Executive Summary

As companies compete in a “flat world,” business strategists look to the enterprise IT architecture as an enabler of meeting unique local customer demands while also maintaining cost-effective global standards. Drawing from the experiences of globalizing companies operating in a variety of industries, this article shows how that architecture can be designed for each of the four approaches that companies can follow in their globalizing journey. Case study evidence and interview data are used to illustrate each enterprise IT architecture design, together with the global information management practices associated with the architecture. In presenting the enterprise IT architecture designs, this article focuses on the trade-offs general managers must consider when transitioning from one approach to another to ensure the company obtains the optimum balance between business flexibility and business standardization. The article concludes with nine key success factors for the IT architecture-enabled journey toward globalizing the company.

GLOBALIZATION IS FORCING A RETHINK OF ENTERPRISE IT ARCHITECTURE

For the past 30 years, the prevailing wisdom for companies expanding into foreign markets has been “Think global/act local.” This popular mantra emphasized customization of products and services for local consumption in accordance with the local culture, language, and regulatory climate. Not surprisingly, localization has encouraged decentralized development of tailored IT solutions and operational procedures for each local market.

More recently however, company executives have been told that they must adapt to a “flat world,” where IT reduces the coordination costs associated with operating globally so that it is possible to easily enter and compete in new markets, 24/7. In this flat world, companies are able to remain sensitive to localized market differences, while also successfully functioning as an integrated global enterprise. In essence, enabled by IT, a flat globalized business views the world as a single market and develops an integrated strategy for its various operations around the world to maximize business standardization while maintaining responsiveness to local market needs.

While there are many examples of flat-world globalized organizations, the reality is that many businesses competing in foreign markets are not acting as truly globalized organizations. Instead, they have set out on what we call their “globalizing journey” and are in the process of understanding the role of enterprise IT architecture in enabling the transition to globalized businesses. The challenge facing senior managers is reflected in these statements:

1 Bob Zmud is the accepting Senior Editor for this article.
2 The authors acknowledge the exceptional guidance received from Bob Zmud and two anonymous reviewers in moving this article to the next level.
“How can our group of 20 diversified companies provide flexibility for each operating company to grow and innovate and at the same time leverage scarce functional knowledge, reduce administrative overheads, and employ information technology effectively across the Group?” (Chairman and CEO, Large Asian Pacific Industrial Group)

“We are on a course to nurture internal sources of growth rather than acquisitions. To do so, we must provide our country markets with high flexibility to operate effectively on a local basis. Yet, to compete with global brands against regional and global competitors, we must adopt common processes in our supply chains, reduce the costs of non-value added functions, and learn to leverage IT on a global basis. The challenge is not if but how to do so.” (CEO, Global Food Products Company)

As these quotes suggest, the globalizing company seeks to follow a path that emphasizes new sources of local innovation while realizing opportunities for efficiencies in local and global operations. Such a company is thus challenged with managing its information and technology resources in a way that maximizes both business flexibility and business standardization. Business flexibility is the ability to tailor products, services, and business processes to local markets to create customer value. Business standardization is the concurrent need to find common ways of gaining business process efficiencies across the company to reduce working capital and to leverage human knowledge across business and product units for organizational learning.

Recognizing that global competitiveness increasingly requires optimization of both business flexibility and business standardization, Bartlett and Ghoshal focused on the interplay between these goals in their seminal work Managing Across Borders. Specifically, the authors identify four alternative approaches to operating globally:

- **The Multinational approach** seeks to establish and maximize business flexibility around the world, managing a portfolio of multiple distinct business units (BUs).
- **The International approach** introduces business standardization for adapting and transferring parent company knowledge to foreign markets while maintaining business flexibility, often in terms of regional infrastructure support.
- **The Transnational approach** further leverages regionalization of processes to create business standardization in the core business processes and establishes BUs as strategic partners that must exchange knowledge and capabilities across the entire company.
- **The Global approach** treats the world market as an integrated whole, maximizing business standardization while maintaining needed business flexibility for competing globally.

These approaches do not indicate a rigid stage model where companies start out as multinationals and gradually evolve to the Global approach. Rather, in some situations where a company’s customer value proposition does not vary considerably worldwide and it possesses the capability to deliver the needed value to the customers worldwide, it is conceivable that a company can move directly to the Global approach. Our research, however, indicates that this rarely happens. Instead, companies typically must choose one of the other three approaches that best fits their immediate needs and capabilities and then gradually evolve from that approach toward the Global approach. It is also possible that a given company is unable to change the balance of its business flexibility and business standardization, in which case, it will not be able to transition to another approach.

As a globalizing company evolves, its requirements for distinct local and global information capabilities—the IT-enabled abilities of the firm to manage decision-relevant information—also change. These capabilities are critical for assessing business opportunities, rationalizing operations, and converting the knowledge of individuals for company use. Thus an executive-driven information-oriented strategy promoting centralized control and cost-efficiencies while also enabling local market flexibility becomes a critical component of successful globalization.

At the core of a globalizing organization’s information capabilities is its enterprise IT architecture, defined as the organizing logic for the applications, information, and infrastructure technologies that enable the firm’s business strategy.

Enterprise IT architecture comprises two distinct but complementary aspects:

- **Enterprise systems (ESs)**, which include the horizontal and vertical systems that manage the information and knowledge related to

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the core global business processes, such as order fulfillment, materials and service acquisition, customer acquisition and retention, manufacturing, and distribution. ESs tend to span across functional boundaries and even cross organizational boundaries as they tie together supply chain, partner, and customer relationships.

