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R. Mack, N. Frey

Strategic Analysis Report
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Six Building Blocks for Creating Real IT Strategies

All enterprises claim to have a well-defined business strategy, but most do not — a major hurdle facing IT strategic planners. But a business strategy can be inferred from the operational choices made by the enterprise, and be used to create an IT strategy that fuels business success. Gartner's IT strategy development model shows how.

Management Summary

With business models evolving toward increased collaboration with external business partners, an increasing number of enterprises are finding that their business success relies on a well-crafted and well-executed IT strategy. By Gartner's definition, an effective strategy not only defines a vision or objective, but places clear boundaries on the options for attaining it.

The problem is, although all businesses claim to have an effective strategy, most do not. By our estimate, 95 percent of enterprises lack a well-defined business strategy. This is probably the single largest hurdle facing IS organizations in their quest to manage enterprise IT expectations. They must identify a business strategy — articulated or implied — to serve as the foundation of the IT strategy that will guide IS application change and operational support efforts.

The fact is, all enterprises have business strategies, whether articulated or not. In the latter case, this strategy can be inferred from the priorities and objectives implied in the enterprise's business choices and governance patterns in key areas — including global expansion, virtualization, customer interaction, and the balance of power between centralized and decentralized authority.

With these concepts as a backdrop, this *Strategic Analysis Report* offers a comprehensive guide to creating, executing and managing an effective IT strategy. As a starting point, it offers a framework that identifies the seven key aspects of the enterprise's business strategy that must be identified or derived for IT strategic-development purposes. The framework maps these aspects to the five foundation elements of IT strategy: infrastructure, service, applications, integration and sourcing. This framework is used to determine how the business strategy has set the priorities, bounded the choices and established the ongoing cost basis for the IT strategy that will serve it.

From there, the report provides guidance on how to develop a strategy that will enable the IS organization to direct its activities in supporting the business — while putting the onus on the enterprise's business units (BUs) to decide and justify the projects that best fulfill their own strategic objectives.

Gartner recommends that this strategy be divided into two parts reflecting the two primary IS functions, each of which has unique objectives in serving the enterprise:

- The IT *application change* group is tightly coupled with the business, because it is responsible for the systems that drive its processes. The focus for this group is on developing and changing the applications needed to execute the business strategy.
- The *operations group* is focused on managing the enterprise's IT infrastructure, delivering daily service in the most cost-effective and efficient manner that budgeting will allow.

Another critical aspect of IT strategy development is defining the architecture that will most effectively and efficiently support the business strategy. A key part of this effort is ensuring that business leaders understand the negative impact — in both cost and complexity — that the enterprise will face if it fails to fund and adhere to the architecture needed.

Finally, the report focuses on two key components of successful strategy execution:

- *Selecting the right tools* to govern the decisions made as the strategy unfolds, including which projects will be executed and the priority of their implementation. Under Gartner's IT strategy model, these decisions will become the responsibility of enterprise and BU leaders, but will be governed by a consistent set of financial and management tools used within the IS organization.
- *Putting the right people in the right jobs.* This effort goes far beyond managing the IT skills portfolio; it requires identifying the unique talents needed to create and sustain strategic focus for both the application change and IT operations groups.

By following the model provided in this *Strategic Analysis Report,* IS organizations can develop a strategy that will not only support the business strategy, but will also enable IS to focus on minimizing ongoing support costs, while maximizing the value gained from IT expenditures.

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1.0 Introduction

Strategies are critical for IS organizations, simply because IT projects typically have long implementation horizons, and keeping them operational requires expensive support. Most businesspeople focus on the cost to acquire new functionality and pay little attention to the long-term cost implications. Without a focus on where the enterprise is headed — what a strategy envisions — IT is project-driven and often "stovepiped," leading to expensive support structures to keep systems going.

A strategy enables the IS organization to more effectively recommend and deploy appropriate technologies for inclusion in the enterprise IT infrastructure. IS can focus on minimizing ongoing support costs while maximizing the value gained from IT expenditures.

Gartner estimates that 95 percent of enterprises claim to have an articulated business strategy in place but don't really possess one. This lack of strategy leaves IS organizations in a difficult position. In their quest to manage enterprise IT expectations, they have no clear vision of how to direct their IT investments. IT infrastructure, both application and operating elements, is a difficult thing to change, as evidenced by the continuing enterprise struggle to transition "legacy" applications.

This section examines the nature of this dilemma, focusing first on why we believe so few of today's enterprise strategies are ones that IS organizations and enterprises can effectively use. The purpose of this report, however, is not to lead an enterprise through a business strategy exercise, but to provide guidance for building a great IT strategy even when the enterprise doesn't have a comparable business one. Therefore, the rest of this section describes what makes for a truly effective and useful strategy, to provide a frame of reference for our recommendations for building one over the subsequent sections of this report.

1.1 What Many Enterprises Call "Strategies" Are Not

In the most basic of terms, enterprises, like living things, exist to survive. Strategies are, therefore, first and foremost about how to survive — and for more aggressive companies, how to grow. Survival may be an extremely basic aspect of strategy, but this doesn't mean it's a trivial or simple one. Consider that one-third of the initial Fortune 500 companies no longer exist.

Unfortunately, "strategy" is such a commonly used word in the business lexicon that it has become incomprehensible. It remains a code word for outside observers, many of whom assume that when senior managers state they have a strategy, they must really have one.

