Notebook - Enterprise Architecture As Strategy

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Page 4 | Highlight

what smart and profitable companies did differently.

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made a commitment to a way of operating, and they were using IT to digitize that commitment.

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traditional IT architecture efforts for their remoteness from the reality of the business and their heavy reliance on mind-numbing detail represented in charts that look more like circuit diagrams than business descriptions

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enterprise architecture, the organizing logic for core business processes and IT infrastructure reflecting the standardization and integration of a company's operating model.

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enterprise architecture boils down to these two concepts: business process integration and business process standardization. In short, enterprise architecture is not an IT issue—it's a business issue.

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the top-performing firms create a stable base—they digitize their core processes and embed those processes into a foundation for execution.

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Top-performing companies define how they will do business (an operating model) and design the

> processes and infrastructure critical to their current and future operations (enterprise architecture), which guide the evolution of their foundation for execution.

Page 17 | Note

First build your foundation → also useful for Grounded Architer book...

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> To Execute Your Strategy,
>
> First Build Your Foundation

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> We believe these companies execute better because they have a better foundation for execution. They have embedded technology in their processes so that they can efficiently and reliably execute the core operations of the company. These companies have made tough decisions about what operations they must execute well, and they've implemented the IT systems they need to digitize those operations. These actions have made IT an asset rather than a liability and have created a foundation for business agility.

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higher profitability, experience a faster time to market, and get more value from their IT investments.3 They have better access to shared customer data, lower risk of mission-critical systems failures, and 80 percent higher senior management satisfaction with technology.

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The foundation for execution digitizes these routine processes to provide reliability and predictability in processes that must go right. The best companies go beyond routine processes and digitize capabilities that distinguish them from their competitors.

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In short, a foundation for execution is the IT infrastructure and digitized business processes automating a company's core capabilities.

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a company's foundation for execution evolves—usually beginning with a few basic infrastructure services (e.g., employee hiring and recruiting, purchasing, desktop support, and telecommunications), then encompassing basic transaction processes (sales, accounts payable), and eventually including unique and distinguishing business capabilities. Building a foundation doesn't focus only on competitively distinctive capabilities—it also requires rationalizing and digitizing the mundane, everyday processes that a company has to get right to stay in business.

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digitizing core business processes makes the individual processes less flexible while making a company more agile. To return to the human analogy, a great athlete will have muscles, reflexes, and skills that are not easily changed.

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An effective foundation for execution depends on tight alignment between business objectives and IT capabilities. Toward that end, most companies put in business processes and IT systems using a fairly straightforward logic. First, management defines a strategic direction; then the IT unit, ideally in conjunction with business management, designs a set of IT-enabled solutions to support the initiative; and, finally, the IT unit delivers the applications, data, and technology infrastructure to

implement the solutions. The process starts over each time management defines another strategic initiative. This process goes wrong in at least three ways. First, the strategy isn't always clear enough to act upon. General statements about the importance of "leveraging synergies" or "getting close to the customer" are difficult to implement. So the company builds IT solutions rather than IT capabilities. Second, even if the strategy is clear enough to act upon, the company implements it in a piecemeal, sequential process. Each strategic initiative results in a separate IT solution, each implemented on a different technology. Third, because IT is always reacting to the latest strategic initiative, IT is always a bottleneck. IT never becomes an asset shaping future strategic opportunities.

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the combined effect of traditional approaches to IT development—a set of silos. Individually, the applications work fine. Together, they hinder companies' efforts to coordinate customer, supplier, and employee processes—they do not form a foundation for execution.

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80 percent of his company's programming code was dedicated to linking disparate systems, as opposed to creating new capabilities.

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The foundation for execution results from carefully selecting which processes and IT systems to standardize and integrate.

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Eventually routine business activities—just like bicycle riding—become automatic. Outcomes become predictable. The foundation for execution takes on another layer. A company's identity becomes clearer, and executives can focus their attention on the future

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Operating model.–The operating model is the necessary level of business process integration and standardization for delivering goods and services to customers.

process integration across their business units (i.e., the extent to which business units share data). Integration enables end-to-end processing and a single face to the customer, but it forces a common understanding of data across diverse business units.

