next-generation capability
   - Cost savings from consolidation fund development of reusable architecture solution

6. Compliance Review
   - Double sign-off by applications and infrastructure architects
   - Review ensures that applications are compatible with existing infrastructure
   - Application Architect
   - Double sign-off
   - Review ensures applications are compatible with existing infrastructure

7. Application Landing
   - Portal
   - Extensibility
   - Scalability
   - Skills
   - Leverage
   - Application Architect
   - Double sign-off
   - Review ensures applications are compatible with existing infrastructure

8. Enterprise Reuse
   - Health Insurance
   - Agents
   - Retail Branches
   - Extensibility
   - Scalability
   - Skills
   - Leverage
   - Application Architect
   - Double sign-off
   - Review ensures applications are compatible with existing infrastructure
   - Architecture group merchandises new preferred solution to BUs during the next planning cycle

Source: John Hancock; Working Council research.
Self-Funding Foundational IT Work Through Architecture

The Benefits of Proactive Architecture Involvement

John Hancock demonstrates how to leverage the work of an enterprise architecture group throughout the IT strategic planning and applications design process to proactively preserve the integrity of the architecture. By hardwiring simplification, reuse, and compliance in the project planning and design processes, John Hancock’s application architecture strategy benefits the company in several ways:

• **Avoiding Redundancy**: The architecture group’s proactive review of line-of-business application development queues allows Hancock to reduce its total number of projects by more than 60 percent, avoiding significant development expense and yielding fewer systems overall. In 2000, the company’s business units generated approximately 200 project proposals. By reviewing the queue holistically and mapping the proposals to the existing architecture, the enterprise architecture group was able to reject or consolidate 125 distinct projects, yielding approximately $6.25 million in avoided costs.

• **Encouraging Reuse**: Coordinated use of funds freed by reducing redundant development efforts results in industrial-strength architecture “building blocks,” which can then be reused to meet the needs of multiple business units. One such architecture building block—an enterprise security program that includes single sign-on, role-based authentication, and central authorization—has already yielded substantial benefits of reuse. While holding its IT security support staff stable, John Hancock was able to rollout security solutions for 5 applications in the year 2000 and 10 in 2001.

• **Disciplining Demand**: Since the adoption of a coordinated application architecture strategy in 2000, the number of proposed projects not complying with architectural standards has decreased by 40 percent. Historically, only 50 percent of new applications were fully compatible with the company’s existing or planned infrastructure. Now that John Hancock has embedded the activities of the enterprise architecture group into the planning, design, and rollout phases of the project life cycle, the number of new applications fully compatible with John Hancock’s infrastructure prelaunch has increased to 90 percent.
Hardwiring Simplification, Reuse, and Compliance

Architecture-driven consolidation of BU requirements...

John Hancock IT Project Requests, 2000

- 125 Projects Rejected or Combined
- $6.25 million avoided costs with better-targeted investment

...frees resources for enterprise security solution...

Security Architecture Program

- Single Sign-On
- Role-Based Authentication
- Central Authorization

“Now all Web-based applications—internal and external—use a common identification and authentication infrastructure, and also a common authorization system, with a common set of (still evolving) user roles and attributes. This provides users with single sign-on and also gives our information security group and the user account administration group a single common system for administering users.”

Alex Cullen
Director
Corporate Architecture Office

...that is reused across multiple project launches...

New Application Rollouts Reusing Security Architecture

- 5 in 2000
- 10 in 2001

...and also results in applications prescreened for fault-free rollout

Infrastructure Compatibility of New Applications

- 50% Historical Company Average
- 90% Guided by Enterprise Architecture Map

Source: John Hancock; Working Council research.
Charter and Structure of John Hancock’s Enterprise Architecture Group

Company in Brief

Industry
Insurance and Financial Services

Company Size
• 2001 Revenues: $9.1 billion
• 2001 Employees: 8,400

Dispersion of Operations
Multinational: Operations in 13 countries

Corporate IT Budget
$210 million (2001)

IT Staff Size
• 900 FTEs
• 100 contractors/consultants

EVP and CIO

VP, Enterprise Program Office (EPO)

VP, Infrastructure

CTO

Director, Corporate Architecture Office (CAO)

Director, Development Services Office (DSO)

Application Architects [2]

Documentation Specialist

Infrastructure Architects [4]

Project Technical Leads

Development Architects [7]

Project Engineering Leads

Source: John Hancock; Working Council research.
# Architecture Group Attributes and Metrics

<table>
<thead>
<tr>
<th>Architecture Group Attribute</th>
<th>John Hancock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funds Controlled by Central Architecture Group</td>
<td>• All IT funding centrally controlled by Enterprise Program Office (EPO); architecture organization stewards allocation of all spending across lines of business in conjunction with EPO</td>
</tr>
<tr>
<td></td>
<td>• Minimal central fund of &lt; 5 percent of total development spending controlled by architecture group to ensure completion of critical enterprise projects sponsored and overseen by CIO/EPO</td>
</tr>
<tr>
<td>Architecture Group Size</td>
<td>≈14</td>
</tr>
<tr>
<td>Architecture Group Composition and Roles</td>
<td>• Corporate Architecture Office (Approximately Four FTEs)—Application architecture group including one Director, two Architects, one Documentation Specialist</td>
</tr>
<tr>
<td></td>
<td>• Development Services Office (Approximately Five FTEs)—Infrastructure architecture group includes one Director, four Architects</td>
</tr>
<tr>
<td></td>
<td>• Network of Domain Experts (Approximately 60 Staff Members)—Includes seven development architects and 50 technical and engineering project leads; engage in project-based consultation</td>
</tr>
<tr>
<td>Reporting Structure</td>
<td>• Development architects and project technical leads report directly to the VPs of Application Development and Maintenance; project engineering leads report to VP of Infrastructure</td>
</tr>
<tr>
<td></td>
<td>• Head of Corporate Architecture Office and Head of Development Services Offices report to VP of the EPO</td>
</tr>
<tr>
<td></td>
<td>• VPs of EPO, Application Development and Maintenance, Infrastructure, and the CTO report directly to the CIO</td>
</tr>
<tr>
<td>Frequency of Meeting</td>
<td>• Review of enterprise-wide development queue in conjunction with annual corporate budgeting and planning cycle</td>
</tr>
<tr>
<td></td>
<td>• Weekly project design review meeting</td>
</tr>
<tr>
<td>Type and Frequency of Interaction with Line</td>
<td>• Collaboration of CAO staff with line for architecture project definition, and in some cases during development in consultative role</td>
</tr>
<tr>
<td></td>
<td>• Bimonthly, technology-focused brown-bag presentations to line IT, and bimonthly classes for business and IT staff on architecture-related subjects</td>
</tr>
<tr>
<td>Date Established</td>
<td>1998</td>
</tr>
<tr>
<td>Charter</td>
<td>Applications and Infrastructure</td>
</tr>
<tr>
<td>Interoperability Review</td>
<td>Formal review of all projects by architecture review group, including application and infrastructure representatives</td>
</tr>
<tr>
<td>Incentives for Standards Compliance</td>
<td>Implicit incentives—Deployment of standard solutions is faster/cheaper, and nonstandard deployment is escalated to CIO level</td>
</tr>
</tbody>
</table>

Source: John Hancock; Working Council research.
The Dow Chemical Company: IT-Enabled Business Process Standardization for Low-Cost-Provider Status

In pursuit of continued corporate growth in a commodity industry, Dow adopts a three-pronged strategy: enabling real-time information access, building seamless supplier and customer connectivity, and extracting value from mergers and acquisitions. Through a decade's worth of business process and IT standardization—overseen by Dow's dedicated in-house architecture group and aided by a development and maintenance partnership with Accenture—Dow reduces management layers, dramatically speeds acquisition integration, develops plans to generate $300 million in new revenues via Web channels, and reduces corporate SG&A expense by two-thirds.
Dow: Using IT to Perfect Business Processes

Company Background

The Dow Chemical Company, the Midland, Mich.–based leader in chemicals and plastics, has $27.8 billion in annual revenues and approximately 50,000 employees.

A New Growth Agenda

In 1995, having promised Wall Street 10 percent compounded earnings growth, a 20 percent return on equity, and to nearly triple its share price by the next cycle peak, Dow needed to transcend its highly cyclical and rapidly commoditizing core chemicals business. To achieve this lofty ambition, Dow adopts a three-pronged corporate strategy:

1. **Real-Time Information**: Providing Dow staff with desktop access to near-real-time decision-making information via the Shared Data Network (SDN), a global data warehouse, and the Value-Based Information System, an enterprise financial database.

2. **Seamless Supplier–Customer Connectivity**: Creating electronic links with both customers and suppliers via its portfolio of e-business portals, including its customer extranet, MyAccount@Dow.

3. **Extract Value from Mergers and Acquisitions**: Like many companies that have consolidated portions of the high-tech and financial services sectors, Dow wants to ensure that it is the consolidator and not the consolidated. As a result, Dow has developed industry-leading capabilities for merger and acquisition selection and integration. The company has absorbed 10-plus acquisitions since January 2000, the largest being a massive merger with Union Carbide that is expected to generate more than $1 billion in cost savings by the end of Q1 2003.
A Three-Part Strategy for Accelerating Growth

Promises of growth to Wall Street...

Dow Corporate Strategy Overview

- 10 percent Compound Earnings Growth
- 20 percent ROE

...underpinned by three key IT strategic capabilities

1. Real-Time Information
   “The more information people have, the less bureaucracy there will be in the company, and the better the decisions they’ll be able to make on the spot.”
   Key Initiative for Dow:
   Finance Portal
   Value-Based Information System (VBIS)

2. Seamless Supplier-Customer Connectivity
   “Our focus is now on extending the capability we have built in information technology processes to enrich the interaction with our customers and suppliers.”
   Key Initiative for Dow:
   Customer Portal
   MyAccount@Dow

3. Extract Value from M&A
   “We will continue to make acquisitions, an area that is fast becoming a core competency for Dow.”
   Key Initiative For Dow:
   M&A Integration Protocols

Source: Dow; Working Council research.
Organizing Around Standard Business Processes

Standardization Labors of a Global Corporation

Realizing that executing on these IT capabilities would be impossible if the company remained a loose agglomeration of independent global fiefdoms, Dow embarks upon a decade’s worth of IT standardization and globalization labors. The labors, which span both business processes and the company’s IT portfolio in order to enable real-time access to information and seamless supplier-to-customer connectivity, include:

• **Enterprise Process Standardization:** Dow began its move toward standardization in the early 1990s by creating global processes, followed by the deployment of a single accounting system and the global standardization of product and customer codes. Currently, 95 percent of Dow’s business processes are standardized on a global basis. In 1994, Dow went one step further, breaking down traditional geographical and functional silos and reorganizing around its major business processes.

• **Global SAP R/2 Implementation:** The backbone of Dow’s application standardization initiatives is a $500 million global rollout of SAP R/2, with Dow maintaining only four global instances for Asia-Pacific, Latin America, Europe, and North America. Dow has also adopted Siebel’s CRM software and CrossWorlds middleware as global standards and is collaborating to help create an industry-standard XML schema.

• **Infrastructure Standardization:** Across the 1990s, Dow also consolidated 35-plus local and regional data centers into a single global data center in Midland, Michigan. The company also established 24/7 help-desk coverage for its global operations, created a global data warehouse, and rolled out 37,000 standard desktops in partnership with IBM. Finally, to tackle the last remaining nonstandardized portion of its infrastructure, Dow is in the process of building DowNet—a global convergent network for voice, video, and data.

Taking a Closer Look

Having traced Dow’s journey toward global IT standardization, the following pages provide greater detail regarding the IT-led initiatives aimed at delivering the enterprise capabilities of real-time information, seamless supplier-to-customer connectivity, and the extraction of value from mergers and acquisitions.
A Decade's Journey Toward a Global Enterprise

Selected Standardization Initiatives at Dow

Source: Dow; Working Council research.
Faster, Better, Cheaper Decisioning

Paper-Based Problems

Prior to 1995, Dow’s regional, paper-based reporting and planning systems could not provide the company with data on the global profitability of its product lines. To enable the CEO’s imperative to provide real-time enterprise-level reporting and analysis, Dow undertakes its “Global Reporting Project.” The end result of this effort is the Shared Data Network (SDN), a global data warehouse that provides Dow decision makers with unprecedented access to very granular inventory and financial information within a 24-hour cycle.

Standard Product, Customer, and Location Codes

All the transactions processed by each of Dow’s four regional SAP R/2 instances use standard product, customer, and location codes. This SAP data is extracted and uploaded to Dow’s global data warehouse four times daily, corresponding with the close of business in each region.

A Truly Global Information Repository

Based on these daily uploads, Dow’s global data warehouse, an Oracle database housed on two Digital Equipment 8400 servers, is growing at a rate of one million new records per month. These records are available to users within 24 hours of their uploading.

Topic-Specific Data Marts

To improve the ease and speed of reporting, Dow has built more than 50 topic-specific data marts within its global data warehouse. These include marts for economic profits, expense reporting, inventory, freight, sales and marketing, and price-currency information. The data marts are replicated on 30 Windows NT file servers distributed across 12 global hub sites to decrease querying lag time.

A Common Reporting Toolkit

The information is made available to 5,000 distributed business decision makers throughout the world via standard reporting templates in HTML or Excel. Decision makers can also conduct more powerful custom querying using a standard toolkit comprised of Business Objects, Cognos PowerPlay, Microsoft Access, and Excel.

Reinventing Finance

The deployment of the SDN has led to tremendous improvements in analytical cycle times. Dow has been able to slash report generation time by 70 percent and has increased reporting productivity—a measure of the reporting output that can be generated per FTE—by 43 percent. Finally, Dow has slashed its time to information delivery—the time required to aggregate information from transactional systems into reporting systems—from a historical average of 29 days to just 12 hours.
Reinventing Finance: The Shared Data Network

Near-real-time information flows between back-end systems, and employee desktops...