But the word has so many nuances and interpretations — including mission, objectives, goals, tactics and core values — that those who are asked to implement and act on a strategy are left to struggle with interpreting what all these aspects really mean, and how they relate. In addition, although many books are available that offer sophisticated descriptions of "strategies," they often become absorbed in the mechanics of generating one, losing sight of the larger and more complex issue of actually executing and sustaining one.

To address this dilemma, we begin by offering the following description of a strategy:

- A strategy takes a vision or objective and bounds the options for attaining it.

We examine this simple definition in more depth in Section 1.4, and will use and expand on it throughout this report.

1.2 Corporate Strategies: Critical to CEOs, but Lacking Nonetheless

How important is a strategy to CEOs? PricewaterhouseCoopers' fifth annual global CEO survey, released in early 2002, asked 1,160 CEOs what factors determine a company's value, from both their own viewpoint and that of investors. In the CEOs' responses, the three most-cited factors were identical in rankings from both perspectives:

- Earnings (cited by 94 percent of CEOs as critical from their own perspective, and by 90 percent as critical from the investor's perspective)
- Cash flow (87 percent and 81 percent, respectively)
- Corporate strategy (85 percent and 78 percent, respectively)

The first two factors are obvious ones: Earnings are a direct indicator of business success, and cash flow is a sign of overall business health since, in the end, cash is needed to pay the bills. We believe, however, that the third factor — strategy — is not only what drives the first two, but it is also the only one of the three that is fully controllable by CEOs and their direct reports.

If a strategy is so important to CEOs, one might expect that their annual reports would clearly present the strategies they are executing to keep shareholders' investments growing and surviving into the future. However, an examination of random sample of 10 percent of the Fortune 1000 corporations' 2001 annual reports suggests otherwise. Figure 1 lists the strategies found in the "letter to shareholders" section of these annual reports. In our examination, we discovered that almost one-third don't deliver a strategy at all — not even the barest outlines of one.

Category of Reported Strategy	Percent
None listed	30
Improve product	31
Grow by acquisition	24
Customer focus	22
Cost reduction/productivity	15
People/organizational structure	12
Increase revenue/profit	10
Achieve growth/increase market share	8
Global focus	8
Miscellaneous:	
Build for good and bad times	1
Use balance sheet to support new growth	1
Fund the future (financial)	1
Intelligent use of information	1
Obtain best possible land positions	1
Narrow focus to mining and metals	1

Source: Gartner Research

Figure 1. Strategy Categories for 10 Percent of the Fortune 1,000

One explanation for this reticence could be simple reluctance to reveal key corporate secrets to competitors. However, given that strategy was ranked by CEOs as the third-most-important indicator of

company value, keeping the strategy hidden (assuming one actually exists) would deprive investors of what CEOs themselves cite as a key piece of information they need to assess the company's value.

As for those that did report a strategy, here's a rundown of the categories most fell into, examined from the perspective of the simple definition of a strategy we introduced earlier:

- *Improve Product* — This is nothing that an investor would not already expect, and something most employees should be doing anyway.
- *Customer Focus* — This is also fairly obvious, given that most companies would not exist if they failed to serve their customers.
- *Growth by Acquisition* — This is the refuge of companies facing limited or stalled internal growth, but how does it bound anything?
- *Cost Reduction/Productivity* — If this is a strategy for the future, does it mean executives previously squandered investors' money? One would expect seeking efficiency and productivity to be the normal approach to doing business.
- *People/Organizational Structure* — Often, when a management team doesn't know what else to do, it moves people around, which takes up time and makes it look like management is accomplishing something significant. Whatever the motive, this is not a strategy.
- *Increase Revenue/Profits* — Isn't this exactly what investors expect?
- *Achieve Growth/Increase Market Share* — Again, an obvious goal, but an empty strategy unless options are bounded to achieve it.
- *Global Focus* — Finally, a strategic statement objective, but one that needs bounding language to define the specific geography implied in "global."

The "miscellaneous" strategies listed in Figure 1 don't fit the categories above, but most are equally lacking in bounded direction (the exception being "build for good or bad times," which certainly bounds decision making).

If strategy is about surviving and growing, this poses a dilemma for middle managers. Given the professed importance of strategies to corporate leaders, one would expect them to provide these managers with a clear understanding of the enterprise's prime objective, and the boundaries within which to operate to ensure they focus their efforts on achieving that objective. The problem is that most of today's strategies don't answer the middle manager's question: "How should I be thinking and acting to ensure my enterprise's survival and growth?"

1.3 Strategy Defined

A strategy, as we defined it earlier, bounds the options for attaining a vision or objective. A vision or objective is therefore a prerequisite for a strategy, but is not by itself sufficient to constitute one.

Visions and objectives are boundless; they pose infinite possibilities for achievement. Without bounded options, a vision or objective is merely a distant destination that cannot be reached by any clear route — not an end state that can be achieved.

A true strategy defines a general path for achieving the objective. It limits the options, making this achievement a manageable task for those who have to get the job done. That is the essence of an

effective strategy: Those who must execute it can see a limited set of options, decide which are most critical, and execute them quickly.

Consistent with this definition, Gartner has developed a simple, three-layer framework to define the components of a strategy:

- Statement of end point (that is, the vision, objective or goal)
- Statement bounding the range of options for getting there (the core strategy)
- The steps to take (that is, tactics and projects)

Note that "mission statements" and "core values" are not included. The framework above is about action — what to do. Mission statements and core values are about how employees and their leaders should behave while taking those actions. They add style to a strategy, not substance. Because these statements and values could exist without a strategy or in support of a strategy, they should not be misconstrued as a strategy definition by themselves.