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decide on the appropriate level of business process standardization

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Enterprise architecture.–The enterprise architecture is the organizing logic for business processes and IT infrastructure, reflecting the integration and standardization requirements of the company's operating model. The enterprise architecture provides a long-term view of a company's processes, systems, and technologies so that individual projects can build capabilities—not just fulfill immediate needs.

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IT engagement model.–The IT engagement model is the system of governance mechanisms that ensure business and IT projects achieve both local and companywide objectives. The IT engagement model influences project decisions so that individual solutions are guided by the enterprise architecture. The engagement model provides for alignment between the IT and business objectives of projects, and coordinates the IT and business process decisions made at multiple organizational levels (e.g., companywide, business unit, project). To do so, the model establishes linkages between senior-level IT decisions, such as project prioritization and companywide process design, and project-level implementation decisions.

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As with the investment bank whose systems were so complex that it was a miracle they worked, legacy systems cobbled together to respond to each new business initiative create rigidity and excessive costs.

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This inflexibility was not the result of a digitized foundation for execution. It was the result of systems so complex that any change required individually rewiring systems to all the other systems

they connect to. Developing and testing new capabilities in such a complex environment is time consuming, and every change becomes a risky, expensive adventure.

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As more competitors aggressively pursue reuse of standard processes and systems across their product lines, services, or business units, the inefficiencies of non-value-added variations create strategic disadvantages.

Page 30 | Note

Non value-added variation

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if they digitize what is not changing, they can focus on what is changing. In this way the foundation for execution becomes a foundation for agility.

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Companies may not be able to anticipate new regulations, but they can increase the likelihood that needed data is readily available or can easily be accumulated.

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a single package database. The CIO did not want multiple package databases, which would risk the integrity of the data.

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strict rules about architectural standards,

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four core processes:

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package delivery, product development, customer relationship management, and customer information management.

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called for standardization of common processes.

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Four different types of operating models are described: Unification, Coordination, Replication, and Diversification.

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we introduce the second discipline for creating the foundation for execution: the enterprise architecture. The key elements—digitized business processes, IT infrastructure, shared data, and customer interfaces—are identified and linked in the enterprise architecture.

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the four stages of enterprise architecture maturity: Business Silos, Standardized Technology, Optimized Core, and Business Modularity.

outsourcing success is far from guaranteed.

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use the operating model and enterprise architecture to determine what and when to outsource.

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different types of outsourcing—strategic partnerships, cosourcing alliances, and transaction relationships.

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architectural challenges created by acquisitions.

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"Leadership is a potent combination of strategy and character. But if you must be without one, be without the strategy."

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To best support a company's strategy, we recommend that the company define an operating model. An operating model is the necessary level of business process integration and standardization for delivering goods and services to customers. An operating model describes how a company wants to thrive and grow. By providing a more stable and actionable view of the company than strategy, the operating model drives the design of the foundation for execution.

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the operating model is a choice about what strategies are going to be supported.

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A company without a clear operating model brings no automated, preexisting, low-cost capabilities

to a new strategic pursuit. Instead, with each new strategic initiative the company must effectively begin anew to identify its key capabilities.

Page 47 | Note

the result of standardization is a reduction in variability

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An operating model has two dimensions: business process standardization and integration.

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Standardization of business processes and related systems means defining exactly how a process will be executed regardless of who is performing the process or where it is completed. Process standardization delivers efficiency and predictability across the company. For example, using a standard process for selling products or buying supplies allows the activities of different business units to be measured, compared, and improved. The result of standardization—a reduction in variability—can be dramatic increases in throughput and efficiency.

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In exchange for increased predictability, standardized processes necessarily limit local innovation.

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Integration links the efforts of organizational units through shared data. This sharing of data can be between processes to enable end-to-end transaction processing, or across processes to allow the company to present a single face to customers.

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The benefits of integration include increased efficiency, coordination, transparency, and agility.