Dow’s Shared Data Network (SDN)

- Regional SAP R/2 Instances
  - Asia-Pacific
  - Europe
  - Latin America
  - North America
  - All transactions use standard product, customer, and location codes
  - Data extracted and uploaded to data warehouse four times daily

- Global Data Warehouse
  - One million records entered per month, available within 24 hours
  - Oracle database housed on two Digital Equipment Alpha 8400 servers running Open VMS

- Topic-Specific Data Marts
  - 50-plus data marts using Cognos PowerPlay software on 10 Windows NT application servers

- File Servers
  - 30 Windows NT file servers at 12 global hub sites replicate data marts

- Business Decision Makers
  - 5,000 users with desktop querying using Business Objects, Cognos PowerPlay, Microsoft Access, and Excel
  - Standard online report templates in HTML or Microsoft Excel

...create dramatic improvements in analytic cycle times

<table>
<thead>
<tr>
<th>Finance Activity Performance Change Under SDN</th>
<th>Time to Information Delivery*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage Change</td>
<td>Historical Average</td>
</tr>
<tr>
<td>Reporting Productivity</td>
<td>SDN-Enabled</td>
</tr>
<tr>
<td>43%</td>
<td>29 Days</td>
</tr>
<tr>
<td>(70%)</td>
<td>12 Hours</td>
</tr>
</tbody>
</table>

* Time required to aggregate information from transaction systems into reporting system.

Source: Dow; Working Council research.
Integrating Back and Front (in Impactful Increments)

A Holistic View of the Customer...

To help enable Dow’s second strategic imperative—seamless supplier-to-customer connectivity—Dow deploys a two-part customer-facing architecture that includes:

- **MyAccount@Dow**: Online “premier pages,” personalized extranets that provide customers with transactional capabilities, a comprehensive account history, and master contract terms. Since its launch in November 1999, the number of registered users of MyAccount@Dow has increased from 200 to over 8,000, with usage growing 10 percent per month across 2001. The company’s annualized sales for 2001 through MyAccount@Dow totalled approximately $1 billion, and Dow currently uses MyAccount@Dow to conduct machine-to-machine transactions with more than 100 major customers.

- **Customer Service Portals**: Integration of customer data from Dow’s Siebel CRM, SAP R/2 transactional systems, rail freight management system, and MyAccount@Dow provides customer service representatives (CSRs) and sales staff with access to a record of a customer’s last 10 transactions, regardless of channel.

...Balanced by Multiple Supplier-Facing Options

Dow uses CrossWorlds middleware to integrate its customer-facing systems with SAP, the Shared Data Network and an XML-based back-end connectivity hub. In turn, this hub is tied into a portfolio of electronic supply-side options. Two of these supply-side tools are:

- **Dow eMart**: An Ariba-based e-procurement catalog of maintenance, repair, and operations (MRO) supplies from 100 vendors

- **eVAP**: An Internet-based channel for the “value-added” procurement of strategic materials

Dow is also an active participant in many-to-many marketplaces, including:

- **ChemConnect**: Dow’s preferred auction provider for spot-market purchases of hydrocarbons, chemicals, and plastics

- **Elemica**: A neutral exchange for contract buying of raw materials and packaging
A Portfolio of Customer and Supply Chain Portals

**CRM–ERP integration enables rich service options**

MyAccount@Dow
- Extranet providing secure transactional capabilities, comprehensive account history, master contract
- 8,000-plus registered users; more than 100 customers capable of conducting machine-to-machine transactions

CRM
- Siebel integrated with SAP, rail freight management system, Dow Intranet, and MyAccount@Dow
- Provides CSRs and sales force with access to last 10 customer transactions, regardless of channel
- Two million customer records input since January 2000

Region ERP
- Four instances of SAP R/2

**Shared Data Network**
- Two-plus terabyte global data warehouse
- 5,000-plus users with desktop querying capability

**...while XML enables connectivity to multiple electronic supply chain partners**

**Dow’s IT Architecture**

**Source:** Dow; Working Council research.
A Tool kit for Standardizing Acquired Companies

Plug-and-Play M&A

The third key goal of Dow’s application, process, and infrastructure standardization is the ability to quickly absorb mergers and acquisitions. The M&A tools and competencies that Dow has developed for this purpose are most vividly explained in the context of its $6.5 billion acquisition of Union Carbide in February 2001.

A Day-One Connectivity Package

On day one post-merger, Dow ships 400 to 500 standard Dow workstations to key Union Carbide employees and establishes a global directory that provides Union Carbide’s employees with secure e-mail and access to the Dow intranet. Dow believes that this day-one connectivity with key acquiree decision makers is crucial, as it enables the collaboration and communication needed to quickly make the operational decisions that will determine merger success.

Synchronized Customer Communications

Dow also digitizes and migrates all of Union Carbide’s product collateral to a single repository. This provides Dow sales and marketing teams with a head start on training for cross-sales of the acquiree’s products. Dow also sends a standard introductory letter to all acquired accounts, paving the way for its sales efforts.

Building a Bridge for Critical Data Sharing

The third tool in Dow’s M&A toolkit is a set of reusable ERP adapters, which the company uses to create an interface between Union Carbide’s SAP R/3 and its own R/2 system. This allows the consolidation of Union Carbide financial transactions in Dow’s data warehouse. This bridge serves as a provisional fix, a “good enough, fast enough” patch used to consolidate reporting while Dow sorts out the more complicated task of migrating the acquired company to its existing architecture.

A Phased Plan for Total Integration

Dow complements this short-term integration strategy with a 12-month plan to inventory and integrate Union Carbide’s systems with its own. This plan showcases Dow’s commitment to standardization, as it calls for the decommissioning of Union Carbide’s functionally rich version of SAP R/3. Instead of maintaining the Union Carbide division’s R/3 implementation and upgrading the entire organization in the future, Dow has opted to standardize Union Carbide on Dow’s older R/2 implementation. Dow believes that this migration will cost significantly less than integrating Union Carbide’s R/3 with its existing, highly efficient platform.
**Plug-and-Play Merger Integration**

**Timeline of Dow–Union Carbide Post-Merger IT Integration Events**

1. **Day-One Connectivity**
   - Pre-wiring of networks, directory interface enables “switch-on” of 400 Dow workstations
   - Standard e-mail, NetMeetings for integration collaboration

2. **Synchronized Customer Communications**
   - Carbide product collateral digitized, migrated to Dow’s global digital asset repository
   - Standard “letter of introduction” sent to acquired accounts

3. **Financials Bridge**
   - Reusable ERP adapters allow roll-up of essential transaction data
   - Enables “provisional” consolidated reporting

4. **Switching Off Acquiree’s ERP**
   - Carbide’s SAP R/3 system decommissioned, rolled back into Dow’s R/2 to achieve full synergies
   - Full process migration occurs over many months

---

February 6, 2001
Dow completes acquisition of Union Carbide for $6.5 billion

$1.1 billion synergy within two years

Source: Dow; Working Council research.
Integrating IT Planning Horizons

Dedicated Central Architecture Group

Dow’s foundational IT work was completed with the guidance of a central architecture group of 12 full-time senior architects. Each senior architect heads a team of 9 to 10 architecture specialists.

A Two-Pronged Central Architecture Mandate

The majority of the central architecture group’s time is spent on two charters:

1. Emerging Technology Scanning: Reviewing the two- to three-year horizon for new technologies such as wireless or XML and assessing the viability of those technologies for filling gaps in Dow’s “to-be” architecture. This task takes up roughly one-third of the central architecture group’s time.

2. Architecture Blueprinting: Mapping the “as-is” and “to-be” enterprise architectures for each of Dow’s key architectural domains across a 12- to 18-month horizon and monitoring architecture compliance.

Distributed Domain Architects

The central architecture group manages a network of domain architects, 110 FTEs distributed throughout the organization. These domain architects are responsible for overseeing the actual build-out of the enterprise blueprint. They are organized around specific areas of expertise, such as ERP, CRM, Data Architecture, and Security, and are responsible for the detailed technical design of the corporation’s IT functionality.

Imposing Project Management Discipline

In turn, the domain architects collaborate closely with Dow’s network of 12 process-specific Program Offices (e.g., supply chain, knowledge management) to shepherd development of next-generation IT-enabled capabilities in accordance with the “to-be” enterprise architecture blueprint.

Design at Its Core

Dow’s architecture staff of approximately 125 FTEs comprises nearly one-third of the company’s total internal IT staff, and when combined with Dow’s IT project management staff they total more than half of all Dow’s IT staff. This division of labor makes clear Dow’s focus on design and architecture as core IT competencies.
Task-Specializing Enterprise Architecture

Central senior-level architecture group...

Central Architecture
(12 FTEs)

Emerging Technology
Scanning

• 2–3 year horizon
• Track “gaps” in architecture
• Wireless, XML/content management tool

Architecture
Blueprinting

• 12–18 month horizon
• Map “as-is” and “to-be” enterprise architecture
• Monitor standards compliance, approve/decline exceptions requests

...manages more narrowly scoped domain architects who design and roll out enterprise blueprint

Domain Architects
(110 FTEs)

• Detailed technical design
• Security, data integrity
• Outsourcing viability analysis

Design at Our Core

“One indication of what we consider to be truly important IT competencies is the fact that architecture and project management represent over 50 percent of our retained IT staff. With approximately 125 architects across central and domain-specific groups, architects represent nearly a third of total Dow IT staff.”

Bill Lehrmann
Director, IT Planning and Finance

Program Offices
(Rollout)

Source: Dow; Working Council research.
To achieve the coordinated build-out of its IT architecture blueprint with maximum flexibility, Dow supplements the efforts of its central and domain architects via a co-development partnership with Accenture for all applications development and maintenance work.

**Task Specialization for “Flex” Resources**

Joint teams develop and maintain applications, with Dow’s 450 staff members focusing almost exclusively on application architecture and project management, and Accenture’s staff handling technical development and contributing a standard development methodology. Accenture provides “flex” resources of approximately 1,000 staff members based on the size and composition of Dow’s project queue, which varies according to needs and availability of capital. This co-sourcing arrangement enables Dow to significantly variabilize its development spending—to cope with cyclicity of the chemical industry—without sacrificing the long-term consistency and deep process expertise that resides in its architecture staff function. By maintaining the project management function in house, Dow is also able to maintain control of project scope.

**Co-Staffed Centers of Excellence**

The partnership has also resulted in the establishment of four regional development shops, each acting as a center of excellence for a particular set of technologies. Two of the development centers are located in Michigan (Midland and Southfield) and are dedicated to SAP R/2 and mainframe technologies, and Internet and Web development respectively. Accenture also manages centers of excellence in Manila for data warehousing, and in Belgium for European localization of SAP R/2 and mainframe. Within each center, approximately 50 percent of the staff concentrate on application development and maintenance, 25 percent are tasked with project management, and 25 percent are involved in system testing and implementation.

**All Function Points Are Not Created Equal**

Accenture is compensated for both development and maintenance work on the basis of function points delivered. For every piece of new development work, Dow determines the number of function points required according to conventions put forth by a third party, the International Function Point Users Group (IFPUG). More interestingly, Dow and Accenture have agreed on a weighted pricing structure that is based primarily on the complexity of the development work required. For example, Dow pays Accenture a higher price per function point for data warehousing projects than it does for legacy support projects.

**Partnership Pays Off**

This co-development strategy has clearly paid off for Dow. Across the four years of its partnership with Accenture, Dow has increased developer productivity by 43 percent (measured in terms of function points per developer per month). Perhaps more importantly, Dow has halved the break-even period for new applications by increasing speed-to-deployment.
A Long-Term Applications Co-Sourcing Alliance

“Evergreen” deal establishes four co-staffed centers of development excellence...

Dow and Accenture Development and Maintenance Alliance

<table>
<thead>
<tr>
<th>Dow</th>
<th>accenture</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 450 FTEs</td>
<td>• +/- 1,000 FTEs</td>
</tr>
<tr>
<td>• Applications Architecture</td>
<td>• Standard Development Methodology</td>
</tr>
<tr>
<td>• Project Management</td>
<td>• Programming</td>
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</table>

Global Development Centers

<table>
<thead>
<tr>
<th>Site</th>
<th>Staff</th>
<th>Specialty</th>
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<tbody>
<tr>
<td>Midland, Michigan</td>
<td>400</td>
<td>SAP R/2 and Mainframe</td>
</tr>
<tr>
<td>Southfield, Michigan</td>
<td>400</td>
<td>Internet and Web Development</td>
</tr>
<tr>
<td>Philippines</td>
<td>300</td>
<td>Data Warehousing</td>
</tr>
<tr>
<td>Belgium</td>
<td>200</td>
<td>SAP R/2 and Mainframe</td>
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Function-Point Pricing (Illustrative)

<table>
<thead>
<tr>
<th>Function-Point Price</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>700</td>
<td>Data Warehousing</td>
</tr>
<tr>
<td>300</td>
<td>Internet Development</td>
</tr>
<tr>
<td>100</td>
<td>Standard Packaged Applications</td>
</tr>
<tr>
<td>10</td>
<td>2 + N Implementations (beyond initial)</td>
</tr>
<tr>
<td>1</td>
<td>Legacy Support</td>
</tr>
</tbody>
</table>

Development Center Resource Allocation

- Development and Maintenance: 50%
- Testing and Implementing: 25%
- Project Management: 25%

...that boosts productivity and speeds gains capture

Function-Point Audit

- Third-party audit of completed work
- Assesses completion of function point targets, whose weightings are determined by Dow architects

Time-to-Zero Cash Flow for Applications (Indexed)

- 1996: 1.0
- 1999: 0.5

Source: Dow; Working Council research.
The net results of Dow’s principled approach to IT standardization and externalization of noncore IT competencies include:

- **Streamlined Management**: Thanks to tools like the Shared Data Network, Dow has succeeded in reducing management layers from CEO to the most junior person in the company from 12 levels to between 4 and 6.

- **Decreased Reporting and Finance Costs**: SDN-enabled, real-time data access has also allowed Dow to cut finance department costs as a percentage of total revenue by 43 percent.

- **Increased Online Sales**: Dow’s emphasis on establishing seamless supplier-to-customer connectivity is also paying dividends. The company expects that it will provide 80 percent of its customers with online transactional capabilities by 2003, yielding approximately $300 million in new incremental revenues from online channels.

- **Faster Acquisitions**: Dow’s standard M&A integration protocols have allowed the company to absorb more than $8.5 billion in acquired revenues in just 20 months.

The company, which had averaged one merger every few years throughout the 1980s and early 1990s, is now in the process of acquiring no fewer than eight different companies.