1.4 Building a Great Strategy

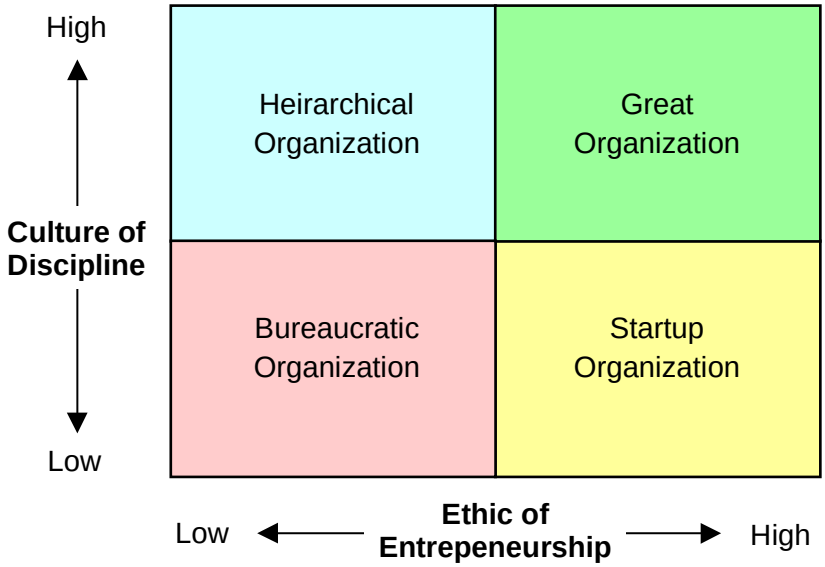
The previous section described a strategy's structure. Beyond structure, another dimension is needed to build and execute a great strategy: *capabilities.*

The structure of a strategy, as described thus far, can be viewed as a two-dimensional map that shows where an enterprise is headed. By adding the next element, capabilities, a third dimension emerges, which identifies the more subtle people- and process-related aspects of how a strategy is created, executed and modified to reflect changing realities. An enterprise's capabilities are bound up in its employees — as evidenced by talent and skills — as well as its processes. In the context of a great strategy, these capabilities are brought to bear to ensure survival and growth.

An excellent perspective on these capabilities is found in two books by James Collins: "Built To Last" (co-authored with Jerry Porras) and "Good To Great" (see Appendix A). In his extensive research on successful companies, Collins identified the key capabilities they fostered to ensure that their strategies were properly identified and executed. Many of these capabilities are beyond the influence of the IS organization. With that in mind, the following list highlights a selection of the capabilities identified by Collins that are particularly relevant to IT strategy building:

- *First who, then what* — The most successful organizations first focused on getting the right people in place. The right people were those who had the right talents matched to the position they were expected to fill. Collins' research found that talent always trumped skill — you cannot learn to be naturally good at your job. (For a more in-depth discussion of talent and people issues, see Section 8).
- *Confronting the brutal facts* — This capability refers to seeing things as they really are, not as people wish they were or as management falsely claims them to be. Nothing valuable can be built to last if it rests on falsehoods. This is particularly true of an organization that pays "lip service" to risk taking, but then punishes failure in the end.
- *Emotion-based determinants* — Collins identifies three such determinants: what you are deeply passionate about, what you can be the best in the world at, and what drives your economic engine. To be great, companies must engage individuals' emotions to focus their talents on keeping a strategy alive and healthy.

- *The "flywheel effect" vs. the "doom loop"* —These two scenarios are the result of how one manages discipline. If the strategy is adhered to and modified appropriately over time, projects and efforts to build the strategy develop a momentum of their own (the "flywheel effect"). If there is no discipline in executing a strategy, the organization will always be at the beginning of the strategy implementation process, with no apparent end in sight to anyone who actually has to do the work (the "doom loop").
- *Entrepreneurship vs. discipline* — The ability to see possible futures is founded on entrepreneurial spirit. The ability to execute over time is founded on discipline, which includes bounding one's options rather than chasing everything that seems like a good idea. Figure 2 illustrates how the application of these capabilities leads to different organization structures.



Source: Collins and Porras

Figure 2. Matrix of Creative Discipline

When building a strategy, these capabilities should be kept in mind and applied whenever appropriate. They form the core of the natural response to keeping a strategy vital and evolving.

Often, multiple strategies must be executed as components of a higher, overarching one. The number of such "substrategies" must be limited, however, because it will take the understanding of the entire organization to execute them. Using the general rule that people tend to have difficulty dealing with more than four things at a time, it is best to keep the number of contemporaneous strategies at fewer than five. In addition, these strategies should be linked to an overarching objective to tie them together.

1.5 The Importance of Business Strategy to IT Strategy

Why is an enterprise business strategy so important to an IT strategy? First and foremost, the answer comes down to money. In Gartner's latest annual IT budget survey, total IT spending — including the IS organization's budget, the enterprise's IT capital budget and hidden IT spending — accounts for more than 5 percent of the total revenue of the companies surveyed. In accounting parlance, this spending has become "material."

A focused, driven business strategy will lead to the most efficient application of these IT expenses. In the best case, each project selected for implementation will to a significant degree be justified by its contribution to the overall strategy, becoming a link in a chain of projects over time that are directed toward achieving a strategic objective.

By contrast, where no such strategy exists, IT amounts, in effect, to a group of projects, each justified to serve its own needs. In this case, significant IT resources will be wasted. This is aggravated in the situation where BUs operate in a stand-alone mode. In this case, business strategies at the corporate level usually do not detail the operational strategies, but instead roll up the financial components of the BUs. This "nothing but numbers" approach frustrates the IS organization, which is looking for operational guidance. In response, IS must go to each BU, understand each operational strategy, aggregate their requirements for IT and produce an IT strategy that accommodates everyone, including corporate management.