- **IT infrastructure**, which comprises the information, people and IT practices required for planning and operating the hardware, software and networks that enable the ESs.

For a globalizing enterprise, the IT architecture can foster the needed business flexibility and business standardization required to compete globally. By embedding the core business processes in the firm’s IT infrastructure, enterprise IT architecture can facilitate business standardization and encourage global centralization of information management decision rights.\(^5\)

Additionally, embedding customizable locally developed modules in the enterprise IT architecture provides local BUs with greater capability to pick and choose architecture components, thus fostering business flexibility. The opportunity to build IT capabilities to support globalization strategies that go beyond pure decentralization and pure centralization has forced firms to rethink enterprise IT architecture design.\(^6\)

While enterprise IT architecture provides the technology platform for achieving business flexibility and business standardization, IT will improve business performance only when combined with competent information management practices. In our previous research we have shown that companies that increase their maturity in information management and IT practices over time are best positioned to reap the benefits of sharing best practices. They are also agile enough to make needed business changes in response to changing market and customer demands.\(^7\)

Our insights presented in this article are derived from face-to-face interviews that members of our research team carried out over a 10-year period. (See the Appendix for details about our research methodology.)

We present below a synthesis of Bartlett and Ghoshal’s work on globalization strategies, Ross’s work on enterprise IT architecture design,\(^8\) and our own insights on information orientation. Ross has defined four IT architecture stages and our research has shown that a different one of these is dominant in each of Bartlett and Ghoshal’s approaches to globalization, as shown in Figure 1.

The enterprise IT architecture for the Multinational approach tends to be relatively higher on flexibility and lower on standardization while that for the Global approach tends to be relatively lower on flexibility and higher on standardization.

The enterprise IT architecture design approaches discussed below seek to optimize business flexibility and business standardization in the context of globalization. We discuss each design approach in turn, highlighting the necessary global information management practices and some of the trade-offs general managers must consider in evolving toward globalized, flat-world organizations.

The article concludes with nine key success factors for structuring the journey toward an IT-enabled and information-oriented globalized business.

**ENTERPRISE IT ARCHITECTURE FOR THE MULTINATIONAL APPROACH**

The enterprise IT architecture for the Multinational approach provides flexible ESs and IT infrastructure country by country and business unit by business unit. The information management practices with this architecture are shown in Figure 2.

For a company that grows organically through entrepreneurial action and mergers and acquisitions, a focus on local growth and generating local customer value can overshadow business process efficiencies as the company learns and adapts. As local BUs establish what is important to delivering customer value through products and services—which may be independent across national markets—the corporate center tends to favor local autonomy and business flexibility over standardizing and cost-efficiencies. In supporting decentralized and self-sufficient country BUs, the enterprise IT architecture and information management practices foster information capabilities that are centered on sensing and exploiting local

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Figure 1: One of Ross’s IT Architecture Stages is Dominant in Each of Bartlett and Ghoshal’s Approaches

<table>
<thead>
<tr>
<th>Bartlett and Ghoshal’s Approach</th>
<th>Dominant Enterprise IT Architecture Stage</th>
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<tbody>
<tr>
<td><strong>Multinational</strong>: Exploit local opportunities for growth and meet local customers’ value propositions. This approach fosters sense-and-respond information capabilities within the BUs. Focusing on local opportunities, the corporate center tends to favor local autonomy over cost-efficiencies and organizational learning opportunities.</td>
<td><strong>Application Silo Architecture</strong>: Consists of portfolios of individual applications distributed throughout the enterprise. Few (if any) shared infrastructure services exist and information is rarely managed apart from transactions, as each new system defines its own data.</td>
</tr>
<tr>
<td><strong>International</strong>: The International approach fosters sense-and-respond information capabilities within the BUs while leveraging parent-company IT infrastructure capabilities globally for cost savings and information sharing.</td>
<td><strong>Standardized Technology Architecture</strong>: Includes the establishment of technology standards to limit technology choices and reduce the number of platforms and vendor packages managed. Shared infrastructure becomes established; however, information is rarely (if at all) managed apart from transactions, as each new system defines its own data, and the data is still embedded in individual applications.</td>
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<td><strong>Transnational</strong>: Establishing regional information capabilities for exploiting opportunities, learning, and cost-efficiencies, the Transnational approach develops business flexibility regionally, with corporate oversight for establishing enterprise-wide synergies to reduce costs and facilitate organizational learning.</td>
<td><strong>Rationalized Data Architecture</strong>: Characterized by standardization of infrastructure services as well as core data and business processes. Resources shift to data management and enterprise-wide infrastructure development, and centralized data stores are established for the data that powers core activities.</td>
</tr>
<tr>
<td><strong>Global</strong>: Enforcing a global, corporately driven IT strategy across BUs, this approach fosters globally scaled information capabilities that are developed at the center of the organization. Highly standardized processes and information management practices seek to exploit opportunities for reduced operating costs and organizational learning at a global level.</td>
<td><strong>Modular Architecture</strong>: The company leverages standardized core data and infrastructure services to develop and implement customized and reusable modules. Modules extend the core processes wired into the infrastructure, enabling rapid implementation of core process modules in new locations.</td>
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Figure 2: Information Management Practices with the Multinational Approach

<table>
<thead>
<tr>
<th>Approach to Operating Globally and Dominant Enterprise IT Architecture</th>
<th>Information Management Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bartlett and Ghoshal’s Multinational approach and Ross’s Application Silo Architecture</td>
<td>Information is optimized in each location but not enterprise-wide, so information sharing across country BUs about customers and local operations tends to be poor.</td>
</tr>
</tbody>
</table>

opportunities. The architecture for the Multinational approach is depicted in Figure 3.