- **Reduced Overhead Costs**: Perhaps the key metric in communicating Dow’s low-cost-provider strategy to Wall Street is the company’s systematic, IT-enabled reduction in SG&A expenditures. Dow has cut SG&A expenses as a percentage of total revenues from 12 percent in 1993 to 7 percent as of 2000. At its current course and speed, Dow hopes to achieve its goal of cutting sales, general, and administrative costs to only 4.6 percent of revenues by the end of 2003.
Process, IT Standards Advance Top CEO Priorities

**Dow reduces management layers...**

Dow Management Layers
From CEO to Front Line

<table>
<thead>
<tr>
<th>Year</th>
<th>Layers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>12</td>
</tr>
<tr>
<td>2001</td>
<td>4–6</td>
</tr>
</tbody>
</table>

**...cuts finance department costs by almost half...**

Finance Department Costs
Percentage of Total Revenues

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost as % of Total Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>1.2</td>
</tr>
<tr>
<td>1999</td>
<td>0.6</td>
</tr>
</tbody>
</table>

43% reduction

**...opens the potential to new customers and revenues...**

Dow Customer Channel Access
2003 Estimates

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers With Online Access</td>
<td>80%</td>
</tr>
<tr>
<td>Customers Without Online Access</td>
<td>20%</td>
</tr>
</tbody>
</table>

$300 million in projected new revenues

**...and enables acquisition velocity...**

Recent Dow Acquisitions

<table>
<thead>
<tr>
<th>Company</th>
<th>Closing Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rohm &amp; Haas Agriculture</td>
<td>June 1, 2001</td>
</tr>
<tr>
<td>Ascot Plc</td>
<td>June 1, 2001</td>
</tr>
<tr>
<td>EniChem Polyurethanes</td>
<td>April 30, 2001</td>
</tr>
<tr>
<td>Union Carbide</td>
<td>February 6, 2001</td>
</tr>
<tr>
<td>Gurit-Essex</td>
<td>January 10, 2001</td>
</tr>
<tr>
<td>Collaborative BioAlliance</td>
<td>November 17, 2000</td>
</tr>
<tr>
<td>Acetochlor Herbicide</td>
<td>November 9, 2000</td>
</tr>
<tr>
<td>Cargill Hybrid Seeds</td>
<td>November 1, 2000</td>
</tr>
<tr>
<td>Integral Compounding</td>
<td>August 16, 2000*</td>
</tr>
</tbody>
</table>

* Announcement date.

**...positioning the company for low-cost-provider status**

Dow Total SG&A Expenditure
Percentage of Total Revenues

<table>
<thead>
<tr>
<th>Year</th>
<th>% of Total Revenues (Goal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>12.0%</td>
</tr>
<tr>
<td>2000</td>
<td>6.9%</td>
</tr>
<tr>
<td>2003</td>
<td>4.6%</td>
</tr>
</tbody>
</table>

$8.5 billion in acquired revenues over last 20 months

Source: Dow; Working Council research.
Charter and Structure of Dow’s Enterprise Architecture Group

Company in Brief

Industry
Diversified Chemicals

Company Size
• 2001 Revenues: $27.8 billion
• 2001 Employees: Approximately 50,000

Dispersion of Operations
Global: Sales in 170 countries, operations in 30-plus countries

Corporate IT Budget
$400 million (2001)

IT Staff Size
• 450 FTEs
• Approximately 1,000 contractors/consultants

Diagram:

CIO

Global R&D Director for Information Research

Senior Architects [12]

Program Offices

Domain Architects [110]

ERP [9–10]

∑ Data Mining [9–10]

User Interface [9–10]

Security [9–10]

Acquisitions and Alliances [9–10]

CRM [9–10]

Data Architecture [9–10]

Integration [9–10]

B2B Integration [9–10]

Operating Platforms [9–10]

Source: Dow; Working Council research.
## Architecture Group Attributes and Metrics

<table>
<thead>
<tr>
<th>Architecture Group Attribute</th>
<th>Dow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funds Controlled by Central Architecture Group</td>
<td>None; architecture group acts as funding steward, but all IT funding controlled by central CIO-chaired committee, including representatives from 12 central, process-based Program Offices and each of Dow’s six lines of business</td>
</tr>
<tr>
<td>Architecture Group Size</td>
<td>≈125</td>
</tr>
</tbody>
</table>
| Architecture Group Composition and Roles | • Senior Architects (12 FTEs)—Tasked with emerging technology scanning, mapping “as-is” and “to-be” architectures and monitoring standards compliance  
• Domain Architecture Specialists (110 FTEs)—Distributed across 10 domain-specific teams, charged with detailed technical design and execution and stewarding rollout of architecture blueprint in coordination with Program Offices |
| Reporting Structure | • Domain architects report functionally to central senior architects  
• Central senior architects report to Global R&D Director for Information Research  
• Global R&D Director for Information Research reports directly to CIO |
| Frequency of Meeting | No set meeting schedule; convened as projects require |
| Type and Frequency of Interaction with Line | Domain architects interact with line business staff as projects require |
| Date Established | 2000 |
| Charter | Applications, Data, and Infrastructure |
| Interoperability Review | Required for all new projects |
| Incentives for Standards Compliance | All funding is centrally controlled and nonstandard technologies require CIO approval |

Source: Dow; Working Council research.
Determined to focus its IT resources on projects that enable its core energy businesses (oil & gas exploration & production, refining & marketing, and petrochemicals), BP takes the dramatic step of completely outsourcing IT infrastructure and several business processes, including accounting, finance, and human resources. Using innovative contract terms, including gainsharing and mandatory multivendor collaboration, BP is able to conserve IT resources for use on projects that improve the efficiency of its exploration efforts, such as its Highly Immersive Visualization Environments (HIVES), which have improved both decision speed and quality.
**Company Background**

BP, a London-based energy company, has $174.2 billion in FY2001 revenues and 110,000 employees.

**What Do We Want to Be Good At?**

To cope with oil-market volatility and consistently deliver above-market shareholder returns, BP seeks to retain only those activities in which its performance truly exceeds that of oil-industry competitors.

**A Legacy of IT Externalization**

To that end, BP has consistently pushed the “externalization” envelope, reaching over $4 billion in cumulative outsourcing contract value across the past decade. These contracts include BP’s externalization of desktop, network, and legacy application support on a global basis.

**Leading the Charge to Outsource Business Processes**

More recently, BP has taken the lead in the still-nascent area of business process outsourcing. To date, BP has transferred to third parties responsibilities for functions such as accounting, finance, facilities management, and, most recently, human resources.
Pushing the Boundary of Externalization

Representative Overview of BP Outsourcing Deals*
1991–2000

What Do We Want to Be Good At?

“We decided to focus on finding giant oil and gas fields....They offer growth potential and they would allow us to earn a high return on capital....and we agreed to get rid of everything else that couldn’t make a material difference or offer growth potential—everything not distinctive.”

Lord Browne
CEO

Cumulative Contract Value of Announced Outsourcing Deals (U.S. Dollars)

$60 Million

$4 Billion

1991

1995

2000

Year

* This is a select representation of some of BP’s most prominent outsourcing announcements; it is not comprehensive of all outsourcing deals.

Source: BP; Working Council research.
The Contract That Shook the (Outsourcing) World

An Opportunity to Reduce Costs and Improve Agility

The best example of BP’s commitment to externalization is the transfer of responsibility for the bulk of its HR administration, 18 processes in total, to a California-based ASP start-up named Exult. After a string of acquisitions, BP found attempts at piecemeal consolidation of HR administrative processes to be costly and time-consuming. Additionally, the firm saw an opportunity to externally shift responsibility of administrative processes and turn fixed overhead costs into variable contractor fees, thus increasing flexibility to adjust HR expenses in the event of a downturn.

Building End-to-End Digital HR

Perhaps the most notable aspect of this deal is the vast disparity in size between the two firms. At the time of the deal, Exult had roughly $5 million in revenues, compared to BP’s $84 billion, and BP’s staff was several orders of magnitude larger than that of Exult. The BP–Exult partnership is characterized by two other distinctive features:

1. The 18 processes now handled by Exult represent almost the entirety of BP’s HR administrative processes. BP retains responsibility for the HR strategy and its translation into what is required from the processes, from the corporate level down through the business units to the team leaders.

2. BP required that Exult move quickly to “digitize” the 18 traditionally manual processes, ensuring Web-based access to HR transactions for BP’s globally dispersed workforce via an intranet portal.

Positive Early Returns

Early indicators suggest that BP’s Exult bet is beginning to pay off in three ways:

1. By digitizing the transactional aspects of the HR function, BP is projected to reduce the administrative costs of the function by between 15 and 25 percent.

2. Dramatic reductions in response times for some information-related employee requests are enabled. For example, the time required to provide staff with information on expatriate relocation dropped from more than 10 days to less than 10 minutes in total.

3. More than 12,500 employees access the portal each week, and 82 percent of surveyed employees report “satisfaction” with Exult.

A New Strategic Charter for Internal HR Staff

The externalization of HR administrative processes has also freed BP’s remaining internal HR staff to focus on higher-value-added activities. In service to this effort, BP is building out its global human asset directory of over 10,000 vacancies and 22,000 employee profiles. BP is working on new portal capabilities to not only improve the quality of its talent searches, but also to improve the ease of relocation and time needed for adjustment. For example, an employee moving to Azerbaijan can join a BP online community to meet other expatriates already located in-country to ask about the area. They will also be able to use e-learning platforms to better understand the specifics of local operations.
Exult Alliance Probes Outsourcing Frontiers

**BP selects start-up ASP...**

- HR service provider with an ASP model
- Founded in November 1998 by General Atlantic Partners
- IPO on the Nasdaq 18 months later

<table>
<thead>
<tr>
<th></th>
<th>FY1999 Revenue ($ Million)</th>
<th>FY1999 Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>$83,600</td>
<td>100,000</td>
</tr>
<tr>
<td>Exult</td>
<td>$5</td>
<td>200</td>
</tr>
</tbody>
</table>

**...that streamlines HR administration...**

**...and frees internal HR staff for “strategic” activities**

* Based on public estimates from press and McKinsey & Co.

---

Other Tools
- Recruiting—Deploy
- Training—Docent
- Performance Evaluation

E-Learning

Targeted Global Search

Resume
- Name: James Lord
- Background: International Geologist

Expat Community
- Azerbaijan Community

E-Learning
- Caspian Sea Geological Survey

Source: BP; Working Council research.
A Decade’s Worth of Contracting Experience

With a decade’s worth of prolific deal making qualifying BP for “professional outsourcing buyer” status, the company has developed three contract innovations designed to ensure the alignment of client and vendor interests:

1. Cost-Savings Incentives

BP makes extensive use of cost-savings incentives in their outsourcing contracts in three ways:

- **Hardwired Cost Reductions**: BP regularly includes clauses in its outsourcing contracts that stipulate specific cost-savings targets, “hardwired reductions” in the cost of delivering IT services designed to ensure the capture of Moore’s law–driven savings.

- **Gainsharing**: Vendors that exceed those cost-savings baselines may share in the gains with BP, providing an economic incentive for continuous cost reductions. Similarly, BP’s contracts can stipulate financial penalties for partners failing to meet those targets.

- **Innovation Bonuses**: Some BP vendors are formally evaluated on the number of process-improvement ideas proposed to BP, the rate of adoption of those ideas, and the resulting cost savings.

2. Equity Stakes

In addition to being Exult’s founding client, BP has also purchased a minority equity stake in the firm to further align its incentives in the firm’s success. In this dual capacity as shareholder and customer, BP has provided valuable advice and guidance in the firm’s launch and development. This investment has already begun to pay off, as Exult has grown its client base to include a number of other high-profile customers, such as Bank of America, International Paper, and Prudential Financial. As a result of these deals, Exult’s total contract value under management has more than tripled to $3.7 billion over the past year.

3. Multivendor SLAs

Realizing that few, if any, IT vendors are capable of providing comprehensive service across its global operations and all IT capabilities, BP early on began to structure multipartite deals with complementary vendors. Under these agreements, BP holds contractors responsible, both jointly and individually, for SLA compliance by requiring vendors to resolve service problems among themselves, saving BP staff time. To help clarify the various roles and responsibilities of individual vendors within its group of contracts, BP’s Operations Group maintains a map of vendor interdependencies.
BP’s IT Vendor Contract Structure Innovations

BP pioneers “gainshare” contracts...

1. Cost-Savings Incentives
   - Hardwired Reductions
   - Gain/Painsharing
   - Innovation Bonus

2. Equity Stakes
   - BP took a minority stake in Exult in December 1999
   - Subsequent customers include Bank of America, Unisys, International Paper, and Prudential, for a total of over $3.7 billion in contract value

...and standardizes best-in-breed solutions

1. Cross-Vendor SLAs
   - Group arrangements bind contractors to coordinated service delivery
   - Team (not individual vendor) responsible for problem resolution
   - Vendor Interdependencies Map maintained by BP operations groups

Global Contracting Memorandum

Source: BP; Working Council research.
Think Locally, Contract Globally

Technology Networks Gather Experts Across the Business

In order to develop IT capabilities that reflect the needs of its various business units, BP creates a group of seven Technology Networks staffed by experts from around the business who participate on a part-time basis. The networks cover a range of IT services, including Telecom, Collaboration and Productivity Tools, Security and Directory, Mobility and Devices, Web Services, Application and Data Integration, and Data Center Technologies. Each network is made up of 8 to 12 representatives from the six business divisions, the corporate center, and BP’s IT function, internally known as the Digital Business Group.

Demand-Driven Standards Recommendations

The networks provide “bottom-up feedback” on requirements needed by the line for consideration in architecture planning. Each network is responsible for developing architecture principles within its particular domain, ensuring scalability and interoperability of selected IT standards, and developing three-year domain road maps to determine effective migration plans toward new standards and retirement of legacy systems. The groups also serve as advanced technology screeners by reviewing “pioneering” technologies and developing proof-of-concept testing to determine feasibility for use at BP. The networks support outsourcing efforts by competitively reviewing vendors of technology products and services and then providing recommendations on technology selection for a central architecture review by the Technology Steering Board.

Central Architecture Review Improves Coordination

The Technology Steering Board, an 11-person committee staffed by representatives from across the company, vets proposals from the different Technology Networks to determine architecture compatibility. The Board is led by the chief technology officer and meets quarterly to assess recommendations from the networks and calibrate efforts across business units to make progress toward target architecture goals. The committee does not serve as a funding mechanism, and funding for all projects over $1 million threshold requires support from business unit sponsors.

Contracts Maximize Buying Power and Service Flexibility

Once the committee approves a particular technology standard, the proposal moves to the Operations Group, which conducts cost–benefit analysis, prepares a standard business case, selects preferred vendors, and tasks expert negotiators to create enterprise-level contracts. These contracts, known as Global Framework Agreements, are designed to pool the buying power of different business units in order to leverage preferred rates. However, the contracts also stipulate tiered levels of service and corresponding prices in order to maximize flexibility and to encourage opt-in at the level/price that is most appropriate for the buyer. This contract flexibility has allowed BP to encourage wider adoption of its enterprise contracts, and the company estimates that for deals involving hardware and software products, about 80 percent of spending dollars flow through the established Global Framework Agreements at preferred rates, thus maximizing cost savings and improving standards adoption.
Leverage Interventions in Architecting and Contracting

Externalization requirements based on BU feedback...