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The four general types of operating models are: Diversification (low standardization, low integration) Coordination (low standardization, high integration) Replication (high standardization, low integration) Unification (high standardization, high integration)

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To decide which quadrant your company (or business unit) belongs in, ask yourself two questions: To what extent is the successful completion of one business unit's transactions dependent on the availability, accuracy, and timeliness of other business units' data? To what extent does the company benefit by having business units run their operations in the same way?

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The first question determines your integration requirements; the second, your standardization requirements.

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Diversification applies to companies whose business units have few common customers, suppliers, or ways of doing business. Business units in diversified companies offer different products and services to different customers, so central management exercises limited control over those business units

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The organizing logic for Diversification companies is based on synergies from related, but not

integrated, business units.

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Coordination calls for high levels of integration but little standardization of processes. Business units in a Coordination company share one or more of the following: customers, products, suppliers, and partners. The benefits of integration can include integrated customer service, cross-selling, and transparency across supply chain processes. While key business processes are integrated, however, business units have unique operations, often demanding unique capabilities.

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For companies with a Coordination model, low cost is usually not the primary driver in companywide decisions. Autonomous business heads execute their processes in the most efficient manner possible, but corporate directives and negotiations focus on providing the best service to the customer. Strong central management defines the need for cooperation. Successful companies rely on incentive systems and management training to encourage companywide thinking at the business unit level.

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GPC's operating model, therefore, coordinates services to its customers by providing integrated access to products across customers and integrated access to customer data across products and channels.

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most companies in the Coordination quadrant can grow by extending their reach to defined customer segments in new markets.

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By integrating, but not standardizing, product lines or functions, the Coordination model fosters process expertise while enhancing customer service.

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Replication models grant autonomy to business units but run operations in a highly standardized fashion. In a Replication model the company's success is dependent on efficient, repeatable business processes rather than on shared customer relationships. The business units are not dependent on one another's transactions or data; the success of the company as a whole is dependent on global innovation and the efficiency of all business units implementing a set of standardized business processes. Accordingly, business unit managers have limited discretion over business process design, even though they operate independently of other business units. McDonald's, like other franchise operations, provides a clear reference point for a Replication model.

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When organizational units are tightly integrated around a standardized set of processes, companies benefit from a Unification model. Companies applying this model find little benefit in business unit autonomy. They maximize efficiencies and customer services by presenting integrated data and driving variability out of business processes.

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Unification companies typically have integrated supply chains, creating interdependence between distributed business units. These business units share transaction data, often including global customer and supplier data. Standardized processes support global integration and increase efficiency. The Unification operating model often benefits from implementation of large packaged systems to support company standardization and integration requirements.

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Since minimizing variation is key to driving efficiencies, Unification is best suited to companies whose products and services are largely commodities.

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An operating model represents a general vision of how a company will enable and execute strategies. Each operating model presents different opportunities and challenges for growth. For example, the need to integrate business processes, as in Coordination and Unification operating models, makes acquisition more challenging because the new company must reconcile disparate data definitions. On the other hand, the process integration of the Coordination and Unification

models facilitates organic growth through expansion into new markets or extensions of current product lines.

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Process standardization, as in Unification and Replication models, enables growth through a rip-and-replace approach to acquisitions. When the acquisition is intended to create a mirror image, a company can replace the systems and processes of the acquired business with its own. But both the Unification and Replication models depend on leveraging processes already in place. Neither model offers much leverage when a company chooses to expand into synergistic, but operationally distinct, lines of business.

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The Diversification model imposes fewer constraints on the organic growth of individual business units and fewer challenges in an acquisition. But it also leverages fewer capabilities than the other models, thus offering fewer opportunities to create shareholder value. Figure 2-3 summarizes the growth opportunities presented by each of the operating models.

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Although most companies can identify processes fitting every operating model, they need to select a single operating model to guide management thinking and system implementations. Management can then organize responsibilities for business units and IT based on principles about how the company will operate most of the time.

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Shifting from one operating model to another is transformational. A transformation disrupts a company, imposing new ways of thinking and behaving.