Because companies following the Multinational approach produce and sell products and services locally, the ESs and IT infrastructure are developed and deployed locally to offer the highest level of local customer value. The focus on flexibility and generating value across distinct market segments allows the Application Silo Architecture to dominate.

Strengths: The key strength of the enterprise IT architecture for the Multinational approach is local responsiveness. This highly decentralized architecture favors local optimization over cost-efficiencies and organization-wide learning, as local unit managers define and execute management strategies for their businesses and develop their own IT practices and information behaviors and values. Local deployment of IT resources for delivering applications tailored to each BU’s unique needs is often viewed by senior
management as providing the required business flexibility to deliver maximum value to the customer and growing the business locally, uninhibited by corporate interference.

**Weaknesses:** The emphasis on business flexibility leads to duplicate ES implementations across BUs. This lack of regional or global standardization of IT infrastructure services can lead to substantially higher operating costs across the company.

A short description of a company that followed the Multinational approach is given in the panel below.

In many ways, the enterprise IT architecture for the Multinational approach is a throwback to the pre-IT, high-coordination-cost era when the only way to meet local needs was to cut the apron strings and decentralize information management decision rights to local managers. Since the introduction of IT, initial
efforts have often been made to establish a modicum of control through matrix structures that ask for higher levels of financial accountability, but well-established local cultures and operating modes can make it difficult to easily introduce greater standardization.

ENTERPRISE IT ARCHITECTURE FOR THE INTERNATIONAL APPROACH

The defining characteristics of the enterprise IT architecture for the International approach are regionally based shared services for IT infrastructure with flexible country-driven customization of ESs. The information management practices with this architecture are shown in Figure 4.

The enterprise IT architecture for the International approach attempts to leverage parent-company IT infrastructure resources to gain costs efficiencies within local BUs while still fostering sense-and-respond capabilities at the local level. The resulting enterprise IT architecture is depicted in Figure 5.

The impetus for moving from the Multinational to the International approach often comes from corporate leaders who view BU IT costs as unmanaged and unnecessarily high. Headquarters typically appoints senior IT managers\(^\text{10}\) at the corporate and/or regional level to oversee IT infrastructure decisions: developing networking standards, limiting technology choices across the company, and reducing IT infrastructure costs. In addition, the corporate office often introduces standards for information sharing and access, although much of the transactional data is still embedded in the local systems of each BU.

With the International approach, regional IT directors typically report to headquarters, but they rarely are able to compel local BU managers to adhere to decisions with which they disagree: the operating authority of corporate management tends to be based

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\(^{10}\) In this article, we use the term IT manager and IS manager interchangeably.
Example of Moving From the Multinational to International Approach: Citigroup CEEMEA

In 2001, the sales and trading business of Citigroup’s Central & Eastern Europe, Middle East & Africa (CEEMEA) region covered 31 countries, with customers including corporations, governments, institutions, and individuals. Country BU's within the CEEMEA region were managed in a decentralized way. Differences in geographies, histories, languages, religions, and economic and political systems were reasons put forward by local business managers for maintaining the Multinational approach. As a result, countries ran their own IT infrastructures and ESs, rarely sharing performance results or best practices. No integrated risk management monitoring existed across the CEEMEA region due to the fragmentation of systems.

Citigroup’s CEEMEA regional office based in London convinced the many country managers that the availability of a jointly designed, consolidated IT infrastructure platform would benefit both local and corporate information needs. This platform would enable operational efficiency, leveraged product expertise, and pooled local market knowledge. Over a four-year period, CEEMEA invested in a robust regional intranet platform linking the regional hub in London and the dispersed countries.

While the London hub initiated the IT infrastructure standardization and information sharing across countries, the diversity of the region’s country-based financial regulations and cultures required specific changes in information use driven by local country employees. The transition initiative was recognized as a bottom-up effort to improve information capabilities at the country and regional levels. From 2002 to 2005, after the common IT infrastructure was in place, Citigroup CEEMEA implemented a single regional IT platform with standardized back-office shared services (e.g., financial reporting, risk and credit management, trading flow) to increase operational efficiency across the region.

on persuasion, not top-down mandate. The local BU managers can appeal, often successfully, to their authority to run their own IT applications as they deem appropriate so long as financial targets are met. As a result, corporate and regional IT managements often have little input on the ESs deployed locally but are typically able to make substantial inroads with IT infrastructure standardization either regionally or enterprise-wide.

In essence, the organization must work with some degree of hybrid management during the transition to regional IT infrastructure—some negotiation between global and local managers on enterprise IT architecture and information management decision rights—and locally driven differences across countries. As standardized IT infrastructure components are adopted globally, the dominant enterprise IT architecture is the Standardized Technology Architecture.

Strengths: The shared IT infrastructure services of the enterprise IT architecture for the International approach offer multiple advantages. First, smaller markets and/or underdeveloped regions gain the ability to share a more robust IT infrastructure than the local economy and knowledge/skill base would allow. In addition, some companies manage to reduce the overall costs of IT operations by consolidating data centers and economizing on networks. Lastly, companies are better able to build awareness about best practices that can be shared and voluntarily adopted by local BU's.