Global Architecture Communities

- Networks of line, IT staff across business lines
- Define “bottom-up” requirements, three-year IT domain road maps
- Conduct proof-of-concept testing for new technologies
- Evaluate technology products
- Recommend vendor, product-level standards to central Technology Steering Board

Architecture Communities

- Telecom
- Collaboration and Productivity Tools
- Security and Directory
- Mobility and Devices
- Web Services
- Application and Data Integration
- Data Center Technologies

...are reviewed by a central committee...

Central Architecture Review

- Decentralized, network-based approach to architecture standards
- Senior, 11-person Technology Steering Board
- Vets proposals for architecture compatibility
- Sets a three-year enterprise-wide technology road map
- Expressly not a funding mechanism

...and negotiated by expert buyers

Expert Contract Negotiation

- IT Operations and Projects Group integrates BU requirements with Technology Steering Board’s recommendations and road map to inform vendor selection
- Expert negotiators establish preferred rates and tiered service levels to maximize BU flexibility and opt-in

Tiered SLAs (Illustrative)

<table>
<thead>
<tr>
<th>Network Service</th>
<th>Platinum</th>
<th>Gold</th>
<th>Silver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure Response</td>
<td>Within 15 minutes</td>
<td>Within a half hour</td>
<td>Within 2 hours</td>
</tr>
<tr>
<td>Availability</td>
<td>24 hours/7 days</td>
<td>12 hours/6 days</td>
<td>8 hours/5 days</td>
</tr>
<tr>
<td>Server Uptime</td>
<td>99 percent</td>
<td>95 percent</td>
<td>90 percent</td>
</tr>
<tr>
<td>Cost</td>
<td>1.5x</td>
<td>1.3x</td>
<td>1.0x</td>
</tr>
</tbody>
</table>

- Multiple bands and pricing levels
- Local sites can choose optimal band for their service requirements; vendor required to honor service promise

Source: BP; Working Council research.
Liberating Resources Through Externalization

BP credits its externalization efforts with freeing up resources and management attention for strategic Digital Business innovations that have the potential to transform the company’s growth prospects.

Visualizing the Future

Perhaps the best example of BP’s deliberate strategy of reinvesting IT resources freed by externalization for the development of next-generation IT capabilities is the company’s HIVE (Highly Immersive Visualization Environment) project. HIVEs feature workrooms filled with three-dimensional computer-generated maps of BP oil fields, enabling BP experts to improve drilling accuracy. BP currently has 15 HIVEs online, with three more slated for construction.

All Together Now

The animating principle behind the deployment of HIVEs is that by giving experts across disciplines—geologists, master drilling technicians, seismologists—simultaneous access to the same data, BP can greatly improve the speed and quality of decision making.

Improved Decision Speed and Quality Yield Significant Savings

BP credits its HIVEs with helping to compress the time required to interpret seismic data from 20 days (the industry average) to three. BP also claims that the HIVEs have helped the company increase the yield of its wells to a level that is three times the industry average. All told, HIVEs are collectively expected to yield $150 million annually in efficiencies from increased drilling precision. Despite costing nearly $1 million to build, one recently launched HIVE saved the company $5 million in its first week of operations.
HIVEs (Highly Immersive Visualization Environments)

Visualization room allowing three-dimensional manipulation of “live” sensor data…

...truly bridges disciplines...

HIVE Workroom (Illustrative)

- Workroom filled with three-dimensional digital projectors
- Database telemetry data available from worldwide operations
- 15 HIVEs online, three in construction

Single (Multidisciplinary) Versions of Reality

“HIVEs give [knowledge workers] something they’ve never had before—a common mental picture of something they will never see.

“[HIVEs] change the boundaries of teams and bring together people of very different disciplines, all applying their skills to a common objective.”

Lord Browne
CEO, BP

...to improve decision speed and quality

Seismic Data Interpretation Cycle

<table>
<thead>
<tr>
<th></th>
<th>Industry Average</th>
<th>bp</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 Days</td>
<td>3 Days</td>
<td></td>
</tr>
</tbody>
</table>

Well Yield (Indexed)

<table>
<thead>
<tr>
<th></th>
<th>Industry Average</th>
<th>bp</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>3.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: BP; Working Council research.
Charter and Structure of BP’s Technology Networks

Company in Brief

Industry
Energy

Company Size
- 2001 Revenues: $174.2 billion
- 2001 Employees: 110,000

Dispersion of Operations
Global: Operations in 100 countries

Total IT Spend
$1.5 billion

BP-Retained IT Staff
≈3,000

Head of Digital Business

Enterprise Infrastructure [12]

CTO

Technology Steering Board [11]

IT Operations

Major Infrastructure Projects

Networks include staff from each of BP’s six business “streams”—Gas, Power, and Renewables; Upstream; Downstream; Chemicals; Integrated Supply and Trading; and Global Business Center, as well as representatives from BP’s Digital Business (IT) group. All network members participate on a part-time basis.

Source: BP; Working Council research.
# Technology Network Attributes and Metrics

<table>
<thead>
<tr>
<th>Technology Network Attribute</th>
<th>BP</th>
</tr>
</thead>
</table>
| **Funds Controlled by Technology Networks** | • Virtually none—All IT project funding handled through Financial Memorandum process, in which all relevant business units must sign off on all projects above a $1 million threshold  
• Networks control a small budget for proof-of-concept technology trials |
| **Technology Network Size** | ≈75 |
| **Technology Network Composition and Roles** | • Technology Steering Board (11 Members)—CTO, an external industry expert, senior-level representatives from the Projects and Digital Business organizations, and from the six business “streams” within BP: Gas, Power, and Renewables; Upstream; Downstream; Chemicals; Integrated Supply and Trading; and the central Global Business Center (GBC); approve standards recommendations made by Technology Networks before handoff to IT Operations or Projects groups for project execution  
• Seven Domain-Specific Technology “Networks” (8 to 12 Members per Network)—IT and business staff seconded on a part-time basis from each of the six business streams and major Digital Business functions; teams charged with defining domain-specific architectures, standards, and technology road maps for a three-year horizon  
• Enterprise Infrastructure (12 FTEs)—Six architects and six deputies; charged with creating future-state infrastructure blueprint for enterprise |
| **Reporting Structure** | • Technology Network Members report to their line-of-business manager and are matrixed with Technology Network Leaders  
• Technology Network Leaders report to their line-of-business manager and make recommendations to the Technology Steering Board  
• Technology Steering Board chaired by CTO, who reports to Head of Digital Business  
• Enterprise Infrastructure group coordinates with Technology Steering Board and reports to Head of Digital Business |
| **Frequency of Meeting** | • Ad hoc updates within Technology Networks, with time commitment ranging from one to two days per month for Network Members to three to four days per month for Network Leaders; collaboration tools used to minimize the need for face-to-face meetings  
• Technology Steering Board meets quarterly to review/approve/reject standards proposed by the Technology Networks and calibrate them with recommendations on future-state infrastructure outlined by Enterprise Infrastructure group |
| **Type and Frequency of Interaction with Line** | Technology Network members seconded from line IT and business areas |
| **Date Established** | December 2000 |
| **Charter** | • Technology Steering Board is responsible for standards approval across Applications, Data, and Infrastructure  
• Each Technology Network is tasked with:  
  a) Defining architectural principles within its particular IT domain  
  b) Determining appropriate timelines and road maps for phasing out legacy architectures  
  c) Creating product-level IT standards  
  d) Ensuring scalability and interoperability of selected IT standards  
  e) Proof-of-concept testing for “pioneering” projects—technologies with which BP has had no past experience |
| **Interoperability Review** | Handled by Technology Networks for all proposed technology standards |
| **Incentives for Standards Compliance** | • No—BP assigns a “gatekeeper” for each IT project—a BU-level business sponsor tasked with checking compliance of the project with existing architecture standards  
• Digital Business (IT) staff functions in process of creating standards compliance process |

Source: BP; Working Council research.
Seeking to completely overhaul its IT architecture, the U.S. Navy monetizes its existing IT assets by entering into a systems management contract with vendor EDS, which requires EDS to purchase the Navy’s IT assets at fair market price. In addition to off-loading support of the legacy systems, this strategy generates capital to fund the Navy’s next-generation IT initiatives, including the Navy’s e-business and knowledge management strategies.
The Navy Marine Corps Intranet (NMCI) Project

Organization Background

The U.S. Department of the Navy (DoN) has a total annual budget of $91.9 billion and 870,000 active duty, reserve, and civilian employees.

A One-Stop IT Infrastructure Shop

Lacking the resources to simultaneously upgrade enterprise connectivity and fulfill an executive mandate for knowledge management, the DoN externalizes its connectivity needs by signing a five-year, $6.9 billion, 350,000-seat contract with EDS. Under the terms of the contract, EDS provides the DoN with on-demand convergent network bandwidth, desktop and application management and security, help desk, training, and maintenance and upgrade services.

Self-Funding Through Asset “Monetization”

EDS also agrees to buy and inventory the Navy’s existing IT assets, a type of deal often referred to as “IT asset monetization.” The DoN deploys the approximately $400 million in annual savings generated by the externalization and monetization of its IT assets to fund efforts to create an enterprise knowledge–sharing architecture.

Coming to Terms

Conscious of the failure of previous large-scale IT management deals, the DoN addresses four key concerns in its contract with EDS:

1. Guardrails for Asset Monetization: The DoN receives fair market price for its existing IT assets and retains the right to repurchase or transfer those assets to a new provider upon contract cancellation or expiration.

2. Risk Transfer: The DoN hedges price and performance risk by negotiating a fixed, per-seat monthly price for services that is applicable over the life of the contract, and by transferring the responsibility for subcontractor management to EDS. The DoN also forces EDS to conduct the initial audit of its complex and poorly documented architecture and emphasizes security by heavily penalizing EDS for successful incursions by DoN hacking teams.

3. Gain/Painsharing: The DoN provides annual incentive payments to EDS if the vendor exceeds performance benchmarks and subjects the vendor to a penalty of up to 20 percent for falling below preestablished SLAs. To encourage EDS to help the DoN improve its internal processes, the contract offers 50/50 gainsharing for savings created by EDS-led business process improvement.

4. IT Staff Redeployment: The deal affects the majority of the DoN’s 1,900 IT staff, who are reassigned to higher-value activities, including digitization and knowledge management. In addition, the DoN ensures that all IT employees have a safety net: the option of transferring to EDS with a three-year job guarantee, a 15 percent raise, and a 3 percent signing bonus.
A Massive “Asset-Externalization” Deal

Comprehensive IT Management Contract Off-Loads Four Key Concerns

1. Asset Monetization
   - EDS pays Navy fair market value for existing network, desktop assets
   - Right to repurchase or transfer to new provider at contract end

2. Risk Transfer
   - Bidders conduct own infrastructure audit, identify potential cost overruns, commit “site-unseen” to support all legacy infrastructure
   - Fixed, monthly per-seat pricing agreed over contract life
   - $10 million fine for successful “white-hat” hacking
   - EDS assumes sole responsibility for subcontractors
   - Hardware, software upgrades tied to on-shelf capabilities

3. Gainsharing
   - Incentive credits paid annually for exceeding SLA
   - Up to 20 percent penalty for falling beneath SLA
   - 50/50 gainsharing on EDS-led business process improvement

4. IT Staff Redeployment
   - Majority of 1,900 IT staff affected; reassigned to higher-value-added activities—“Webification,” e-business, knowledge management
   - All affected staff given option to transfer to EDS with three-year job guarantee, 15 percent pay rise, 3 percent signing bonus

Source: U.S. Department of the Navy; Working Council research.
Keeping IT Service Ship-Shape

**What Gets Measured Gets Done**

Another key element to the DoN–EDS externalization deal is the DoN’s ability to monitor the performance of its IT platform in real time against a portfolio of 44 SLAs. EDS is responsible for collecting and normalizing 636 metrics that are posted to a Web “dashboard” for assessment by DoN contract managers and the Department’s CIO. Using the dashboard, the DoN can monitor performance at the level of the entire platform but can also drill down into more detail on specific components.

**Comprehensive, Tiered SLAs**

SLAs included on the dashboard cover desktops, operating systems, the DoN’s global network, systems fulfillment and performance, security, legacy interoperability, hardware and software upgrades, and maintenance and support. Most SLAs contain three levels of service—basic, high end, and mission critical.

**Carrots and Sticks for Performance**

To maintain high service quality, EDS is allowed to share in any gains generated by performance exceeding SLAs, and faces penalties of up to 20 percent for falling below performance benchmarks. To ensure the full capture of Moore’s law—or process-based performance improvements, the DoN constantly reassesses SLAs.
Real-Time SLA Monitoring

Contractor Service Levels Tracked on Real-Time Dashboard

Real-Time SLA Dashboard®
U.S. Department of the Navy—EDS Externalization Deal

Sample SLA

<table>
<thead>
<tr>
<th>Service Name: Desktop Hardware and Operating System</th>
<th>SLA: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Description: Vendor-provided desktop hardware and OS</td>
<td></td>
</tr>
<tr>
<td>Applicable Service Delivery Points: Fixed Workstations, Portable Seats, Embarkable Portable Seats</td>
<td></td>
</tr>
<tr>
<td>Levels of Services: Basic, High End, Mission Critical</td>
<td></td>
</tr>
<tr>
<td>Performance Measure Description: Percentage of hardware or operating system installations/ upgrades successful on first use. Formula is: (# of desktop hardware installation/ upgrades in month – # of “failed/ improper” installation/ upgrades) / # of installation/ upgrades in month. Failure includes wrong desktop, wrong OS version, improper configuration, failure to install/ upgrade in designated time-window, etc.; excludes any network-related failures if software loading performed from a central source. The seat is installed properly unless the NMCI end user notifies the Help Desk informing of a failure.</td>
<td></td>
</tr>
<tr>
<td>Who: Vendor</td>
<td></td>
</tr>
<tr>
<td>Frequency: Monthly</td>
<td></td>
</tr>
<tr>
<td>Where: NMCI-Wide</td>
<td></td>
</tr>
<tr>
<td>How Measured: Vendor includes all events of failed desktop hardware/ OS installation/ upgrades in monthly reports to the government. It includes date, entity failed (desktop/ OS), and user ID for which it failed. The “failed installation/ upgrade” data will be audited by the government or a designated third party.</td>
<td></td>
</tr>
</tbody>
</table>

* Metrics shown are illustrative and do not represent actual performance.