Most enterprises fall somewhere in the middle of these two extremes, meaning that most have an opportunity to make major gains in the effectiveness of their IT expenditures through better strategic planning.

Effective strategies minimize technology false starts that wind up being expensive dead ends. With no IT strategy, an enterprise inherits an architectural maze that becomes so expensive to maintain and support for business constituents, they will eventually rebel at the high costs and suboptimal service that IT provides.

Beyond money, the second critical aspect is people. Supporting IT is hard work, and the people needed to do it effectively want to feel that it's all worthwhile, and that they are making a difference. Effective strategies accomplish this goal, while their absence undermines it.

Finally, it comes down to IS credibility. With strategies that make sense to those paying the bills, the IS group that develops and executes them has considerable credibility. IS groups that lack such strategies will find it difficult to gain credibility, and everything that goes wrong will eventually be assumed to be their fault.

2.0 The IT Strategy

Most businesses have traditionally viewed IS as an administrative support function, with a strategy too complicated to understand and therefore grudgingly accepted. However, as the commoditization of IT has accelerated — along with the Internet age and the ubiquitous use of IT in everyone's lives — a new generation of managers is emerging that is comfortable with technology, having broken through the complexity barriers that existed for the previous two generations. In addition, business models are evolving to depend on technology links to global business partners. Therefore, IT strategies must evolve to serve the longer-range evolution of the enterprise in which IT lives.

Historically, IT management has consisted of two distinct components: application development aligned with infrastructure applications, and IT operations aligned with infrastructure operations. Before exploring this concept further, it is important to a clearly define the term "infrastructure" as it is used in this report. The most common, overarching definition of infrastructure is "all things IT" — including applications, hardware, software and support. In this report, since there are no current terms to define these groupings, we will further subdivide infrastructure into two parts:

- *Infrastructure applications*, which includes all processes that involve creating, changing or repairing applications that directly define a business process, such as customer relationship management (CRM), general ledger, procurement or database design.
- *Infrastructure operations,* which includes all processes that change, support or maintain desktops, servers, mainframes, networks, operating systems, middleware and databases.

From an IS perspective, this split his reflects an almost timeless structure, with roots going back to early IT implementations — a fundamental separation of duties between groups charged with creating and sustaining systems. Although closely linked, each group has a distinct objective:

- The *application group* is tightly coupled with the business, because it is responsible for the systems driving the business processes that define the enterprise. The group's focus is on the applications that provide the most effective foundation on which business processes can generate and manage revenue. The creation and maintenance of these applications requires in-depth understanding of the enterprise, making it critical that IS people have a historical knowledge of the business itself — typically something only internal employees can accomplish. IS organizations have often further divided this group into two main functions: one focusing on developing new applications, and the other on maintaining established ones. The latter function is increasingly being considered for external sourcing. The former function is also externally sourced in some cases, but this outsourcing is usually restricted to programming activities, since outsiders lack the internal business knowledge needed to achieve long-term application viability.
- The *operations group* is focused on managing the enterprise IT infrastructure, delivering daily service in the most cost-effective, efficient and responsive manner that budgeting will allow. This group is often partially or wholly outsourced to achieve those objectives. This reflects a certain independence from the enterprise, in that it isn't critical to have enterprise employees delivering IT infrastructure services.

Applications directly reflect the business: They define how work is done. Application knowledge, therefore, is business knowledge — specifically, knowledge of the enterprise's business processes. Operations knowledge, on the other hand, is not business-dependent — it focuses on technology. One doesn't have to know how the business works to understand Unix or the Web.

Many enterprises are recognizing the distinct nature of these two IT groups — and their unique missions in serving the enterprise — and are modifying their organizational structures accordingly. The strategies appropriate to these two groups, although linked, are very different. By developing these strategies separately, each can more readily be structured to fit the business strategies that drive them.

When viewed as two independent groups — each with its own strategy — IT applications and IT operations are free to evolve organizationally, released from the strictures of a combined organization. The operations group may evolve like a spin-off, resembling and competing with external service providers (ESPs). The application group may be absorbed into the business operation under the chief operating officer (COO) or an equivalent function.

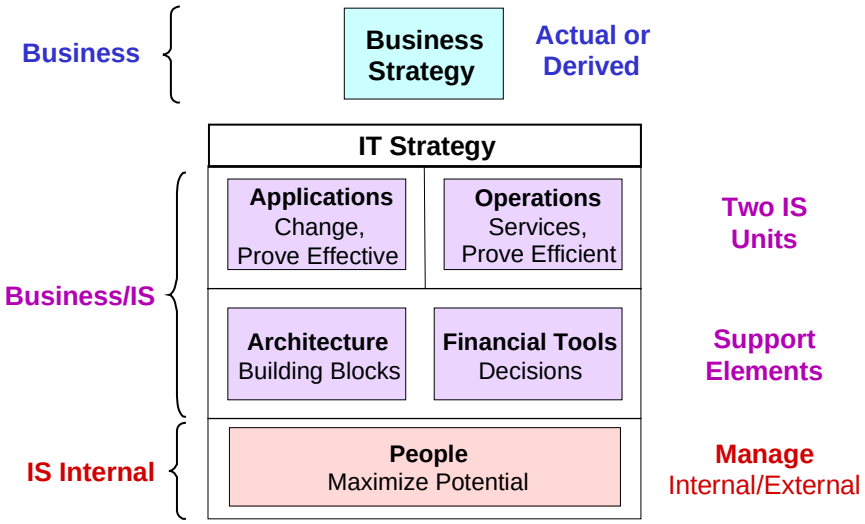
These scenarios represent the extremes of the spectrum of options, however. It is still possible to approach this separation within the context of one IS organization by recognizing these two subgroups should have their own strategic focus, and by selling that picture to the business.