Weaknesses: The development of IT standards and policies is driven by committees of BU managers and corporate staff, which means long decision cycles. Additionally, while there are cost benefits from having a regionally standardized IT infrastructure, similar savings are typically not realized with standardized ESs unless they include back-office applications. Further, common systems often lack ownership and buy-in at the local level. Local resistance to such systems may be increased because of local managers’ “not invented here” attitude or because they see them as being imposed by “big brother.” Moreover, because the use of shared services is optional, incompatibility and duplication of systems can still increase operating costs. Finally, data is still embedded in local applications, limiting best-practice sharing and organizational learning.

11 Chung, R., Marchand, D., and Kettinger, W. “Citigroup’s CEEMEA Sales & Trading Unit: Rapid Business Improvement Through Effective Use of Information, People, and IT,” IMD Case Study, 2004, and subsequent interviews by the authors with senior executives.

An example of a business that moved from the Multinational to International approach is given in the panel above.

The move to shared IT infrastructure services while maintaining business flexibility offers an organization moving to the International approach the potential to achieve cost efficiencies and information sharing beyond those with the Multinational approach. However, market characteristics and legal requirements can serve as difficult roadblocks to transitioning to the International approach. If local markets are turbulent or culture differences overwhelming, country BUs may not be positioned to leverage a common IT infrastructure or to begin standardizing back-office applications on a regional or corporate basis, making it difficult to build the necessary enterprise IT architecture. Also, uncertain or uniquely strong political climates may undermine attempts to introduce a common IT infrastructure internationally.

As an organization transitions to the International approach, cost control efforts and initial steps toward a secure and maintainable IT infrastructure emerge. The enterprise IT architecture for this approach moves beyond that for the Multinational approach by establishing a sense of standardization while maintaining highly valued business flexibility for meeting customer needs.

The dominant enterprise IT architecture with the International approach is Ross’s Standardized Technology Architecture. However, even as the connected IT infrastructure is achieved regionally, information management behaviors are still governed in a decentralized way, as transaction data is often still embedded in the locally controlled application silos.

**ENTERPRISE IT ARCHITECTURE FOR THE TRANSNATIONAL APPROACH**

The goal of the enterprise IT architecture for the Transnational approach is a corporate-wide, standard global IT infrastructure with a transnational business application environment. The information management practices with this architecture are shown in Figure 6.

With the Transnational approach, the organization finds ways to exploit and accelerate the convergence of local preferences by educating heterogeneous local market segments about common value propositions and by developing products that can be sold and serviced regionally or worldwide. In addition to IT infrastructure standards, ES front-office and back-office process standards are established.

In comparison to the enterprise IT architecture for the International approach, the architecture for the Transnational approach extends greater control to the corporate IS function, allocating almost complete authority for IT infrastructure at the corporate level. However, organizations adopting this approach seek to share responsibilities for ESs with regions and local countries. As a result, they typically have the Rationalized Data Architecture. The enterprise IT architecture for the Transnational approach is depicted in Figure 7.

To succeed with the Transnational approach, policy decisions often involve negotiations between global product managers pushing for increased business standardization and local managers advocating the ability to modify products and services to deliver maximum value to local market segments.13 In essence, ES decisions are handled through a managed consensus. Open debate is encouraged up to a point, after which a top-down decision is made and local/regional BU managers are expected to implement corporate directives. Ultimately, corporate IT resources are redirected to build a standardized IT infrastructure, and information sharing tied to the firm’s core processes becomes mandatory. To accomplish this, data embedded in application silos is extracted and made available to anyone who needs it.

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Overall, the enterprise IT architecture for the Transnational approach offers business flexibility by allowing the regions and country BUs the hybrid capability to deploy selected front-office business processes and associated ESs needed for growth and innovation in unique country or regional contexts. However, it also typically enables both knowledge sharing across BUs and corporate-wide cost savings through standardization of common functional processes such as accounting, control, and reporting either at a regional or corporate level.

**Strengths:** The enterprise IT architecture for the Transnational approach provides a transparent global IT infrastructure on a “pay-as-you-go” basis, which creates awareness of the costs of doing business. Additionally, the infrastructure provides a platform that BUs can leverage as they grow and change without having to repeatedly reinvent local IT infrastructures. Finally, by aligning people, cultures, processes, and ESs to operate regionally, the architecture enables a company to leverage regional information sharing and learning to better respond to local market diversity.

**Weaknesses:** Allowing even a modest number of localized ES applications adds corporate costs. Moreover, as business processes and information management practices remain partially decentralized, important best practices may still not be adequately shared at the corporate level. In the worst case, needed information “owned” locally or regionally is not made available to all that could benefit from it. Finally, the enterprise IT architecture for the Transnational approach creates an IT infrastructure function with global responsibilities. This function must balance IT standardization with the constantly changing needs of local BUs.

An example of a business that moved from the International to Transnational approach is given in the panel on the next page.

Transitioning to the Transnational approach requires considerable top-down management support and a dedicated focus on developing a strong information culture. Clear boundaries must exist for consolidating operations, and unity must be established across heterogeneous groups for this approach to work. This requires the development of a company culture of managed consensus, where global priorities are moderated by local business needs. Managers in such companies speak about “breaking” the country dominance and displacing the “country kings.”