Source: U.S. Department of the Navy; Working Council research.
A 360-Degree Knowledge Architecture

A Central Information Architecture Utility

Identifying grassroots knowledge management as the “killer app” for its newly deployed global broadband network, the DoN creates an information architecture team dubbed the Portal Integration Office (PIO), comprised of IT staff and IS-functional knowledge experts rotated from the line. In close cooperation with line units, this architecture team undertakes seven key labors for creating a knowledge architecture, spanning both the knowledge identification and content management processes:

1. **Knowledge Mapping**: The architecture team’s functional experts work with line units to map function-specific knowledge and business processes.

2. **Content Reformatting**: Experts also manage line unit efforts to convert paper-based information into portal-accessible electronic formats.

3. **Tacit Knowledge Capture**: Other architecture team members undertake a pilot project to disseminate tacit knowledge through the portal. The project uses audio, video, and keyboard tracking to capture expertise accumulated in key job roles.

4. **Taxonomy Creation**: A 30-person team of architecture group and line unit staff defines a high-level enterprise knowledge taxonomy as the basis for detailed frameworks created by staff and contractors in each function.

5. **Metatagging**: Having defined a taxonomy, the DoN undertakes a yearlong, 40-FTE project to develop a common metatag schema that harmonizes existing disparate tags. The DoN will then use automated tools to tackle the almost unimaginable task of metatagging two billion legacy documents.

6. **Authoritative Source Identification**: As the portal’s user base and content selection grows, the architecture team guards against content corruption by limiting editing rights to authorized information sources (humans or machines).

7. **Information Assurance**: The group also designs measures to ensure that information from multiple public sources cannot be aggregated to reveal classified information.
“Seven Labors” of the Information Architect

As a Foundation for Knowledge Sharing, Navy Builds End-to-End Information Architecture Capabilities

1. Knowledge Mapping
   Functional areas identify and map knowledge resources and business process

2. Content Reformatting
   Central team of functional experts assists functions with translating paper-based content into accessible electronic formats

3. Tacit Knowledge Capture
   Pilot test to capture tacit knowledge generated in job roles; subject will activate tracking tool to capture, codify, and publish text or conversation associated with a significant action or decision

4. Taxonomy Creation
   Thirty-person cross-functional team designs high-level taxonomy, creates interoperable framework for build-out of detailed taxonomies by each function

5. Metatagging
   Forty-person team spends one year developing metatag scheme, harmonizing disparate existing tags; plan to deploy automated tools to tag two billion legacy documents

6. Authoritative Source Identification
   Central group ensures editing rights for specific content are restricted to the authoritative information source (human or machine)

7. Information Assurance
   Assesses security impact of content aggregation; ensures that multiple information sources cannot be combined to reveal classified information

Source: U.S. Department of the Navy; Working Council research.
Charter and Structure of Navy's Enterprise Architecture Group

Company in Brief

Industry
Government Agency

Company Size
- 2001 Revenues: $91.9 billion
- 2001 Employees: 870,000

Dispersion of Operations
Over 70 domestic and 10 international bases and 300 ships

Corporate IT Budget
$4.2 billion (2001)

IT Staff Size
24,765 FTEs
(17,287 military; 7,478 civilian)

Source: U.S. Department of the Navy; Working Council research.
# Architecture Group Attributes and Metrics

<table>
<thead>
<tr>
<th>Architecture Group Attribute</th>
<th>U.S. Department of the Navy</th>
</tr>
</thead>
</table>
| Funds Controlled by Central Architecture Group        | • DoN Enterprise Architecture Team establishes policy but does not control the budget for corporate IT  
  • ≈$4.2 million budget to support strategic planning, database development and maintenance, architecture policy formulation, and process development                                    |
| Architecture Group Size                               | 16                                                                                                                                                                                                                      |
| Architecture Group Composition and Roles              | • One Team Leader  
  • Three Project Leaders  
  • 12 Contractor Support Staff                                                                                                                                  |
| Reporting Structure                                   | • EA Team Project Leaders and Contract Support Staff report to Team Leader  
  • DoN Enterprise Architecture Team Leader reports to DoN CIO  
  • DoN and U.S. Marine Corps CIOs report to the Secretary of the Navy                                                                                          |
| Frequency of Meeting                                  | Weekly meetings comprising EA Team updates and Project Leader and contractor status reports                                                                                                                            |
| Type and Frequency of Interaction with Line           | Architecture team and Project Leaders interact weekly with line IT personnel within IPTs and Working Groups                                                                                                          |
| Date Established                                      | November 1997                                                                                                                                                                                                               |
| Charter                                               | Applications, Data, Infrastructure, IT Standards                                                                                                                                                                        |
| Interoperability Review                               | • General Interoperability Review—Institutionalized review of proposed systems architectures with existing infrastructure  
  • Navy/Marine Corps Intranet (NMCI) Certification Process—Security and interoperability tests performed on all applications to be used on NMCI servers and clients                                           |
| Incentives for Standards Compliance                   | Noncompliant NMCI applications are ordered to be reengineered                                                                                                                                                    |

Source: U.S. Department of the Navy; Working Council research.
FedEx: Reorganization for One Face to the Customer

Experiencing a slowdown in its core market of express shipping, FedEx vows to improve its fortunes by creating a “one face to the customer” strategy, enabling role-based customer segmentation, seamless service across offerings and channels, and more targeted cross-selling and marketing campaigns, which result in higher customer profitability and retention rates. Underpinning this strategy is a five-year plan to create a standard customer-facing IT architecture, composed of 30 discrete IT projects. To facilitate the creation of this architecture, FedEx aligns customer-facing functions—including sales, marketing, and IT—into a single group and “twins” managers within marketing and IT to increase the efficiency of system integration efforts. FedEx estimates that creating a standard customer-facing architecture will yield additional sales equivalent to 50 percent of the company’s annual revenue growth.
A Core Market Slowdown

Company Background

FedEx Inc., the Memphis, Tenn.–based package delivery company, has revenues of $19.6 billion and 215,000 employees.

From a Strength to a Weakness

In the early 1990s, with the market for air delivery expanding rapidly, FedEx grew more quickly than carrier rival UPS. However, by the year 2000, many companies began to migrate from air to ground delivery to cut costs, realizing that most packages did not require overnight delivery. Consequently, FedEx lost momentum to UPS, which continued to dominate the ground shipping business.

Wall Street Takes Notice

This core market slowdown for FedEx did not go unnoticed by Wall Street, as indicated by FedEx’s market valuation. By March 2000, FedEx’s price-to-earnings ratio was stalled at 18, whereas UPS maintained a P/E ratio of almost 27, based largely on the success of its flourishing ground delivery business and its ability to cross-sell air services to ground customers.

Project Arise

The arrival of this revenue stall and the ensuing crisis in growth prospects prompted the launch of Project Arise, an organizational and IT restructuring initiative aimed at rebuilding FedEx around an ethic of presenting one face to the customer. FedEx believes that this five-year plan will allow the company to retain more customers in the slow-growth air delivery market while simultaneously cross-selling those customers to higher-growth ground delivery and logistics businesses.

The key elements of Project Arise include:

- A single telephone number that customers can use to contact any unit within FedEx
- A single Web order tracking platform
- A single drop site for all types of packages
- A single sales rep and invoice for each account
- A commitment to provide customers with logistics solutions in addition to delivery options

Creating a Holistic View of the Customer

This emphasis on presenting a single face to its customers comes on the heels of FedEx’s realization that the fragmented nature of its sales relationships impaired its ability to compete with UPS. The customer relationship was owned by individual BUs, preventing the company from obtaining a holistic view of customer purchasing across FedEx service categories.
The Way Out: One Face to the Customer

Abrupt slowdown in FedEx's core market...

Revenue Growth Rate

<table>
<thead>
<tr>
<th>Year</th>
<th>FedEx</th>
<th>UPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>10%</td>
<td>77%</td>
</tr>
<tr>
<td>1999</td>
<td>46%</td>
<td>28%</td>
</tr>
</tbody>
</table>

U.S. Market Share

Rewarding the Growth of Ground

“Manufacturers and retailers are shipping less volume through air, preferring to use cheaper ground solutions whenever feasible.”
– Bear Stearns

P/E Ratio
March 2001

18
27

Reflected in sector-lagging valuation...

...prompts Project Arise plan for transformational reorientation around the customer

FedEx Project Arise: A Five-Year Plan

- One Telephone Number
- One Web Tracking Platform
- One Drop Site
- One Sales Rep
- One Invoice
- Logistics Solutions

Source: FedEx; Bear Stearns; Working Council research.
Radical Re-Org: “Twinning” IT and Marketing

Redefining the IT Organization Around the Customer

To make good on this radical redefinition of the company’s service proposition, FedEx’s first step is to aggressively reorganize around customer contact.

“Twinning” IT and the Line to Ensure Alignment

Customer-facing functions—sales, marketing, and portions of IT—that were previously siloed across FedEx’s four business units are now centralized in a new FedEx service unit. To ensure IT alignment with the company’s CRM goals, e-commerce and customer-facing IT are split from operational IT and restructured to mirror the company’s sales and marketing groups. These groups include sales automation, large accounts and small business in the sales organization, and market research, brand management, and Web site management in the marketing organization. In total, there are 8 to 10 dedicated front-end IT teams “twinned” with specific sales and marketing subgroups.

To reinforce the alignment between IT and its sales and marketing functions, FedEx also “twins” individual managers within those functions, having them share the same objectives and incentives. FedEx reports that this shared incentive structure drives a tenfold increase in the efficiency of its CRM integration efforts.

Back-End IT Shared Services

The business units—Air, Ground, Logistics, and Custom Critical (a high-margin express service for B2B customers)—continue to be supported by a back-end IT shared services group that handles network, data warehouse, and data center support.
Reorganizing the Company Around Customer Contact

A New FedEx—One Face to the Customer

Business Lines
- Air
- Logistics
- Ground
- Custom Critical

Back-End IT Shared Services
- Network
- Data Warehouse
- Data Center

Customer-Facing Services
- Sales
- Front-End IT
- Marketing
  - Sales Automation
  - “Twins”
  - Large Accounts
  - “Twins”
  - Small Business
  - “Twins”
  - “Twins”
  - “Twins”
  - “Twins”
  - Market Research
  - Brand Management
  - Web Site Management

- New corporate unit for customer-facing IT, sales, and marketing
- IT structured to “twin” with each of 8 to 10 sales and marketing groups

• Operating units rebranded under FedEx name, stripped of own sales, marketing, IT
• “Utility” shared services group consolidates operational IT

Source: FedEx; Working Council research.
An Integrated Customer-Facing Architecture

By twinning a dedicated IT group with each customer-facing sales and marketing group, FedEx hopes to facilitate the creation of a standardized customer-facing architecture that enables five critical business capabilities:

- **One Point of Contact:** Integrating customer traffic from voice response units (VRUs), Web self-service options, courier wireless devices, and FedEx’s call center to allow real-time sales prospecting.

- **Single Sign-On:** Moving toward secure single sign-on using a 170,000-name LDAP directory and role-based PKI.

- **Promotions of One:** Using a single customer database and analytical tools such as value-based pricing and role-based segmentation capabilities to enable promotions of one and multiple contact “householding.”

- **One View of the Customer:** Providing a holistic view of each customer by deploying a standardized messaging layer to enable real-time data exchange between systems supporting FedEx’s various channels.

- **One Invoice:** Producing a single account statement detailing all of the customer’s interactions with FedEx.

A Five-Year, 30-Deliverable CRM Plan (See Pages 92–93)

To operationalize its goal of presenting “one face to the customer,” FedEx rejects the notion of CRM as a single-vendor, single-project initiative. Instead, FedEx plans to undertake a multiyear, 30-project effort, with each project having its own business case and line sponsor. FedEx’s vision of an integrated customer-facing architecture includes five major project “buckets”:

- **Foundational Infrastructure:** Build-out of messaging, security, and network infrastructure, including an enterprise directory, a convergent network, and a call center upgrade.

- **Data Integration:** Creation of a customer data warehouse and the integration of data from finance, legacy, and channel systems.

- **Segmentation and Profitability Analysis:** Deployment of analytical tools to provide granular profitability analysis at the customer, account, or individual buyer level.

- **Channel Enablement:** Integration of data across channels to provide “one face to the customer”—a consistent experience for customers across FedEx’s sales force, call centers, and Web site.

- **Marketing Automation:** Providing FedEx’s marketing staff with desktop access to tools for one-to-one promotions tracking, interaction management, and value-based pricing.
An Integrated Customer-Facing Architecture

Schematic of FedEx Customer-Facing Architecture

Channel
- Speech VRU
- Web Self-Service
- Real-Time Sales Prospecting Profile
- Courier Wireless Tracking
- Integrated Call Center

Security
- User Password

Personalization
- One Sign-On
  - 170,000-Name LDAP Directory
  - Role-Based PKI Certificates

Data and Analysis
- Promotions of One
  - Single Customer Database
  - Multiple Contact “Householding”
  - Marketer Desktop Tools
  - Role-Based Segmentation
  - Value-Based Pricing

EAI

Legacy Systems
- One Point of Contact
- One Sign-On
- One View of the Customer
- One Invoice
  - Finance System Integration
  - Single Organizational Account Number

Source: FedEx; Working Council research.
# A Five-Year, 30-Deliverable eCRM Plan

## Long-Term FedEx CRM Work Plan

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>What's Hard</th>
<th>Representative Vendors*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Foundational Infrastructure</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Messaging Infrastructure</td>
<td>Publish/subscribe between channels, central data repositories</td>
<td>Standard data models</td>
<td></td>
</tr>
<tr>
<td>2. Enterprise Directory</td>
<td>LDAP for 170,000 FTEs, allowing single sign-on, role-based access</td>
<td>IT/HR Coordination</td>
<td>TIBCO</td>
</tr>
<tr>
<td>3. PKI Digital Certificates</td>
<td>Customer and internal authentication</td>
<td>Certificate management</td>
<td>Entrust</td>
</tr>
<tr>
<td>4. Convergent Network</td>
<td>17 data, video, voice networks consolidated to ATM</td>
<td>QoS for voice, business-critical apps</td>
<td></td>
</tr>
<tr>
<td>5. Call Center Upgrade</td>
<td>New call center desktops, servers, LAN/WAN, open architecture</td>
<td>Ensuring readiness of voice-over-IP for integration with systems in other channels</td>
<td></td>
</tr>
</tbody>
</table>

## Data Integration

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>What's Hard</th>
<th>Representative Vendors*</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Information Super-Hub (ISH)</td>
<td>Integration of 6.5 million FedEx and 500,000 RPS customer records</td>
<td>Account number harmonization</td>
<td>NCR</td>
</tr>
<tr>
<td>7. Finance System Integration</td>
<td>Line unit transaction and revenue data added to ISH</td>
<td>Data normalization</td>
<td></td>
</tr>
<tr>
<td>8. Automated Channel Integration</td>
<td>FedEx.com and legacy customer automation systems to ISH</td>
<td>Standard data models</td>
<td>Vality</td>
</tr>
<tr>
<td>9. Account Householding</td>
<td>Associating individuals with customer accounts</td>
<td>Data sufficiency for roles determination</td>
<td></td>
</tr>
<tr>
<td>10. Customer Profiling</td>
<td>Relationship data, role, and value analysis for each individual in ISH</td>
<td>Handling 14x increase in data storage</td>
<td></td>
</tr>
</tbody>
</table>

## Segmentation and Profitability Analysis

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>What's Hard</th>
<th>Representative Vendors*</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Customer Role Framework</td>
<td>Customer product usage patterns, satisfaction, and preferences</td>
<td>Define role hierarchies</td>
<td></td>
</tr>
<tr>
<td>12. “Roll-Up” Account Profitability</td>
<td>Activity-based costing at package level; rolled up by customer location</td>
<td>Local cost data normalization</td>
<td></td>
</tr>
<tr>
<td>13. Granular Segmentation</td>
<td>Customers segmented by need, relationship stage, and value in each channel</td>
<td>Multichannel segmentation surveys</td>
<td></td>
</tr>
</tbody>
</table>

Source: FedEx; Working Council research.