2.1 Gartner's IT Strategy Model: Six Building Blocks

With an organizing concept for the IT strategy established, we now need a model or framework to discuss its development. Figure 3 depicts a complete model that balances business strategy input, IT strategy support elements and the IT strategies themselves. Depicted in this model are the six main building blocks of IT strategy development:

- Business strategy
- Applications
- Operations
- Architecture
- Financial tools
- People

These elements are examined in detail in each of the main sections that span the remainder of this report.



Source: Gartner Research

Figure 3. IT Strategy Model: Six Building Blocks

A business strategy is necessary for any IT strategy. As we noted earlier, however, the majority of enterprises don't have an effective one for IT purposes. Therefore, for those enterprises, a business strategy must be derived for the purposes of formulating the IT strategy.

Deriving this strategy involves seeking out the factors that will define IT decision-making boundaries. The IS organization is not in a position to tell the enterprise what its business strategy is. What IS can do, however, is place its own strategy within a decision framework that defines the scope of IT decision making, and therefore provides the "derived business strategy" that sets the boundaries of an IT strategy.

A business runs on its processes, and today, most business processes are driven by applications. These applications, therefore, are "owned" by the business — not the IS organization — whether the business acknowledges this fact or not. Business leaders are in constant discussion with those to whom they have delegated IT responsibility on what changes are made to applications, and how they are made. These changes are all determined by whatever business strategy has been formulated (whether this strategy has been effectively defined and communicated explicitly, or it is implicit and must be derived). Therefore, the application component of the IT strategy is the business's responsibility. The business measures this component of IT strategy based on its effectiveness.

IT operations are what businesspeople "see" as they perform their daily tasks — that is, as they execute their business processes. This component of IT is focused on the present, and its success is measured daily. The business measures this component of IT strategy based on its efficiency.

In effect, therefore, there are two IT strategies — IT applications and IT operations — which are measured differently. Two key elements support these two IT strategies:

- *Architecture* — This is the only "technical" aspect of IT the business needs to see and comprehend. Architecture defines the IT building blocks — or infrastructure elements, operating "under the covers" — needed to implement both IT strategies. Gartner's Enterprise Architecture Model defines the architectural structure in terms of four layers of increasing IT complexity (see Figure 9 in Section 6); the top two layers in this model represent what is exposed to the business. These infrastructure elements are essential for strategy execution and are the key link between both IT strategies. The architectural choices made by the applications group are the major determinant as to how efficient the operations group and business operations can become.
- *Financial tools* — Strategies are all about decision making — deciding what course of action to take, or from an IS perspective, what projects to approve — and financial tools are the language for facilitating this decision process. A consistent set of financial tools, appropriate for the enterprises strategic-planning and execution processes, should manage every enterprise decision for capital or resource allocation (see Section 7).

2.2 Foundation Elements Required for All IT Strategies

The major inputs for establishing an IT strategy can be reduced to five elements: infrastructure, service, application portfolio change, business process integration and sourcing.

- **IT Infrastructure:** This is the technology component, representing all hardware, the software and operating systems to run on it, the networks that connect everything and, possibly, the amortized cost of development. This is the infrastructure operations component defined above, which is the engine that delivers all of what IT does for the enterprise and, when coupled with service, comprises the largest component of IT costs.
- **Service:** Whether established through service-level agreements (SLAs) or simply inferred from a budget, an enterprise signs on for a certain level of service out of its IT infrastructure operation. This service is provided not only to internal users, but also to external parties such as customers, vendors and third-party-sourced processes. Service is tied to infrastructure — the holistic definition, including applications and operations — in that it represents an additional cost dimension, based on how high a level of service the IT infrastructure must provide to users.
- **Application Portfolio Change:** This strategic element covers the rate and extent of change to the application portfolio over a defined future period. This element is affected by the organizational characteristics that govern application decision making. On one extreme is the organization that simply sustains the status quo through maintenance-level application changes. On the other is the organization bent on transforming itself into a new business model, changing most of its applications in the process.
- **Business Process Integration:** This represents the degree to which the enterprise operates as a single unit — that is, with synchronization among its BUs, or extended to customers or suppliers. For an enterprise in transition, this strategic element defines how much the transformation is destined to integrate the applications that underlie business processes into a seamless, enterprisewide whole.
- **Sourcing:** This element addresses the source of all the people who perform the work needed to execute the strategy — whether internal employees or external personnel from business partners. These can take many forms, including IS analysts, business operations, individual outside consultants

or companies that perform an outsourced process. This element defines the organizational structure for both the IT applications and IT operations strategies.

These five components are used selectively to create a strategy foundation for the two IT infrastructure groups:

- *Infrastructure operations* — IT *infrastructure* and *service* bounds the infrastructure operations group. This defines how the infrastructure will look technologically and how service delivery will be managed. Adding the *sourcing* element completes the picture by defining who will perform the work.
- *Infrastructure applications — Application portfolio change* defines how business processes will evolve, and the extent of *business process integration* lays out the level of complexity required. Service defines how this change is managed, and *sourcing* rounds everything out by deciding who will do it.