With the goal of increasing IT efficiencies and building channels for sharing best practices enterprise-wide, the enterprise IT architecture for the Transnational approach marks a clear step toward identifying the core competencies of the enterprise and regionalizing how value is delivered to the customer. Transaction-level data that traditionally resided solely in the BUs is available to be shared across the enterprise, which demands a cohesive corporate focus on information management behaviors and values that resonates throughout the organization. The dominant architecture with the Transnational approach is Ross’s Rationalized Data Architecture.
ENTERPRISE IT ARCHITECTURE FOR THE GLOBAL APPROACH

The enterprise IT architecture for the Global approach enables global business flexibility and standardization. The information management practices with this architecture are shown in Figure 8.

When customers’ product and service value propositions do not vary significantly worldwide, and the mechanisms required to deliver that value are similarly invariant, the globalizing firm can seek to enforce a global corporate-driven IT strategy across all business units. The enterprise IT architecture for the Global approach fosters information capabilities that are globally scaled and developed at the center of the organization. With this architecture, companies are able to establish very strong top-down cultures and carefully measure customer satisfaction to ensure success. The architecture for the Global approach is depicted in Figure 9.

While managers in companies adopting the Global approach recognize they must sell to local markets, they seek, as much as possible, to design and manage the enterprise processes and IT architecture in a standardized manner globally. The standardization of information embedded in ESs and the IT infrastructure enables organizational learning at the global level. A company following the Global approach might seek to roll out a product, say, in the U.S. market and three months later in the Chinese market. To achieve this requires consistent and accurate information for global decision making. With ESs and IT infrastructure standardized globally, the dominant architecture is Ross’s Modular Architecture, which accommodates controlled yet agile responses.

Example of Moving From the International to Transnational Approach: CHEP

CHEP, a leading U.S.-based provider of pallet and plastic container pooling and tracking services, operates in approximately 40 countries. The regional nature of the business conditioned the setup of CHEP’s operations—characterized by independent regions having individually tailored systems and poor information sharing worldwide. However, as some of CHEP’s major clients began to regionalize their businesses, the company realized it needed to manage an effective balance between local/regional operating excellence and global scale and scope. The level of system duplication across markets and the related IT support costs were alarmingly high. At the same time, customers were complaining about CHEP’s burdensome administrative systems when doing business across regions and demanded better service and information.

In response, CHEP reviewed its existing International approach and acknowledged that IT would have to play a much larger role in the company’s strategy to create competitive barriers and improve customer service. The underlying philosophy was to standardize the IT infrastructure as well as the internal functional systems globally to reduce costs and increase reliability. In turn, highly distinctive business systems necessary for competitive advantage or adapting to regional variation (such as customer integration) were to be maintained and further enhanced. While CHEP’s approach to information and IT was global, the implementation was managed at a regional level, allowing for regional differences.

The CHEP example illustrates that, with the enterprise IT architecture for the Transnational approach, people, information, and IT practices associated with unique ES business applications are locally or regionally controlled. However, the IT infrastructure and back-office ES applications that provide in-depth expertise within specific functional areas such as accounting (e.g., general ledger, accounting, payroll), marketing (e.g., sales automation, pricing system), and engineering (e.g., computer-applied design) are typically consolidated and managed globally.
Strengths: The strength of the enterprise IT architecture for the Global approach is the ability to create tight alignment between business strategy and the IT deployed worldwide. Speed and effectiveness of doing business globally is facilitated by the worldwide IT infrastructure, common business systems and modularized solutions that work well with the enterprise’s rationalized data model but that can be customized for local information presentation and use. Front- and back-office information sharing throughout the enterprise allows the organization to learn and implement best practices worldwide. Finally, systems are implemented only once rather than in every region or country, saving substantial money and time.

Weaknesses: Global standardization can be problematic if business conditions or markets change very rapidly and the global business model is not capable of being reconfigured to accommodate the change. Thus a company adopting the Global approach must be particularly skillful in sensing new business trends and have strong lines of communication with local operations. In the pre-IT era, such an approach would not have been possible; however, with global networks and reconfigurable ERP solutions reducing coordination costs, this weakness may largely be avoided with the right enterprise IT architecture design and information management. Similarly, firms that rush to introduce locally developed modules before they have been completely rationalized can end up with a large portfolio of unmanaged applications across the enterprise.

Finally, in some cases, local customers may reject homogenized regional or global product and service delivery and reassert their traditional preferences, creating openings for competitors willing to meet those unique needs. Businesses must guard against an overly rigid enterprise IT architecture that undermines needed business flexibility.

The experience of a company that adopted the Global approach is described in the panel on the next page.

To achieve both business standardization and business flexibility requires more than just a global IT architecture; it also requires an information-oriented top-down management philosophy that promotes corporate-wide information management practices and information behaviors and values. This is not to say that many firms do not try to jump straight to the Global approach without putting in place the information management approaches needed to succeed with this approach. However, most that attempt to do this fail because they lack the “right” senior management information orientation.

We have described above the design of enterprise IT architectures that optimize business flexibility and business standardization in the context of globalization. Figure 10 summarizes the strengths and weaknesses of each of these architectures, classified under local responsiveness, cost-efficiency, and organizational learning.

ENTERPRISE IT ARCHITECTURE IMPLICATIONS OF TRANSITIONING BETWEEN THE APPROACHES

Moving towards a global presence with the optimum balance between business flexibility and business standardization is a difficult strategic challenge for senior managers who must balance the immediate needs of the competitive environment with the

opportunities to increase responsiveness, cost savings, and organizational learning.