* As of summer 2001.
<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>What's Hard</th>
<th>Representative Vendors*</th>
</tr>
</thead>
<tbody>
<tr>
<td>14. Single Invoicing</td>
<td>“One bill” for all FedEx services</td>
<td>Legacy billing system integration</td>
<td></td>
</tr>
<tr>
<td>15. Call Center Integration</td>
<td>Integrate FedEx, RPS call centers to provide one number for all FedEx services</td>
<td>Legacy call center platform integration</td>
<td></td>
</tr>
<tr>
<td>16. Intelligent VRU</td>
<td>Personalized, automated call handling</td>
<td>Web/VRU integration/personalization</td>
<td></td>
</tr>
<tr>
<td>17. Call Center Knowledge Management</td>
<td>Searchable XML repository of service descriptions, operating procedures, CSR scripting</td>
<td>Embedding in CSR work flow</td>
<td></td>
</tr>
<tr>
<td>18. Customer Problem Resolution</td>
<td>Cross-channel problem routing and resolution</td>
<td>Demands technology, process change across all FedEx operations</td>
<td></td>
</tr>
<tr>
<td>19. CSR Skills-Based Routing</td>
<td>Inbound caller needs and language matched to “optimal” CSR</td>
<td>Assessing CSR skill levels</td>
<td></td>
</tr>
<tr>
<td>20. Web Migration</td>
<td>Divert routine calls to Web</td>
<td>Migration incentives consistency</td>
<td></td>
</tr>
<tr>
<td>22. Customer Work-Flow Support</td>
<td>Online tracking, billing, record keeping across FedEx and competitors</td>
<td>Customer conversion support</td>
<td></td>
</tr>
<tr>
<td>23. Wireless Web Access</td>
<td>Wireless access to FedEx.com tracking, pricing, location finder functionality</td>
<td>Screen reformatting for diverse wireless devices</td>
<td></td>
</tr>
<tr>
<td>24. PowerPad</td>
<td>Wireless courier tool for CRM data capture</td>
<td>Reliable wireless connectivity</td>
<td></td>
</tr>
<tr>
<td>25. Sales Intranet</td>
<td>Intranet portal for sales reporting and training</td>
<td>Integration with SFA</td>
<td></td>
</tr>
<tr>
<td>26. Sales Force Automation</td>
<td>Mobile access to 360-degree customer snapshots, lead sharing, compensation tracking</td>
<td>Sales process change</td>
<td></td>
</tr>
<tr>
<td>27. Desktop Marketing</td>
<td>User-friendly campaign planning, execution tools for marketers’ desktops</td>
<td>Training marketers in statistical analysis</td>
<td></td>
</tr>
<tr>
<td>28. One-to-One Promotions</td>
<td>Personalized marketing to customer account decision makers</td>
<td>Scaling systems, processes to cope with increased campaign frequency, complexity</td>
<td></td>
</tr>
<tr>
<td>29. Interaction Management</td>
<td>Coordinating interactions across channels</td>
<td>Tracking interactions in real time</td>
<td></td>
</tr>
<tr>
<td>30. Value-Based Pricing</td>
<td>Pricing varied by customer value segment</td>
<td>Integration with SFA</td>
<td></td>
</tr>
</tbody>
</table>

* As of summer 2001.

Source: FedEx; Working Council research.
Aligning Channel CRM with User Roles

Misplaced Bets

Long viewed as an end goal of CRM, role-based customer segmentation is now emerging as a foundational capability required to accurately align channel enablement and marketing projects with customer roles and needs. Through a dedicated market research effort that includes role-based customer segmentation, FedEx discovers that only a small minority—20 percent—of its sales contacts have purchasing power. The remaining 80 percent of people that FedEx came into contact with during the customer purchasing and servicing process were not empowered to make purchasing decisions. These people include “shippers,” typically administrative assistants or mail room clerks charged with preparing, shipping, and tracking packages and following up on late deliveries, and accounts payable staff, who track and pay shipping invoices.

Identifying the Chosen Few

This insight leads FedEx to de-emphasize the cross-selling efforts that it had previously worked to integrate into service-center call scripts—efforts that were being wasted on people who lacked purchasing authority. FedEx now uses role-based segmentation to categorize its customers according to their role in the purchasing decision and has reoriented its sales strategies and call center scripts accordingly. The “empowered” role-based segments FedEx targets through these efforts include:

- **Decision Makers**: Staff from the customer’s purchasing function who are responsible for negotiating service contract terms and service levels.
- **Shipping Managers**: Customer staff who handle overseas orders and shipping suppliers and monitor the resolution problems.
- **Consignees**: Staff who influence the shipping choices made by a company’s suppliers.

Tailoring Service Offerings to Constituencies

In an effort to maximize the value of its interaction with customer staff, FedEx has increased its sales force serving role-based segments that can influence purchasing decisions by an additional 350 FTEs and has focused call center scripting for these individuals around cross-selling. Correspondingly, FedEx is engaged in aggressive campaigns to migrate both shippers and accounts payable staff to less costly Web and voice-response self-service. Elimination of cross-selling scripting to “unempowered” sales contacts has contributed to call length truncation, not only reducing costs but also increasing customer satisfaction levels—busy shippers and accounting staff appreciate the brevity of their calls to FedEx.

A Caveat Regarding Role-Based Segmentation

While highly effective, FedEx cautions that role-based segmentation is a resource-intensive undertaking. The company estimates that a fourteen-fold increase in data collection is necessary to enable individual-level segmentation versus a traditional account-level view of the customer.
Heart of the Enterprise: Role-Based Segmentation

Discovering that only a handful of contacts have buying power...

Service Contacts by Purchase Authority

…FedEx de-emphasizes cross-selling and reshapes channel CRM around role-based segments

FedEx Role-Based Segments

<table>
<thead>
<tr>
<th>Role</th>
<th>Key Activity</th>
<th>Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision Maker</td>
<td>Negotiates service contract terms, service levels</td>
<td>Sales Representative</td>
</tr>
<tr>
<td>Shipping Manager</td>
<td>Oversees orders, shipping supplies; monitors problem resolution</td>
<td>Sales Representative</td>
</tr>
<tr>
<td>Consignee</td>
<td>Influences supplier’s choice of carrier</td>
<td>Sales Representative</td>
</tr>
<tr>
<td>Shipper</td>
<td>Prepares, ships, tracks, packages, follows up late deliveries, lost and damaged shipments</td>
<td>Web, Call Center</td>
</tr>
<tr>
<td>Accounts Payable</td>
<td>Pays invoices</td>
<td>Call Center</td>
</tr>
</tbody>
</table>

Source: FedEx; Working Council research.

- Increase sales force by 350 FTEs, prioritize SFA
- VRU upgrade, CSR scripting to cut call deviation

“The Unempowered”

Negotiates service contract terms, service levels
Oversees orders, shipping supplies; monitors problem resolution
Influences supplier’s choice of carrier
Prepares, ships, tracks, packages, follows up late deliveries, lost and damaged shipments
Pays invoices
Making Difficult CRM Decisions

**Governing Enterprise Architecture Rollout**

The creation of an customer-facing enterprise architecture requires high-level central direction in order to develop timely, standardized responses to cross-project issues. To address this challenge, FedEx charters a cross-functional steering committee. The group, which is composed of VP-level representatives from FedEx Services as well as the company’s lines of business and geographies, meets biweekly. Also in attendance is the Director of Customer Experience, a FedEx services manager responsible for ensuring the consistency of customer experience across all of FedEx’s sales and service channels. The governance committee plays two key roles:

- **Cross-Project Governance**: The committee arbitrates on crosscutting issues about the customer relationship that are not resolvable within any one function and brokers cross-project data exchange and process redesign. For example, the group oversees the coordination of channel migration activities, works to establish a standard procedure for customer complaint resolution, and acts to resolve issues of customer “ownership.”

- **Reusable IT Toolkit**: Once the committee achieves consensus on an issue, IT is tasked with building reusable tools to enable the strategy across all of FedEx’s 30 planned projects. For example, IT is tasked with the creation of e-learning tools to help train customer service representatives on how to migrate customers to the Web. It is also tasked with building the functionality to track customer complaints across channels and with making FedEx’s full master account file available to all users to clarify customer “ownership” issues. FedEx believes that two such cross-project tools are particularly important but frequently overlooked—a central business case preparation utility and a definitive repository of standard CRM terminology.
A CRM Coordination Council

FedEx CRM Governance Process

Cross-functional governance committee reaches fast (hard) decisions...

...executed by CIO of customer-facing services

Cross-Functional Governance Committee Decisions

<table>
<thead>
<tr>
<th>Difficult CRM Decisions</th>
<th>Reusable IT Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeboxed Consensus</td>
<td>Executed by CIO</td>
</tr>
</tbody>
</table>

1 How can I get customers to stop using the call centers and start using the Web?

2 Who should follow up on complaints when the same customer "vents" in different channels?

3 Who owns customer data?

<table>
<thead>
<tr>
<th>1a CSR E-Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>2a Cross-Channel Complaint Resolution Work Flows</td>
</tr>
<tr>
<td>3a Full Master Account File Available to All Users</td>
</tr>
</tbody>
</table>

Source: FedEx; Working Council research.
Doubling Down on an Improved Organic Growth Proposition

The Business Case for CRM

FedEx’s standard customer-facing architecture will act as a platform for the realization of seven business case objectives, which the company estimates will yield an aggregate revenue increase equal to nearly 50 percent of the company’s annual revenue growth. These seven business case objectives span three categories of cost reduction and revenue enhancement, including:

Service Efficiency: Bottom-line cost reductions achieved by:

1. Migrating customers to Web self-service, generating $100 million in expected savings
2. Reducing call duration by five seconds per call through seamless call handling across brands, yielding an estimated $60 million in savings

Revenue Operations: A combination of cost savings and revenue growth generated by:

3. Increasing sales productivity based on an estimated one-third reduction in FedEx’s sales cycle
4. Achieving higher campaign ROI based on a forecasted increase in customer response rates to 25 percent and a 70 percent reduction in cycle time due to better-targeted marketing

Deeper Relationships: An estimated $700 million in incremental revenues driven by:

5. Higher share-of-wallet driven by increased cross-sales
6. Better price realization through targeted, strategic account pricing
7. Increased customer retention based on improved service

The effectiveness of FedEx’s standard CRM architecture is evident in the company’s fiscal Q3 2002 financial performance. FedEx increased revenues by 4 percent and net income by 11 percent versus Q3 2001, a performance the CEO credited in large part to FedEx’s sales and marketing team’s focus on “effectively cross-selling the diverse FedEx portfolio of services.” Market response to these results pushed FedEx’s P/E ratio to 29, compared to 27 for arch-rival UPS.

Profiting from a Single Face to the Customer

Although FedEx declined to share both the relative sizes of its relationship-based revenue streams and its assessment of the potential profitability of an enterprise CRM strategy, Working Council pro forma estimates based on analysis from Bain & Company and McKinsey & Company suggest that the incremental revenue earned through increasing customer retention rates translates into improved profitability. A 1 percent improvement in share-of-wallet typically leads to a 2 percent increase in net profits, while the same 1 percent increase in price realization leads to an 11 percent increase in profits. However, a 1 percent improvement in customer retention typically leads to a 17 percent increase in net profit.
Profiting from a Single Face to the Customer

Breakdown of Benefits for Project Arise

**Service Efficiency**
- **Self-Service**
  - Migrate tracking calls to Web site

**Cost Reductions**
- **Call Truncation**
  - Reduce calls by five seconds per call

$60 Million

**Revenue Operations**
- **Sales Productivity**
  - One-third reduction in sales cycle

**Campaign ROI**
- **Retention**
  - 25 percent response rates
  - 70 percent cycle-time reduction

$100 Million

**Deeper Relationships**
- **Share-of-Wallet**
  - Inbound, OutBound Shipping
- **Price Realization**
  - +2.2% profit
- **Retention**
  - +11% profit

$700 Million

Effect of 1 Percent Increase

Source: FedEx Working Council research.
 Charter and Structure of FedEx’s Enterprise Architecture Group

Company in Brief

Industry
Transportation and Logistics

Company Size
• FY2001 Revenues: $19.6 billion
• FY2001 Employees: 215,000

Dispersion of Operations
Multinational: Services in 210-plus countries

Corporate IT Budget
$961 million (2001); 7.25 percent of Gross Revenue (1999)\(^1\)

IT Staff Size
5,540\(^2\)

CIO

SVP, Engineering and Operations

Domain Architecture Council [20]

VP and Director, Design Services [50]

Manager, Process Group [5–6]

Manager, Resource Center [11–13]

Source: FedEx; Working Council research.