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The company didn't need to adopt a new strategy—it was still delivering the same products to the same customers. The change in operating model was designed to help it deliver products and services faster, better, and more efficiently.

Focusing on the operating model rather than on individual business strategies gives a company better guidance for developing IT and business process capabilities.

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Without a clear operating model, management careens from one market opportunity to the next, unable to leverage reusable capabilities.

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Companies looking to build a strong foundation for execution need more detail than the operating model provides—they need an enterprise architecture to guide their efforts.

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The operating model outlines, in general terms, the expectations for integration and standardization across business units; the enterprise architecture delineates the key processes, systems, and data composing the core of a company's operations. Enterprise architecture directs the digitization of the foundation for execution.

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how to make enterprise architecture a powerful management tool for aligning business and technology initiatives throughout a company.

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Enterprise architecture is the organizing logic for business processes and IT infrastructure reflecting the integration and standardization requirements of the company's operating model. Many companies attack the enterprise architecture exercise with lots of drawings and analysis of both existing and hoped-for systems capabilities. But massive analytical efforts do not focus resources on what matters. The key to effective enterprise architecture is to identify the processes, data, technologies, and customer interfaces that take the operating model from vision to reality.

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The enterprise architecture core diagrams we describe in this chapter are focused on communicating the high-level business process and IT requirements of a company's operating model. They do not provide the necessary detail to map out technical or process design requirements. The IT unit typically addresses four levels of architecture below the enterprise architecture: business process architecture (the activities or tasks composing major business processes identified by the business process owners); data or information architecture (shared data definitions); applications architecture (individual applications and their interfaces); and technology architecture (infrastructure services and the technology standards they are built on).

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For the most part, non-IT people need not be involved in the development of the detailed technical and applications architectures guiding development of technical capabilities. However, they need to provide enough detail on how they will execute processes, and what data those processes depend on, for the IT unit to develop current solutions meeting long-term needs. A high-level enterprise architecture creates shared understanding of how a company will operate, but the convergence of people, process, and technology necessary to implement that architecture demands shared understanding of processes and data at a more detailed level.

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enterprise architecture is often represented in principles, policies, and technology choices.

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We have found that a simple picture, which we refer to as the "core diagram," helps managers debate and eventually come to understand their company's enterprise architecture.

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four common elements in enterprise architecture core diagrams:

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Core business processes.–This small set of enterprise processes defines the stable set of company-wide capabilities the company needs to execute its operating model and respond to market opportunities. Shared data driving core processes.–This data may be the customer files shared

across the product lines of a full-service financial services institution or the master supplier and item data shared across the business units of a company instituting a global supply chain. Key linking and automation technologies.–These technologies include software known as "middleware" (i.e., a linking technology), which enables integration of applications and access to shared data, and major software packages, such as ERP systems (i.e., an automation technology). Key technologies also include portals providing standardized access to systems and data or a customer interface distinguishing a company from its competitors. Electronic interfaces to key stakeholder groups (employees, customers, partners, suppliers) also might appear on an enterprise architecture core diagram. Key customers.–These show the major customer groups (e.g., channels or segments) served by the foundation for execution.

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The Diversification operating model is the opposite of the Unification model and entails both low integration and low standardization.

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captured cost savings and synergies with a world-class shared services capability,

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Carlson's Shared Services organization is set up to operate as a business, offering IT and financial services with plans to offer more.

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technical infrastructure services should be shared while business units retain control over local business processes and IT applications.

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companies adopting the Diversification operating model establish economies of scale through a shared technology platform.

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data centers, the telecommunications network, offshore systems development and maintenance capability, centralized vendor negotiations, and help desks.

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The Coordination model provides integrated service to each key customer group. The integration results from sharing key data across the business units to present a common face to the customer.

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integrate untold numbers of products or processes without forcing standardization.

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a Coordination model. This integrated view of the customer required extracting customer information from individual products and making it centrally available.

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an integration hub—

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ING DIRECT's country-based businesses operate autonomously, but they share a common set of standardized business solutions as well as standardized technical infrastructure components.