An organization where the value proposition of the customer base worldwide is well understood, customer needs are invariant across local markets, and the needed capabilities to deliver customer value worldwide are in place may be in a position to jump directly to the Transnational or Global approaches. However, such conditions are rare and management typically is faced with choosing an alternative approach that best fits the immediate needs and capabilities of the organization.

In the CEMEX and CHEP cases, the commitment to evolving the company into a global enterprise comprised a series of strategic moves linked to building the appropriate information capabilities. While moving from their domestic markets to regional and global architectural designs, these companies were able to execute not only significant changes in enterprise IT architecture over time but also in information management practices and employees’ information usage behaviors and values.

Other companies, however, may be unable to achieve a better balance of business flexibility and business standardization. For example, as ABB approached the new millennium, it recognized that, apart from

Example of Company Adopting the Global Approach: CEMEX

Through its global acquisitions, CEMEX has grown over the last two decades from a local Mexican cement producer to become the world’s largest building materials supplier and third-largest cement producer. At first, CEMEX was supportive of local BU investment in IT to improve performance and share best practices. While that approach spurred local innovation, it also led to duplication of applications, processes, and projects across the company. In 2000, the CEO saw an urgent need not only to reduce IT costs, but to make the IT organization more agile to improve customer satisfaction and speed up post-merger integration. In response, the company launched a $200 million program called “The CEMEX Way.”

The CEMEX Way had three main components: process and systems standardization, a new governance model, and e-enabled processes. To support permanent standardization, eight oversight e-groups were made responsible for the effectiveness of the company’s core processes. The e-groups comprised business experts as well as HR and IT representatives. Their mandate was to define where standardization made sense and what had to be improved before standardizing. The groups used a single set of methodologies and tools to document and consolidate best practices for each process to form a knowledge database.

In 2005, the company acquired the U.K.-based multinational firm RMC, expanding CEMEX’s geographic reach and creating new opportunities for economies of scale. Despite the cultural differences between RMC and CEMEX, The CEMEX Way proved to be a successful integration approach; the company reported more than $200 million dollars in synergy savings in 2006 with expected savings of $380 million dollars in 2007. Processes became simpler and more efficient, and knowledge sharing and control were improved. Application and system duplication were avoided by providing shareable services. At the same time, the open corporate information structure improved CEMEX’s flexibility and agility: The alignment of processes, HR, and IT facilitated quick adaptation. All of this was achieved while IT spending was reduced from 5% to 2% of sales.

CEMEX has continued to grow through mergers and acquisitions, and new acquisitions are integrated with less time and less effort. Post-merger integration experts are sent to a new acquisition to transfer CEMEX’s global knowledge, culture, and practices. Adopted ideas learned from merged firms are rolled out globally, not just locally. In this way, CEMEX continues to foster coordination and collaboration in global innovation.

As a result of The CEMEX Way, IT evolved from a business services enabler to a business transformation agent. The development of an information-oriented workforce culture has been instrumental in CEMEX’s efforts to globalize with high business flexibility and standardization. At CEMEX, performance and appraisal criteria are set up to support the information-centric culture. Overall, the good information management practices enable transparency throughout the organization, resulting in self-regulating behavior.

**Figure 10: Strengths and Weaknesses of the Four Enterprise IT Architectures for Globalization**

<table>
<thead>
<tr>
<th>Enterprise IT Architecture for:</th>
<th>Local Responsiveness</th>
<th>Cost-Efficiency</th>
<th>Organizational Learning</th>
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<tbody>
<tr>
<td></td>
<td>Strengths</td>
<td>Weaknesses</td>
<td>Strengths</td>
</tr>
<tr>
<td><strong>Multinational Approach</strong></td>
<td>Local optimization of ESs and IT infrastructure solutions enables sense-and-respond information capabilities and highly flexible BUs to respond to local customer needs as they change</td>
<td></td>
<td>Focus on business flexibility leads to duplication of ESs and IT infrastructure in each BU, leading to substantially higher operating costs across the company.</td>
</tr>
<tr>
<td><strong>International Approach</strong></td>
<td>Shared services are enabled but not mandated, allowing smaller markets and regions to electively share a more robust IT infrastructure to meet local customer needs.</td>
<td>Carries the risk of long decision cycles.</td>
<td>Some companies manage to reduce overall costs of IT operations by consolidating data centers and economizing on networks.</td>
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<td>Organizational Learning</td>
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<td><strong>Strengths</strong></td>
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<td><strong>Trans-national Approach</strong></td>
<td>ESs can be locally customized and the global IT infrastructure provides a platform for BUs to leverage as they grow and change, without reinventing IT infrastructures each time.</td>
<td>Risk that either IT people fall behind the rapidly changing BU needs, or BUs will outsource IT infrastructure to external providers.</td>
<td>Provides the company with a transparent IT infrastructure on a pay-as-you go basis, which creates cost-efficiencies and awareness of the costs of doing business.</td>
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<tr>
<td><strong>Global Approach</strong></td>
<td>A standardized enterprise IT architecture can provide different locations greater capability to pick and choose architecture components, fostering increased local flexibility and responsiveness.</td>
<td>Global standardization can be problematic if business conditions or markets change very rapidly and the global business model is not capable of reconfiguring to meet this change.</td>
<td>Systems are implemented only once worldwide rather than in every region or country, saving substantial money and time.</td>
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Designing Enterprise IT Architectures to Optimize Flexibility and Standardization in Global Business

financial accounting, its enterprise information capabilities were weak. While business area managers were encouraged to build personal networks and to transfer best practices to their locations, the knowledge was not leveraged globally. There were no enterprise-wide information standards, and there was little incentive for information sharing. Even more problematic was the lack of data consistency concerning customer and product information, which were primarily considered local issues.