\(^2\) 2000 Information Week 500.
## Architecture Group Attributes and Metrics

<table>
<thead>
<tr>
<th>Architecture Group Attribute</th>
<th>FedEx</th>
</tr>
</thead>
</table>
| Funds Controlled by Central Architecture Group | • All architecture staff and processes centrally funded as corporate overhead  
• No project budget; reviews all development proposals, but funding is allocated to FedEx’s infrastructure engineering groups |
| Architecture Group Size | ≈ 85–90 staff |
| Architecture Group Composition and Roles | • Design Services Group (Approximately 50 Staff Members)—Includes three managers and managers of Process Group and Resource Center; coordinate IT requirements of lines of business  
• Domain Architecture Council (20 Staff Members)—Technical architects/subject-matter experts, seconded from FedEx’s four lines of business; explore proposed architecture elements escalated by Design Services for technical constraints  
• Resource Center (One Manager and 10–12 FTEs)—Creates reference architectures and acts as a technology R&D and testing group  
• Process Group (One Manager and Four–Five FTEs)—Creates and manages communication and visualization tools, including architecture maps |
| Reporting Structure | VP and Director of Design Services reports to Senior VP of Engineering and Operations, who reports directly to CIO |
| Frequency of Meeting | • Design Services—Daily, as projects require  
• Domain Architecture Council—Meets regularly for one to two hours, as well as monthly in one-day workshops to present findings in front of assembled Domain Architecture and Process Groups  
• Resource Center—As projects require |
| Type and Frequency of Interaction with Line | Design Services interacts daily with line of business staff to handle requirements definition |
| Date Established | 2000 |
| Charter | Applications, Infrastructure |
| Interoperability Review | Handled on an ongoing basis by Resource Center for new technologies and projects-in-process |
| Incentives for Standards Compliance | • Implicit only  
• Incentives: Rollout of centrally created standards is faster/cheaper than rollout of nonstandard technologies  
• Disincentives: Escalation of nonstandard requests to CIO |

Source: FedEx Working Council research.
Appendix I: Enterprise Architecture Metrics

To assist CIOs in steering their own enterprise IT architecture efforts, the Working Council has compiled a set of “gold-standard” architecture metrics for each stage of the self-funding enterprise architecture migration: simplification, standardization, externalization, and service personalization. Taken as a whole, these metrics represent the limits of corporate enterprise architecture achievement and describe the CIO’s ambition of creating a flexible, efficient enterprise architecture that enables next-generation business capabilities.
A Balanced Scorecard for Enterprise Architecture Migration

The compendium of metrics presented on the following page represents a collection of key performance indicators tracked by leading companies, some of which were profiled in this study.

They are designed to provide member organizations with “gold-standard” benchmarks of architecture achievement that span the major steps in the self-funding enterprise architecture ideal, including:

- **Simplification and Standardization**: Using resources freed through systems simplification and technology and process standardization to design and build a flexible, scalable, efficient, aligned architecture that serves as a backbone for future architecture efforts.

- **Externalization**: Outsourcing noncore IT work and business processes in order to focus IT resources on enabling core competencies.

- **Service Personalization and Digital Business Incubation**: Deployment of resources liberated in the earlier stages of the enterprise architecture migration to place “bets” on future growth through service personalization.
Enterprise Architecture Dashboard Metrics

How “The Best” Track Corporate IT Scalability and Service Personalization Value-Add

A flexible, scalable, efficient, aligned IT architecture...

Simplification
- Average Annual Reduction in Number of Applications: 20 Percent (IBM)
- M&E as Percentage of IT Budget: 20 Percent (IBM)
- Top Three IT Management Tiers Incented on Complexity Reduction (KeyCorp)
- “Self-Policed” Architecture Compliance of New Apps: 90 Percent (John Hancock)
- IT “Keep Lights on” Budget Growth Rate One-Third of Corporate Growth Rate

Standardization
- Time to Close Quarterly Books: 12-14 Hours (Dow)
- Day-One Network Connectivity for Mergers: 100 Percent (Dow)
- Annual Development Productivity Increase from Co-Sourcing: 10 Percent (Dow)

Externalization
- Treasury, HR Processes Delivered via Web (or Outsourced): 75 Percent
- Service-Tier Options Presented to BUs: Three-Five Tiers
- Vendor Contracts Mediated by Expert Negotiator Team: > 80 Percent
- Annual Price Reduction “Hardwired” in Vendor Contracts: 10 Percent
- Weighting of Process Innovation Suggestions in Vendor Evaluation: 20 Percent
- Real-Time SLA Performance Indicators: 40-plus (U.S. Navy)

...and IT-enabled business core competencies...

Service Personalization
- Single Invoice (FedEx)
- Single Problem Resolution Call Number (FedEx)
- Single Organizational Account Number (FedEx)
- Promotions, Service Strategy Customized to “Census-Level” Roles (FedEx)
- Reduction in Average Service Call Length: Five Seconds (FedEx)
- Personalized Promotions Response Rate: 25 Percent (FedEx)
- LDAP Directory Attributes per Employee: 25 Percent (FedEx)
- CRM-Enabled Contribution to Total Revenue Growth Target: 40 Percent (FedEx)

...enable next-generation business capabilities
Appendix II: Enterprise Architecture Visualization Tools

Over the course of the Working Council’s research, CIOs have expressed a near-universal appreciation for the difficulty of articulating the economic benefits of the relatively abstract concept of enterprise IT architecture. To that end, the Working Council has assembled the following compendium of architecture-related “visualization tools.”

The tools presented here are examples of actual documents used at major corporations to facilitate the CIO’s (often difficult) discussions surrounding enterprise IT architecture with senior business managers, CEOs, CFOs, and line IT managers. They are designed to assist CIOs in articulating both the benefits of a standard architecture and the attendant costs of poor architecture to business and IT executives alike.

Members interested in a more expansive discussion of IT visualization tools should see the Working Council’s Visualizing IT Value Creation: Tactics for Communicating IT Contributions to Corporate Strategy.

In the spirit of continuous service to its members, the Working Council has created a Web-based repository of tools for visualizing IT value creation on its Web site, www.cio.executiveboard.com, allowing members to easily incorporate them into their own presentations.

Knowing full well that members may have amassed an arsenal of visualization tools that represent dramatic improvements over those presented here, the Working Council would appreciate the opportunity to review any particularly effective tools that members have created for communicating the value of IT.
Company Background

KeyCorp, a Cleveland, Ohio–based banking and financial services firm, has 21,200 employees and revenues of $7.4 billion.

Practice Description

Tasked with communicating the need for systems simplification, enterprise architects often face a twofold challenge. Project sponsors have no insight into enterprise-wide systems interdependencies and, consequently, do not understand the IT implications of building their “pet project.” Additionally, without comprehensive mapping of applications interfaces and data flows, IT project managers and BU CIOs have to rely on “guesstimation” of resource requirements and often underappreciate the complexity required to execute project requirements.

To communicate their message to both constituencies, KeyCorp creates a “spaghetti diagram” of enterprise-wide applications interfaces, known as the Application Interface Complexity Map.

The overwhelming complexity of the visual representation is intended to “scare” business audiences into understanding the consequences of uncontrolled IT investment and the need for a coherent enterprise architecture.

The Application Interface Complexity Map also provides BU IT with a holistic view of enterprise applications as well as the number of interfaces and the time needed to maintain them.

Potential Audience

IT senior managers, business unit IT managers, business unit heads, project sponsors
Application Interface Complexity Map

Visual Representation of KeyCorp’s Systems Complexity

Illustrative

Note: Shown in excerpted format for illustrative purposes only.

Source: KeyCorp; Working Council research.
Company Background

KeyCorp, a Cleveland, Ohio–based banking and financial services firm, has 21,200 employees and revenues of $7.4 billion.

Practice Description

Realizing that business unit IT managers are infrequently exposed to the enterprise-wide diversity of vendors and technology, KeyCorp creates a three-tiered Systems Redundancy Snapshot.

Business unit IT managers often maintain a “preferred platform” and do not recognize the staffing and training implications of maintaining many different systems across the enterprise. This three-tiered chart includes the logos of manufacturers to highlight 1) existing redundancy within architecture tiers, 2) opportunities to leverage licensing and support economies of scale, and 3) possibilities for simplification.

Potential Audience

IT senior managers, business unit IT managers, business unit heads, CFOs
### Systems Redundancy Snapshot

#### KeyCorp’s Operating Systems and Platforms

<table>
<thead>
<tr>
<th>Tier 1</th>
<th>IBM MVS</th>
<th>Number of Systems</th>
<th>Number of Machines</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S/390 (4)</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier 2</th>
<th>IBM UX (36)</th>
<th>HP AS/400 (3)</th>
<th>NCR UNIX (7)</th>
<th>IBM AIX (130)</th>
<th>COMPAQ UNIX (4)</th>
<th>Number of Systems</th>
<th>Number of Machines</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9</td>
<td>2,000+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier 3</th>
<th>Microsoft DOS (3,000)</th>
<th>Microsoft WIN 3.1 (3,000)</th>
<th>Microsoft WIN 95 (12,000)</th>
<th>Number of Systems</th>
<th>Number of Machines</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td>22,500+</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier 3</th>
<th>Microsoft WIN 98 (300)</th>
<th>Microsoft NT (6,500)</th>
<th>IBM OS/2 (1,900)</th>
<th>Number of Systems</th>
<th>Number of Machines</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Note:
- Shown in excerpted format for illustrative purposes only.
- Technologies/vendors are shown for illustrative purposes only and may not be the ones actually used by profiled company.
- The Working Council does not endorse any technologies/vendors.

Source: KeyCorp; Working Council research.
Spotlighting the Benefits of Reuse

**Company Background**

KeyCorp, a Cleveland, Ohio–based banking and financial services firm, has 21,200 employees and revenues of $7.4 billion.

**Practice Description**

Challenged with communicating the benefits of enterprise architecture to budget decision makers, KeyCorp creates the reusable savings “calculator,” a tool designed to demonstrate the speed advantages conferred by a reusable component framework.

To illustrate the benefits, KeyCorp selects a representative business capability—e.g., the rollout of a PDA-accessible sales channel—as the basis for its calculations.

The calculator contrasts the time to deploy the new channel under the “as-is” architectural framework with the shorter time that would be required under the proposed “to-be” architecture, making the case for architecture migration in terms understood by both business and IT—speed-to-rollout of new capabilities.

The calculator demonstrates the potential deployment time savings across the entire IT spectrum, from security to data and information architecture.

**Potential Audience**

IT senior managers, business unit IT managers, business unit heads, project sponsors, CFOs
Reusability Savings Calculator

KeyCorp envisions new reusable, scalable architecture...

Proposed Architecture Framework

<table>
<thead>
<tr>
<th>Access Channels</th>
<th>Security</th>
<th>Applications Architecture</th>
<th>Platform and Communication</th>
<th>Data and Information Architecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Access Channels Icon]</td>
<td>![Security Icon]</td>
<td>![Applications Architecture Icon]</td>
<td>![Platform and Communication Icon]</td>
<td>![Data and Information Architecture Icon]</td>
</tr>
</tbody>
</table>

...and demonstrates benefits in terms of faster speed-to-market of new channel launch

Time to Integrate New PDA Access Channel

<table>
<thead>
<tr>
<th>Security</th>
<th>Applications</th>
<th>Infrastructure</th>
<th>Architecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;As-Is&quot; Current Framework</td>
<td>![Security Icon]</td>
<td>![Applications Icon]</td>
<td>![Infrastructure Icon]</td>
</tr>
<tr>
<td>Days to Deploy</td>
<td>72 Days</td>
<td>120 Days</td>
<td>26 Days</td>
</tr>
<tr>
<td>Days to Deploy</td>
<td>4 Days</td>
<td>15 Days</td>
<td>1 Day</td>
</tr>
<tr>
<td>&quot;To-Be&quot; Proposed Framework</td>
<td>Single Sign-On</td>
<td>Reusable Application Templates</td>
<td>Scalable Infrastructure</td>
</tr>
<tr>
<td>Days to Deploy</td>
<td>68 Days</td>
<td>105 Days</td>
<td>25 Days</td>
</tr>
</tbody>
</table>

Source: KeyCorp; Working Council research.
Creating a Heightened State of Awareness

Company Background

Las Vegas–based Harrah’s Entertainment is the third-largest gaming company in the world, with 42,000 employees and revenues of $3.7 billion.

Practice Description

Recognizing that business cases created by business unit staff typically reflect only “go-live” development and rollout costs and do not account for ongoing operating and retirement expenses, Harrah’s tasks a “Total Costs of Operation” Demonstrator with making BUs aware of depreciation charges, prerequisites for infrastructure upgrades, training costs, and maintenance and support charges. The TCO forecasting horizon is 3, 5, 7 or 10 years, depending on the expected useful life of a project.

The tool enables accurate forecasting of project TCO, allowing the IT function to provide business units with estimates of the ongoing expenses they will have to cover, including:

- **IT and BU Training Costs**: Reskilling expenses for IT staff and end users
- **Infrastructure Upgrades**: Expected initial and ongoing network and server costs related to increased traffic demands
- **Depreciation and Amortization Expenses**: Year-over-year decrease in system value
- **Maintenance and Support Expenses**: Life-cycle costs for maintaining software and hardware and providing ongoing user support

TCO Assumptions Database: To inform TCO assumptions, Harrah’s maintains a repository of cost estimates and actual TCO costs for 30 major IT projects. The database is maintained by two IT financial analysts who audit projects for business case realization. By using historical data to inform TCO assumptions for new projects, this database enables TCO forecasting of +/- 5 percent accuracy for 60 percent of projects, +/- 10 percent accuracy for 30 percent of projects, and +/- 15 percent accuracy for 10 percent of projects.

Potential Audience

Business unit CIOs, project sponsors, business unit heads
Illustrating the Self-Funding IT Architecture Migration

Company Background

Cisco Systems Inc., the San Jose, California–based networking devices maker, has 38,000 employees and revenues of $22.3 billion.

Practice Description

A common flaw of full-cost-recovery IT chargeback schemes is that they tend to group costs into broad budgetary categories—e.g., staff, hardware, software—rather than by activity or strategic importance. Mandatory IT spending thus becomes indistinguishable from discretionary spending on strategic priorities. This problem often feeds misperceptions of “ballooning” IT budgets and obscures the function’s more strategic roles.

In order to better align IT with the business, Cisco develops a three-tiered IT investment model. The model divides IT spending between mandatory and discretionary, and between infrastructure and strategic projects. All discretionary projects are 100 percent funded by the business units, ensuring their responsibility for identification, cost justification, sponsorship, and prioritization to meet their strategic needs.

Cisco’s IT Portfolio Migration Map helps convey the separation of these areas of spending. The map demonstrates how savings from mandatory infrastructure—resulting from operational efficiencies and Moore’s Law—derived reductions in the cost of computing equipment—are redirected toward more strategic, discretionary projects.

• Mandatory Infrastructure (36 Percent of IT Budget): Eighteen percent of infrastructure costs (data center, network, ERP) are funded directly by Cisco G&A. Remaining infrastructure costs (PCs, help desk, LAN/WAN) are allocated to the BUs based on the budgeted headcount for the year.