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Country managers can decide which modules they would like to adopt, but they cannot introduce customized local solutions for key components

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The core diagram shows no data because the nine country-based banks do not share data (each

bank serves its own customers—regardless of where they are at the time they seek service). Instead, the core diagram highlights the key process components, which management refers to as "services."

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the enterprise architecture process should start with senior management debating the operating model.

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Choosing an operating model forces a decision on a general vision. Identifying the key customer types, core processes, shared data, and technologies to be standardized and integrated demands a commitment to a particular course of action.

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once the core is in place, it is difficult to change the way the company does business.

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We have seen two successful strategies to involve senior executives: IT-facilitated senior management discussions and senior management approval of IT-led designs.

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the management team at Delta Air Lines required sixty iterations to complete the drawing of its core diagram.

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The inclination of some management teams is to include too many processes or too much detail in the enterprise architecture core diagram. Agreeing on what not to include can be a challenging but fruitful exercise in management focus. Intense management debate can expose options for the foundation for execution. The enterprise architecture design exercise forces clarification of a workable vision.

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Management needs to redesign and then implement new systems, processes, and IT infrastructure without sabotaging daily operations.

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We label this pattern the "four stages of architecture maturity."3 The four stages are: Business Silos architecture:–where companies look to maximize individual business unit needs or functional needs Standardized Technology architecture:–providing IT efficiencies through technology standardization and, in most cases, increased centralization of technology management

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Optimized Core architecture:–which provides companywide data and process standardization as appropriate for the operating model Business Modularity architecture:–where companies manage and reuse loosely coupled IT-enabled business process components to preserve global standards while enabling local differences

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In the Business Silos stage, companies focus their IT investments on delivering solutions for local business problems and opportunities. These companies may take advantage of opportunities for shared infrastructure services like a data center, but such shared services accommodate the unique needs of the local business units. Companies in this stage do not rely on an established set of technology standards.

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The architecture imposes no constraints on business units' activities, thereby encouraging innovation. Strategic initiatives can be executed with few, if any, constraints from other parts of the business.

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New investment products are most profitable when they are first introduced (i.e., until competitors introduce a similar product). Thus, time to market is critically important in investment banking—each day a new product is on the market without a competing product can mean millions of dollars

to the innovating company.

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These one-off solutions, however, create a legacy of systems that cannot talk to each other.

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In the Standardized Technology stage, companies shift some of their IT investments from local applications to shared infrastructure (figure 4-1). In this stage, companies establish technology standards intended to decrease the number of platforms they manage. Fewer platforms mean lower cost. In our study, Standardized Technology companies had IT budgets that were 15 percent lower than Business Silos companies.4 But fewer platforms also mean fewer choices for IT solutions. Companies are increasingly willing to accept this trade-off. Forty-eight percent of companies in our study were in the Standardized Technology stage.

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Early in this stage, most business unit managers and developers cling to the belief that business needs should drive technology. The initial encounter with technology standards is the first time management allows IT to shape business solutions.

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Soon business managers see that standardization reduces risk, and the costs of shared services (such as support, maintenance, and purchasing) and reliability, security, and development time improves.

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reduce the number of software products performing similar functions.

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Companies in this second stage usually increase access to shared data by introducing data warehouses, but transaction data is still embedded in individual applications.

In the Optimized Core stage, companies move from a local view of data and applications to an enterprise view. IT staff eliminate data redundancy by extracting transaction data from individual applications and making it accessible to all appropriate processes. In this stage companies are also developing interfaces to critical corporate data and, if appropriate, standardizing business processes and IT applications. Thus, IT investments shift from local applications and shared infrastructure to enterprise systems and shared data

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by building reusable data and business process platforms.

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The Business Modularity architecture enables strategic agility through customized or reusable modules. These modules extend the essence of the business built into the infrastructure in the Optimized Core stage. Few companies have reached the Business Modularity stage—6 percent in our study—so it is difficult to assess how IT investment patterns change as companies move from the third to the fourth stage (figure 4-1).