The need to coordinate in a more “flat” manner was accelerated by deregulation of the electrical equipment and power generation markets, which led to an increase in cross-border competition. However, ABB’s fragmented business, with the corresponding fragmented enterprise IT architecture, caused serious difficulties in competing with competitors that had better integrated information strategies.

In response, the CEO initiated a major consolidation of the business into seven global product areas. The simplified structure maintained the large number of profit centers but placed them under strong global oversight. The company attempted to standardize and centralize its global processes and the IT infrastructure. However, ABB’s decentralized culture could not easily be changed—country “barons” were not prepared to give up their power, and top management was not strong enough to enforce the changes. In September 2002, the CEO was forced to step down, acquiescing to an enduring local culture that fought changes toward global standardization. His successor reverted to the Multinational approach and outsourced IT to third parties that continued to support multinational application silos. ABB continued with the Multinational approach well into the new millennium.

KEY SUCCESS FACTORS IN THE GLOBALIZING JOURNEY

So how can companies turn the apparent business paradox of achieving business flexibility and business standardization at the same time into a business advantage? We offer nine key success factors for the globalizing journey. These success factors will ensure that a company achieves the optimum balance between business flexibility and business standardization. Two of them relate to articulating the need for the journey, four to the journey itself, and three to fine-tuning the journey as it is underway. The nine success factors are summarized at the end of this section in Figure 11.

Articulating the Need for the Journey

1. Vision for the Journey and Destination. Each step in the journey requires an appropriate vision of why the changes are necessary. Companies moving from the Multinational and International approaches often have difficulty in articulating the case for change. A justification for enterprise IT architecture standardization centered solely on potential cost savings may not be viewed by country or BU managers as a sufficient business reason for justifying the changes and getting them to participate voluntarily. Corporate managers and CIOs often overcome this resistance by positioning their vision as a “roadmap” for fostering shared best practices and creating more opportunities for growth and innovation. Ultimately, the vision must be clearly understood and widely accepted among local management teams, which often perceive such changes as a zero-sum game—as ABB discovered.

For companies transitioning from the Transnational to Global approach, the vision is often articulated as “The company way” of doing business. The move to the Global approach is driven by senior business leaders as a business change first and IT change second. For example, in the evolution of the CEMEX Way, the senior management view of controlling the business gave rise to:

- A process-driven IT project for continuously embedding best practices in core enterprise systems.
- An approach for achieving improved post-merger integrations, where mutual learning of company practices was an integral part of the approach.
- The way in which the company innovates locally and shares best practices globally.17

It is difficult to resist—even locally—what is mandated by top leaders as the company’s existing and future way of doing business.

2. Scoping the Transition. A related issue is the setting of a time frame for the transition. Often, redesigning the enterprise IT architecture takes too long to achieve required short-term performance results. Can the business and its external environment wait for the longer-term transition, or will pressure for urgent shorter-term actions undermine the long-term vision? In fact, successful companies address

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both—they plan for a multi-year evolution of the business model but execute in doable chunks that show results along the way. Proper framing of the long-term and short-term transition activities can help maintain the needed impetus for achieving the long-term initiative by delivering incremental payoffs and accomplishments throughout the effort.

Managing the Journey

3. Mobilizing the Management Team. When managers who have successfully operated globally under one of Bartlett and Ghoshal’s approaches are asked to transition to another approach, fears and uncertainties about the changes this will entail are often harbored locally. Corporate leaders often envision company-wide IT savings from process and system standardization, while local managers perceive the delivery of regional or global IT services to their BUs as uncertain in quality and lacking responsiveness locally. These differences must be addressed in ways that permit corporate and local managers to have an open and honest dialog about the company’s way of doing business.

Companies with long histories of operating according to the Multinational and International approaches often require a critical business or technical disruption before local managers share corporate concerns about changing the design of the enterprise IT architecture. In such cases, senior management conveys that the company faces a “sustainability challenge,” where expected innovation and organic growth are slowing, and the company lacks the required internal synergies and best-practice sharing across local units to manage working capital costs in IT, operating costs, and headcount.

4. Implementing Dedicated Change Management Programs. The design and launch of change management programs dedicated to each phase of a transition is critical to success. The change management skills and the scale of such programs will vary according to the particular globalizing journey undertaken by a company, but they are integral to the before, during, and after stages of each journey. For journeys to the Multinational and International approaches, the change management programs involve not just corporate IT and local business managers, but local and regional IT teams working under the previous approach.

For journeys to the Transnational and Global approaches, the scale of the change programs will be enterprise-wide, affecting many BUs, functions, and levels of managers and employees. Both the skills and scope of such programs will shift as the company globalizes its culture to create more consistency in information-oriented behaviors and values relating to knowledge sharing, information management, and IT usage.

5. Developing an Information-Oriented Culture. For companies transitioning to the Multinational approach, the development of an information-oriented culture is mainly focused on local operating units. Lateral or cross-country information orientation tends to be underdeveloped, since the company focus is on optimizing the local ways of operating the business. For those transitioning to the International approach, corporate management can develop a “hub and spoke” operating model among local BUs, as Citigroup CEEMEA did. However, without strong leadership at the top and buy-in from local managers, this model is only as strong as its weakest link, since the information orientation maturity of local managers may differ considerably.