These foundation elements set the stage for discussing how a business strategy affects each of these elements in the creation of the IT strategy.

3.0 Business Strategy: Boundaries for the IT Strategy

The formulation of a business strategy, either real or implied, is an important first step to meaningful IT strategy development. IT strategy development can be performed without this step, but such development will not yield optimized IT strategies.

It is not the purpose of this report to discuss how to develop a complete business strategy (to get a feel for what is involved, see the books by Michael Porter, Dr. Bob Frost, Robert Bradford and Peter Duncan listed in Appendix A). However, as it turns out, an IT strategy doesn't require a complete business strategy — it just needs some key parts.

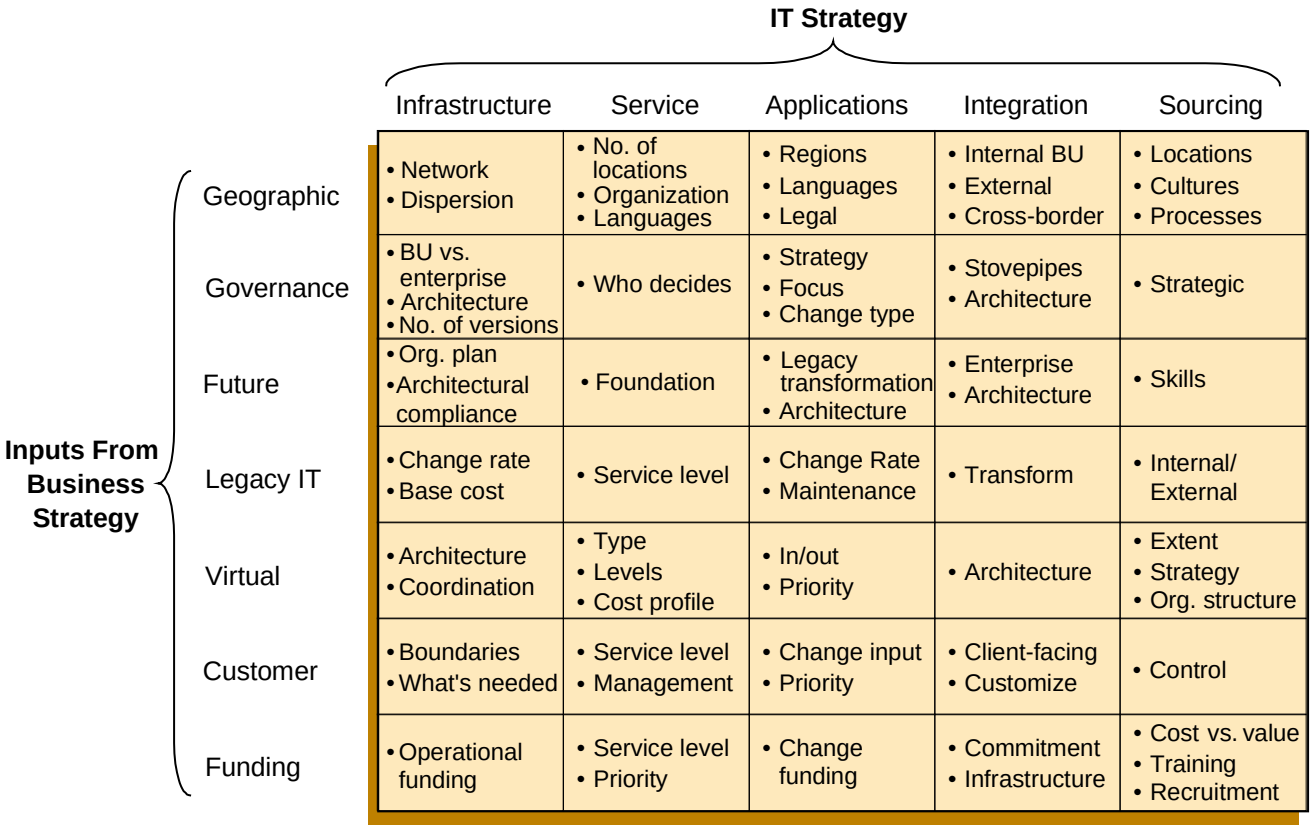
At its most basic level, the objective of an IT strategy is to deliver the right technology and applications to the right place, at the right time, and at the right level of cost-efficiency and effectiveness. Regardless of the level of business strategy articulation, there are basic themes to extract which provide the necessary guidance for IS organizations to create their strategies. If the business strategy is clearly laid out, the process is easy. If not, it will be necessary to interview key senior business managers to obtain the information needed. The following are the seven categories of information to gather from business leaders, or extract from business strategies, to serve the creation of IT strategies:

- **Geographic:** This category bounds the extent of enterprise expansion. IT strategic planners need to know how the company will organize itself within national and global boundaries, and therefore where infrastructure must reach.
- **Governance:** This concerns how decisions are made — whether by BUs exclusively, solely by centralized enterprise management or somewhere in between. Strategies must adapt to the power structures in place.
- **Future:** How far into the future is senior management thinking? The further this horizon extends, the more strategic the issues to be addressed will be. If the future dimension is a short one, it will be more difficult to create sustainable strategies.
- **Legacy IT:** How committed is the business to its established way of doing business? A desire to abandon current processes usually implies significant structural business process change, often driven by a business model change. If the focus is strictly on deciding what projects to do next, strategic thinking is rarely forthcoming.