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grant business unit managers greater discretion in the design of front-end processes, which they can individually build or buy as modules connecting to core data and back-end processes. In effect, managers get the freedom to bolt functionality onto the Optimized Core.
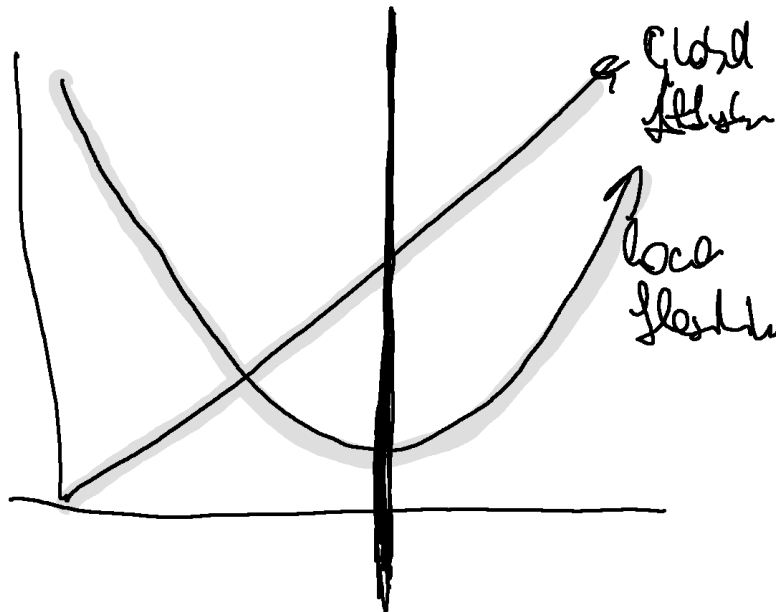
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Modularity does not reduce the need for standardization. Individual process modules build on the standard core and link to other internal and external processes through standardized interfaces.

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As companies migrate through the architecture stages, they shift from a focus on local optimization to global optimization. This evolution has important implications for organizational flexibility. Most notably, through the second and third stages, companies are exchanging local flexibility for global flexibility. Figure 4-2 describes this change.

In the first stage, business unit managers have full control over their business and IT decisions. From an enterprisewide perspective, this limits global flexibility. For the company to introduce global change, all business unit managers first have to agree on the change, and then they need to simultaneously implement it.

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It is important that both IT and business managers recognize the need to allow time for learning.

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companies cannot skip stages.

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the organizational changes exceeded the companies' capacity for change.

Funding priorities Consistent with business case changes, funding priorities change as companies move through the stages. These changes align with changes in their investment patterns discussed earlier in the chapter.

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Key management capabilities To generate value from IT investments, managers must lead the process changes

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Managers develop the capability to lead companywide change,

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Who defines applications

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IT governance

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Focus architecture efforts on strategic organizational processes.–

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Move incrementally.–

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Recognize that complex organizations have enterprise architectures at multiple levels.–

> Build an architecture capability in-house.–

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> negotiations leading to an understanding of business strategy and IT architecture require a close working relationship between business and IT.

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> Aim for business modularity.–Our research found that companies with more-mature architectures reported greater success in achieving strategic goals. And companies reporting greater success in achieving their strategic goals achieved higher average return on invested capital.10

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> the process of generating those benefits involves a great deal of learning—

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> WHEN LARGE NUMBERS OF BUSINESSES first installed electricity in their plants in the 1890s, they saw few immediate benefits.

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> Not until forty years after the first central power station opened did electricity make a significant impact on business productivity.1 The delay represented the learning required to take advantage of electrical capabilities

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> Today's managers must redesign their companies as Ford did—this time, to take advantage of the potential of modern information technologies.

requires managers to think differently about how business will be conducted.

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That's when we saw all these legacy problems, the problems of yesterday that we're dealing with today."