For the Transnational approach, corporate and regional leadership share common goals of developing consistent cultures within each region and globally, working toward more global information, knowledge, and IT best-practice sharing and use. A company transitioning to the Global approach actively seeks a unified process and enterprise IT architecture supported with a mature global information-oriented culture. To optimize business synergies in processes, people, information, and IT practices, a global company requires managers at all levels to develop a culture of effective information use for growth and operational excellence.

6. Shifting the Balance of Power. Adjusting the balance between business flexibility and business standardization in a globalizing organization impacts the distribution of formal and informal power among managers at many levels. Shifts from purely voluntary (Multinational), to federated (International), to managed consensus styles of governance require high levels of skill among senior leaders in coalition management of local BU heads to avoid active or passive resistance. As companies transition to the Transnational or Global approach, a more directed style of governance by senior leaders over these business changes and initiatives comes to the fore. Even in these cases, though, bottom-up involvement of local operating leaders is critical to sustaining the initiatives over time. Directed styles of leadership, as in the CEMEX case, require close involvement and attention to local concerns.
Fine-Tuning the Journey

7. Developing a Global Mindset. As companies transition to operating globally, senior managers must be supported by HR policies that promote a global mindset—supporting cultural diversity and shared values no matter where the company operates. One specific concern is the need for performance evaluations and compensation schemes that align with the new globalizing approach. A key management decision is when to make these HR changes. If they are made too soon in the transition, local managers’ incentives will not correspond to the day-to-day operating reality of their business. If made too late, local managers will resist or delay shifting their mindsets and behaviors to fit the new approach. Senior leaders in organizations transitioning to the Global approach should make these changes earlier; those in organizations transitioning to the Transnational approach can make them later in the journey. The use of voluntary international assignments and customized international compensation packages becomes an operational necessity for corporate and local leaders alike.

8. Sharing Best Practices. In the Multinational and International approaches, best-practice sharing is largely voluntary. While it may be encouraged by corporate leaders who believe that such sharing across siloed units is important to long-term success, in practice, there is limited sharing of local innovations. As companies transition to the Transnational and Global approaches, the need to make best-practice sharing systemic becomes an operational necessity to bring the innovations of a global company into local markets. In such companies, network benefits and greater information transparency resulting from a standardized enterprise IT architecture and

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<tr>
<td>1. Vision for the Journey and Destination</td>
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<td>3. Mobilizing the Management Team</td>
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<td><strong>Fine-Tuning the Journey</strong></td>
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<tr>
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<td>8. Sharing Best Practices</td>
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<td>9. Shifting Profit and Loss Responsibilities and Reporting Lines</td>
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rationalized data encourages both best-practice sharing and control. A major aim of The CEMEX Way initiative was not only to embed best practices in enterprise processes and systems globally, but also to develop an accountable and innovative culture of sharing good ideas. This provided local managers with the ability to look across the company to identify new ideas that work locally and globally.

9. Shifting Profit and Loss Responsibilities and Reporting Lines. As companies transition across the four globalizing approaches, management reporting lines and profit and loss responsibilities may need to be changed. In some cases, companies choose to simplify legal and reporting structures, retaining local legal and reporting arrangements, but with an operational reality that reflects the Transnational or Global approaches. For example, in CEMEX, the legal structure of the company in terms of local operating companies is retained for reporting purposes, but profit and loss reporting is regional and global to reflect the global operating model of The CEMEX Way.

CONCLUDING COMMENTS

In successful globalizing organizations, the vision extends beyond standardizing back-office processes and IT infrastructure, toward developing information capabilities for optimizing business flexibility and business standardization. Improved IT architecture makes it easier to transfer knowledge to lower levels in the organization, increasing local responsiveness while also facilitating control and measurement, fostering desirable behavior, and reducing the agency costs associated with the delegation of power. In essence, these companies are able to develop capabilities to cut costs, enable organizational learning and achieve customer responsiveness, and in doing so, deliver business value.

In the end, standardization is not the goal of globalizing but the means to an end: a sustainable, learning, growth-oriented company capable of flexibly outperforming competitors at local, regional, and global business levels.

APPENDIX: RESEARCH METHODOLOGY

The data collection procedure primarily comprised in-depth face-to-face interviews conducted by members of our research team with approximately 30 senior business and IT managers from the case study companies referred to in the article (ABB, Citigroup CEMECA, CHEP, and CEMEX) and two other companies that wish to remain anonymous. Key areas of focus in these interviews were enterprise IT architecture design and governance, and information management practices as they relate to globalization. Interviewees were asked not only to discuss their current and planned future states, but also to reflect on their globalizing journeys and the evolution of their enterprise IT architectures. Observations and updates on the companies’ journeys were synthesized on at least an annual basis to inform the longitudinal nature of the study’s cases.

The interviews were conducted in two formats: in the preparation of written teaching cases and through ad hoc conversations with executives during (and after) professional training workshops and executive education sessions at IMD. Key points of these conversations were recorded and discussed by two of the researchers as they prepared cases and collaborated on research projects.

In addition to the interviews, secondary data from past published cases and other sources was used to further validate the results. Finally, the overall findings were informed by conversations with several hundred executives over approximately 10 years of teaching and consulting on this topic. It was from this larger pool of executives and companies that the selected case examples were chosen to best represent each approach to operating globally.

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