- **Virtual:** Is the organization thinking strictly in terms of doing things internally on its own, or is there a push to integrate more with customers or suppliers? A willingness to see others as being better at certain business processes sets up significant integration and transition needs.
- **Customer:** Customer service can take many forms, but the degree to which the enterprise wants to engage its customers says a great deal about the form that business processes will take — and therefore what kind of IT infrastructure will be needed to serve them.
- **Funding:** Talk is cheap. The level of funding on the table goes a long way toward determining the true bounds of IT strategies.

3.1 How Business Strategies Map to the Elements of IT Strategy

Figure 4 maps the seven key business strategy input categories discussed above to the five foundation elements of IT strategy discussed in Section 2.2.



Inputs From Business Strategy	Infrastructure	Service	Applications	Integration	Sourcing
			IT Strategy		
Geographic	• Network • Dispersion	• No. of locations • Organization • Languages	• Regions • Languages • Legal	• Internal BU • External • Cross-border	• Locations • Cultures • Processes
Governance	• BU vs. enterprise • Architecture • No. of versions	• Who decides	• Strategy • Focus • Change type	• Stovepipes • Architecture	• Strategic
Future	• Org. plan • Architectural compliance	• Foundation	• Legacy transformation • Architecture	• Enterprise • Architecture	• Skills
Legacy IT	• Change rate • Base cost	• Service level	• Change Rate • Maintenance	• Transform	• Internal/ External
Virtual	• Architecture • Coordination	• Type • Levels • Cost profile	• In/out • Priority	• Architecture	• Extent • Strategy • Org. structure
Customer	• Boundaries • What's needed	• Service level • Management	• Change input • Priority	• Client-facing • Customize	• Control
Funding	• Operational funding	• Service level • Priority	• Change funding	• Commitment • Infrastructure	• Cost vs. value • Training • Recruitment

BU Business unit
IT Information technology

Source: Gartner Research

Figure 4. Business Strategy Elements Mapped to IT Strategy

The seven categories of extraction from a business strategy — and the impact of each on the elements of an IT strategy — are discussed more fully in the seven sections that follow, each of which corresponds to a row in the chart above.

This model may appear to be somewhat complex, but it is the simplest possible context in which to examine the role business strategy can play in the development of a real IT strategy. The objective of this section is to expose all the possibilities in examining the relationship between business and IT strategies.

Out of these possibilities, the selection of what actually becomes part of the IT strategy is examined in later sections of this report.

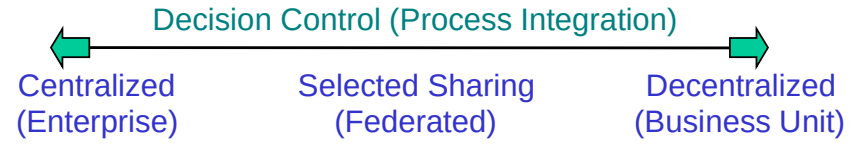
3.1.1 Geography and Its Impact on IT Strategy Development

The geographic aspect of the business strategy affects organizational structure, suggesting regional groupings for management. It influences the five foundation elements of IT strategy in the following ways.

- *Infrastructure:* Geographical aspirations define how extensive and dispersed the IT infrastructure must be. As networks evolve to global proportions, planning and executing their implementation and operation becomes increasingly complex. The number of concentration points, and how they are managed and evolve, depends on this element. This is a major determinant of whether a regional or central approach is chosen. Cost will vary dramatically depending on where the enterprise strategy lies along the spectrum of geographic expansion.
- *Service:* The organizational structure for the delivery of services is greatly affected by geography. This applies not only to issues of language and culture, but also to where, and by whom, the service will be delivered.
- *Applications:* It is rare that a single instance of an application can serve a global user community. As global reach expands, decisions about application versions are affected by customization, language and legal issues posed by the geographic aspect of the enterprise business model. This in turn affects the organization structure for supporting the application strategy.
- *Integration:* From an integration perspective, geography represents the extent of the total enterprise — the outer boundaries of its reach and the end points of its processes. Assessing the impact of geography in this IT strategy element means examining not only internal BUs, but also links to external components such as suppliers, virtual process providers and clients. The geographic element feeds the cross-border integration needs of all internal units and external components that comprise the total enterprise. This is a key factor affecting the composition and complexity of all applications.
- *Sourcing:* Applications support business processes, and resources execute that support. On a global basis, these resources can come from either internal or external sources, represented by individuals or whole processes preformed by outside personnel. The geographic aspect of the business strategy has a major impact on focusing the priorities of the IT sourcing strategy to strike an efficient balance between internally building skills or using outside support. It has become common for application change to use global sourcing. But as the enterprise itself globally expands, operational components of the IT strategy also become eligible for such global sourcing.

3.1.2 Governance and Its Impact on IT Strategy Development

Of the seven business strategy elements, governance has the greatest overall impact on what the eventual IT strategy will look like. Decision control and business process integration are highly correlated, and represent the key constraints a business model can place on any IT strategy. The nature of this control and integration will differ along the spectrum from a centralized governance model to a decentralized one (see Figure 5).



Source: Gartner Research

Figure 5. Enterprise Governance Models

In a centralized model, decisions are controlled at the enterprise level, ensuring that enterprise-level requirements are met. This also typically means that business processes are integrated and that single instances of applications serve these processes. In this case, either a real business strategy or a derived one will serve the same purpose in setting the framework for IT strategies.

At the other extreme is the decentralized model, where BUs control the decision-making process in their favor. In this model, applications are typically duplicated across the enterprise to serve nonintegrated business processes. In this case, a true "enterprise IT strategy" does not exist.