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In our research only two practices proved critical for supporting companies' efforts to generate value from the Business Silos stage:

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Business cases:–accurate and compelling analyses of the expected costs and benefits of a proposed change to a business process or technology Standardized project methodology:–a disciplined, consistent approach to converting an approved project concept into an improved business process

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Three critical management practices in stage 2 address issues related to more centralized IT funding: An IT steering committee:–a small group of executives held accountable for determining IT priorities Centralized funding of enterprise applications:–capital budget allocations supporting implementation of enterprisewide standards An infrastructure renewal process:–a funding mechanism for projects intended primarily to retire aging technologies and upgrade the technology base

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Four other practices relate to managing a standardized technology environment: A formal architecture compliance process:–a process for ensuring new projects are adopting standard technologies Architects on project teams:–individuals responsible for ensuring that technical standards are observed or that necessary exceptions are adopted

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An architecture exception process:–a formal process for identifying when exceptions to standards add value A centralized standards team:–technical experts who identify appropriate standards and recognize when to retire or update those standards

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Enterprisewide process owners:–individuals who own, design, and implement one or more enterprisewide processes A statement of enterprise architecture guiding principles:–tough choices specifying how IT will be applied in the company (e.g., to serve customer interests versus to cut business process costs) Business leadership of project teams:–high-level managers accountable for generating expected benefits and actively involved in project management Senior executive oversight of enterprise architecture:–high-level reviews of enterprise architecture initiatives and design of incentives to encourage adoption

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IT program managers:–individuals who coordinate systems and projects to map integration and minimize redundancy

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A one-page core diagram: a tool that communicates a high-level picture of integration and standardization requirements (as described in chapter 3) Postimplementation assessment: a formal process for securing and communicating lessons learned from each project A formal research and adoption process: a process for identifying the new technologies that could have a significant impact on the company A full-time enterprise architecture team: IT staff who help fit immediate business needs into the company's longer-term vision

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The challenge was to choose the right platforms and enforce the standards. Coordination with finance and purchasing was critical to ensure that the benefits of a standardized environment were not eroded by rogue purchases. Enforcing and deploying the standards also provided us with the opportunity to set up IT steering committees in each country to explain and enforce IT decisions. The IT steering committees consisted of the country president, key business owners, and the country IT managers. As standards were deployed, these committees evolved from enforcement to the establishment of IT strategy and the prioritization of projects and resources.

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The move to standardized processes was three to four times more difficult than the move to standardized hardware. There were three stages of learning we had to take the country presidents through. The first was, "Will it work?" Will a standard process be able to fully support the needs of my country? The next stage was, "What does it mean for my business?" How will the structure, roles, and performance of my business unit change? Then, finally, "What does it mean for me?" How would the job of a country president change? Only after answering all of these questions would they trust us enough to jointly redesign their entire business processes, based on uniform corporate products and processes.

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We define the IT engagement model as the system of governance mechanisms assuring that business and IT projects achieve both local and company-wide objectives.2

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Companywide IT governance:–decision rights and accountability framework to encourage desirable behavior in the use of IT

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Project management:–formalized project methodology, with clear deliverables and regular checkpoints

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Linking mechanisms:–processes and decision-making bodies that align incentives and connect the project-level activities to the overall IT governance

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ensure that value is generated from IT investments.

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IT governance is the decision rights and accountability framework for encouraging desirable

behaviors in the use of IT. IT governance reflects broader corporate governance principles while focusing on the management and use of IT to achieve corporate performance goals.3 IT governance shouldn't be considered in isolation because IT is linked to other key company assets (i.e., financial, human, know-how/intellectual property, physical, and relational assets). Thus, IT governance might share mechanisms, such as executive committees and budget processes, with other asset-governance processes, thereby aligning companywide decision-making processes.

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"It was important to connect the architecture principles to the company's goals. If we were to talk to project managers only about architectural compliance, they would dismiss it. By connecting the architecture with the strategy of the company, we make architecture relevant. Now, if managers resist complying with the architecture, we simply point out that this means that they are not supporting Toyota's strategy. That changes the conversation."

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"Architecture implementation is like sailing. You have to use the energy of the wind, but it's not always blowing in the same direction you want to go. It's a lot easier to tack your way forward than to row into the teeth of the wind, which is what architects sometimes try to do. You have to use the momentum of business projects to get to where you want to go, even if it means you're not always heading directly toward your goal."