• Discretionary Infrastructure (23 Percent of IT Budget): These include client-funded infrastructure upgrades related to new capabilities requested by the business units, e.g., implementation of a VPN, DSL, and BU-requested WAN.

• Discretionary Applications (41 Percent of IT Budget): All discretionary projects are funded by the business units based on their own requirements and business cases. Business leaders see separate charges for each project and can monitor actual costs against predicted estimates.

CIO Pete Solvik estimates that by carefully distinguishing between mandatory and discretionary IT spending, Cisco has saved millions of dollars in IT costs and has improved customer satisfaction: “Our IT investment model is one of the key shifts that has made IT successful.”

Potential Audience

Business unit heads, business unit CIOs, project sponsors, IT senior managers
IT Portfolio Migration Map

Composition of Cisco Systems’ IT Expense Budget
Discretionary Versus Mandatory Expense Breakdown

As Percentage of Total IT Spend

41% BU-Funded Functionality

23% BU-Funded Investments for Discretionary Functionality

36% “Keep the Lights on” Expenses


Moore’s Law-driven savings redeployed to fund next-generation e-business capabilities

41% BU-Funded Functionality

Data Center

Corporate Network

Enterprise Applications

Help Desk

PCs

CRM

Wireless

BU Portal

BM-Specific WAN

Discretionary Infrastructure

Discretionary Applications

CRM

Portal

Laying the Foundation for Business Process Enablement

Company Background

Sabre, the Dallas-based travel reservation firm, has 6,000 employees and revenues of $2.1 billion.

Practice Description

To avoid underleveraged investments, Sabre aggregates IT projects from multiple business units into common business process “clusters” known as framework segments. This structure ensures that discrete projects adhere to enterprise-wide architecture standards and allows Sabre to avoid identical, overlapping initiatives. The framework segments also separate external, revenue-impacting functions from mandatory internal support, thus guiding resource allocation to functions that provide the highest business value.

• Division of Internal Versus Customer-Facing Systems: Distinguishes between internal support functions and external, customer-focused functions.

• Common-Purpose Systems Identification: Highlights opportunities to coordinate underleveraged applications across the organization. Sabre credits the “cluster” framework with contributing to optimization of their SAP ERP application suite across multiple departments.

• Enterprise Wide Work-Flow Optimization: Develops foundation for common application standards and uniform processes.

Potential Audience

IT senior managers, business unit heads, business unit IT managers, project sponsors, project managers
Application Portfolio Clusters

Business and Corporate Administration
- Productivity and office automation
- Corporate communications
- Messaging
- Web portals
- Corporate services

Demand and Delivery Management
- Demand tracking and forecasting
- Prioritization
- Resource management
- Program/project management
- Time tracking

Customer Relationship Management
- Marketing and advertising
- Sales management and sales force automation
- Customer care

Revenue Cycle Management
- Pricing
- Usage management
- Invoice management

Internal Support Functions

Revenue-Impacting Functions

Enterprise Resource Planning
- Accounting
- Finance
- Human resources
- Inventory/warehouse management
- Procurement

Infrastructure Resource Planning
- Order management
- Asset management
- Change management
- Problem management
- Workforce management
- Facility management

Enterprise Information Management
- Data warehousing
- Document management
- Enterprise application integration
- Imaging
- Knowledge management
- Reporting
- Decision support

Source: Sabre; Working Council research.
Linking Applications Architecture to Business Capabilities

Company Background

John Hancock Financial Services, a Boston-based insurance and financial services firm, has more than 8,400 employees and revenues of $9.1 billion.

Practice Description

To overcome the historical disconnect between corporate strategy and IT architecture evolution, John Hancock’s application architecture group creates and maintains a “capabilities framework” as a business input for the “to-be” architecture mapping process.

Central to John Hancock’s application architecture approach is the link between IT architecture and corporate strategic direction—architecture reviews are forward-integrated in the company’s annual corporate strategic planning cycle.

The primary vehicle for this alignment between corporate and IT strategy is the capabilities framework—a matrix of business processes and associated strategies that supports Hancock’s main corporate processes across the sales and service life cycle.

Hancock uses the capabilities framework as a guide to create its “target” applications architecture, ensuring that IT spending reflects (and will enable) the business’s strategic direction.

Potential Audience

Senior business executives, IT senior managers, enterprise architecture groups
**Business Capabilities Framework**

*John Hancock translates corporate strategic goals into a business process framework...*

John Hancock’s Retail Business Capabilities Framework

<table>
<thead>
<tr>
<th>Relationship Initiation</th>
<th>Relationship Management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Distribution Implementation</strong></td>
<td><strong>Sales and New Business Servicing</strong></td>
</tr>
<tr>
<td>• Sell and issue new accounts and products</td>
<td>• Initial administration entry</td>
</tr>
<tr>
<td>• Initiation</td>
<td>• Underwriting</td>
</tr>
<tr>
<td>• Data capture</td>
<td>• License validation</td>
</tr>
<tr>
<td>• Status</td>
<td>• Issue/confirm</td>
</tr>
<tr>
<td><strong>Existing Business Servicing</strong></td>
<td><strong>Existing Distribution Servicing</strong></td>
</tr>
<tr>
<td><strong>Expansion</strong></td>
<td><strong>Post-Issue Processing</strong></td>
</tr>
<tr>
<td><strong>Compensation and Commissions Management</strong></td>
<td><strong>Asset Management</strong></td>
</tr>
</tbody>
</table>

...and develops a “target” IT architecture for each process

Sales and New Business Processes—Target Logical Systems Architecture

Source: John Hancock; Working Council research.
Company Background

John Hancock Financial Services, a Boston-based insurance and financial services firm, has more than 8,400 employees and revenues of $9.1 billion.

Practice Description

To avoid the application portfolio “drift” created by the absence of decision criteria for systems retirement and IT investment prioritization, John Hancock plots a “target” application architecture for each major business area and then develops specific systems retirement and investment plans that facilitate the migration to the target architecture.

Formulating a Migration Plan

Using the business-driven target architecture blueprint as a guide, the architecture group translates the corporate strategy into a systems-level IT strategy along two vectors:

- **Systems Retirement and Consolidation “Road Map”:** Guidelines for the reduction of existing complexity via consolidation of redundant systems or retirement of obsolete technologies.
- **Prioritization of New Development:** Rankings of new applications development ensure coordinated build-out of “to-be” architecture vision with available resources.

Potential Audience

IT senior managers, business unit heads, business unit IT managers, project sponsors, project managers
Application Portfolio Alignment Tool Kit

Guided by “target” architecture, John Hancock plots a systems simplification “road map” for existing portfolio...

Sales and New Business—Target Logical Systems Architecture

Systems Simplification Road Map, Sales and New Business Servicing

<table>
<thead>
<tr>
<th>Current Systems</th>
<th>Within 12 Months</th>
<th>Within 24 Months</th>
<th>Target Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Customized Care Term Application • NB Workbench</td>
<td>• NB Workbench Extended to Customer Web • STAR Upgraded with Enhanced Rules Engine • NSCC and New Business Exchange Standards</td>
<td>• NB Workbench Extended to Extranets • All New Business Feeds Managed Through Single Batch Interface System</td>
<td>• NB Workbench Extended to Consumer Web and Extranet Platforms • Batch and Real-Time Interface System Integrated with Rules Engine</td>
</tr>
<tr>
<td>• STAR • ELUS • Product Base Issue Systems</td>
<td>• Additional Proprietary Feeds</td>
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<td>• NB Feed</td>
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</tbody>
</table>

... and an investment plan to coordinate new systems development

IT Project Portfolio Investment Plan, Sales and New Business Servicing Division

Distribution Implementation
• Bank Implementation
• LARS
• LTC Partnerships

New Business Servicing
• New Business Data Capture
• Direct Brokerage Case Management

Existing Business Servicing
• AAA
• CHIPS
• SFN Extranet
• Bank Extranet Enhancements
• Mgroup Service Enhancements
• LTC Processing
• Vantage Data Center Move
• Vantage Valuations Interface

Product Development and Management
• Annuity New Product Development
• Life Product Development

New Business Processing
• LUS Version 7 Solaris

Commissions/Compensation
• Direct Brokerage Compensation

Note: Technologies listed may not be the ones used by profiled company.

Source: John Hancock; Working Council research.
Company Background

Corning Inc., the Corning, N.Y.–based diversified manufacturer, has 31,700 employees and revenues of $6.3 billion.

Practice Description

Some corporations maintain enterprise architecture plans that outline “to-be” end-state technology standards. However, these standards often come without a “how-to” road map or timeline for technology transition. To provide business units with a clear migratory path toward corporate architecture goals, Corning creates an Enterprise Standards Migration Road Map listing the vendor/technology, version, and timeline for transitional standards.

• Business Process Focus: Includes comprehensive road maps for each of Corning’s 18 major business processes, e.g., customer service, procurement, and research.

• Current Technology Inventory: Lists vendors and technologies (and versions) in present use.

• Transitional Technologies: Outlines preferred technologies and versions that business units are encouraged to adopt as they move toward end-state standards, as well as suggested timelines for adoption.

• End-State Standards: Details end-state technology standards slated for 2002 and beyond.

Potential Audience

IT senior managers, business unit IT managers, project sponsors, project managers
## Enterprise Standards Migration Road Map

### Corning’s Enterprise Standards Migration Plan

#### Current Versus Future

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<tr>
<td><strong>Marketing</strong></td>
<td>• MS/Office NT&lt;br&gt;• Homegrown (VB)/CMIS</td>
<td>• MS/Office NT&lt;br&gt;• Homegrown (VB)/CMIS</td>
<td>• MS/Office NT&lt;br&gt;• Homegrown (VB)/CMIS</td>
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<td>• MS/Office NT&lt;br&gt;• Homegrown (VB)/CMIS, DOL</td>
<td>• MS/Office NT&lt;br&gt;• Homegrown (VB)/CMIS, DOL, PS Customer Portal, ACT!</td>
<td>• MS/Office NT&lt;br&gt;• Homegrown (VB)/CMIS, DOL, PS Customer Portal, ACT!</td>
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<td>• PeopleSoft OM 7.5, Oracle&lt;br&gt;• Homegrown (VB)/CMIS, DOL</td>
<td>• PeopleSoft OM 8.0, Oracle&lt;br&gt;• Homegrown (VB)/CMIS, DOL</td>
<td>• PeopleSoft OM 9.0, Oracle&lt;br&gt;• Homegrown (VB)/CMIS, DOL</td>
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<td>• PeopleSoft 7.5, MS, Homegrown (VB)&lt;br&gt;• DOL (not OC)</td>
<td>• PeopleSoft 8.0, MS&lt;br&gt;• DOL (not OC)</td>
<td>• PeopleSoft 9.0&lt;br&gt;• DOL (OC)</td>
</tr>
<tr>
<td><strong>Supply Chain Execution</strong></td>
<td>• PeopleSoft 7.5, HighJumpSoftware&lt;br&gt;• DCA</td>
<td>• PeopleSoft 8.0, HighJumpSoftware&lt;br&gt;• DCA</td>
<td>• PeopleSoft 9.0, HighJumpSoftware&lt;br&gt;• DCA</td>
</tr>
<tr>
<td><strong>Procurement</strong></td>
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<td>• PeopleSoft 8.0, eProcurement, Workflow&lt;br&gt;• Oracle</td>
<td>• PeopleSoft 9.0, eProcurement, Workflow&lt;br&gt;• Oracle</td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td>• Homegrown/BB Net (Delphi), EPOS (PMH)&lt;br&gt;• NT</td>
<td>• Homegrown/BB Net (Delphi), EPOS (PMH)&lt;br&gt;• NT, Windows 2000</td>
<td>• Homegrown/BB Net (Delphi), EPOS (PMH), Tabware&lt;br&gt;• NT, Windows 2000</td>
</tr>
<tr>
<td><strong>Research</strong></td>
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<td>• MS Office/NT&lt;br&gt;• Visio</td>
<td>• MS Office/NT&lt;br&gt;• Visio</td>
</tr>
<tr>
<td><strong>Development</strong></td>
<td>• PTC, Homegrown (VB)&lt;br&gt;• Pro E, Drawings Online</td>
<td>• PTC, Homegrown (VB), Microsoft&lt;br&gt;• Pro E, Drawings Online, Exchange, Windchill</td>
<td>• PTC, Microsoft&lt;br&gt;• Pro E, Drawings Online, Exchange, Windchill</td>
</tr>
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</table>

**Note:**
- Corning has developed standards for each of its 18 major business process categories across its four main customer segments
- Here we reproduce a simplified subset for illustrative purposes only
- Technologies listed may not be the ones used by the profiled company

Source: Corning Incorporated; Working Council research.
With Sincere Appreciation

Special Thanks

The Working Council for Chief Information Officers would like to express its gratitude to those individuals and organizations that have been so generous with their time and expertise throughout the preparation of this study.

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The U.S. Department of the Navy

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- Anthem Insurance Companies, Inc.
- Apple Computer, Inc.
- ATCO Ltd.
- BP plc
- Capital One Financial Corporation
- Chevron Corporation
- Colgate-Palmolive Company
- Corning Incorporated
- Covance Inc.
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- Xilinx, Inc.
This book is part of a broader series stemming from the Working Council’s 2001 executive retreats titled ‘Realizing the IT Simplification Dividend,’ which focused on practices for managing the corporate IT function during an economic downturn. Facing budget slowdowns for the first time in a decade, many CIOs have adopted a reductionist agenda for 2001, paring back IT operational spending and reprioritizing discretionary projects to yield more rapid payback. Partially retaining these savings, CIOs are searching for a handful of truly strategic initiatives and pursuing enterprise architecture migrations that will create streamlined, standardized enterprise architectures designed to serve as the platform for future IT-enabled business strategies.

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• In-person, on-site presentation by one of the Working Council’s senior researchers to either you or to a group of your staff or peers.

• Teleconference with a senior member of the Working Council’s research staff.


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- Applications development and maintenance savings
- Vendor management streamlining
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- Gold-standard metrics for IT operations

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An Emerging Compact Between Corporate IT and the Line
- The business case for enterprise portals
- Best-in-class enterprise portal functionality
- Roles of the corporate IT center in enterprise portal deployment
- Portal vendor contacts
- Appendix of metadata categories and a glossary of terms

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- Governance, planning, and chargeback tactics for advancing standards in decentralized organizations
- Case profiles of IT standards implementation at leading corporations

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- Expanding planning inputs and educating business decision makers
- Tools for objective portfolio alignment and project reprioritization
- “Marketing” IT strategy objectives to the line

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