Between these two extremes is the model characteristic of most organizations — the "federated" environment, where selected business processes are shared. Most common is a sharing of administrative and support functions, such as human resources (HR) and finance. With the more recent popularity of supply chain and CRM processes, sharing has extended to these as well. Therefore, for non-shared functions, this business model is often much like the decentralized one for the purposes of trying to develop a single set of enterprise-level IT strategies; there just isn't much coordinated execution at the business operational level. In a number of cases, much of the promise of enterprise resource planning (ERP) systems for resolving this integration problem has been weakened by implementation strains resulting from multiple "instances" of basic business processes — in those cases, BUs won out at the expense of the enterprise.

With this in mind, the following dissects the impact of governance on the five IT strategy elements:

- *Infrastructure:* Governance dictates the basic architectural structure of IT infrastructure — for example, whether single applications serve the entire enterprise, or multiple versions perform essentially the same tasks for individual BUs. The cost impact is significant, greatly influencing the extent to which IT funds can be focused on the enterprise rather than expended on these duplications.
- *Service:* The governance spectrum determines the structure of service — whether recognizing an integrated service delivery approach across the enterprise, or serving individual BU preferences.
- *Applications:* Regardless of whether the model is a centralized one, governance will be at the foundation of the application strategy. It provides a focus for where the application group should apply its resources, and establishes the type of change that this group will deal with — ranging from extensive transformation to limited maintenance.
- *Integration:* Governance defines whether the power center lies with the enterprise or its BUs, resulting in either a stovepiped approach to applications or an integrated one. Integration can be an objective for any spot on the governance spectrum, but whenever it becomes a priority the need to support an IT architecture rises in importance.
- *Sourcing:* Sourcing is a major component for both the IT application and operation strategies, and by itself deserves a strategic plan. Governance is a critical aspect — absent business support, sourcing is subject to the vicissitudes of senior management's reactions to income shortfalls, making it impossible to build for the future.

3.1.3 The Future and Its Impact on IT Strategy Development

The time horizon directly impacts the effectiveness of planning. When time horizons are too short, this feeds the perception that directions are constantly changing. When they are too long, planning becomes unrealistic.

- *Infrastructure:* IT infrastructure is not something that enterprises can repeatedly experiment with on a large scale; it's just too expensive. For every initial amount spent on implementing a new technology, the amount of money needed to support it in the future will be an order of magnitude larger. The further out in time a business strategy's bounded objective falls, the more efficiently the IT infrastructure needed to support that objective can be assembled. The closer that time horizon lies, the more likely it is that a number of overlapping technology options, or even dead ends, will be implemented. The number and diversity of the technologies used has a direct bearing on the IS organizational structure: As the number of different technologies rises, so does the size and complexity of the organization.
- *Service:* This component is often a "hidden" expense, one that isn't directly measurable except in terms of customer satisfaction. The cost of service can become quite significant, but it much of this cost is indistinguishable from the product or service being offered — that is, it is an inherent component. The more this concept is discussed by the business as being a distinct future definition of its vision, the easier it is for the IT strategies to adopt the necessary service support foundations needed for a continually evolving execution.
- *Applications:* The more clearly the future is envisioned, the easier it is to plan for legacy application transition. This transition is often the biggest, costliest part of executing a strategy. This factor becomes the primary reason for creating an overall IT architecture to both build the new and manage transition of the old.
- *Integration:* Integration is costly and requires long-term commitment. One of the most common examples of a future objective requiring integration is a global enterprise's goal of operating based on an integrated set of business processes. This is another driver of the need for an enterprise architecture.
- *Sourcing:* A bounded future paints a clearer picture of the types of skills needed to reach that future. Knowledge of the types of skills that will be needed, and when, supports the decision of whether to source internally or externally.

3.1.4 The Legacy IT Application Portfolio and Its Impact on IT Strategy Development

No organization can simply abandon its legacy portfolio of applications; there are just too many of them. Striking the right balance between the old and the new is a key determinant of resource consumption. If too much emphasis is placed on the legacy side, applications become maintenance-heavy, leaving few resources available for anything new.

- *Infrastructure:* Operating the established portfolio sets a base cost level. Strategies that contain a significant IT component will set the rate of change that the operations group must address. Changes in applications directly set the pace for changes in infrastructure.
- *Service:* Service levels in this area focus on operating legacy applications, but the business strategy may imply shifting resources away from these applications toward new and emerging ones. The operations group must gain a firm understanding of the enterprise's and BUs' commitment to a given level of service.

- *Applications:* The key here is to gain an understanding of what needs to be done with established applications. Strategies often dictate that the transition effort will represent the largest cost component. The balance between maintenance and transformation will bound the resource and cost options available.
- *Integration:* Few organizations have a fully integrated set of applications, so it is important to understand the strategy's commitment to supporting the transition to integration. Integration can be a great way to deliver a powerful, effective client interface. But the downside is that sustaining integrated applications requires extensive enterprise support, and can make future changes more costly. The more integration takes place, the more everyone will be affected by changes introduced by any single part of the enterprise.
- *Sourcing:* The level of change needed to support legacy applications over the span of the strategy time horizon will affect the decision of whether to provide support internally or outsource it. Determining what to do with legacy applications will alter the organizational structure, impacting people's careers and skill development.

3.1.5 The Virtual Business Model and Its Impact on IT Strategy Development

Organizations become more virtual as they outsource business process segments. Most enterprises have only six or so key business processes, each of which is composed of numerous subprocesses. Organizations must manage the end-to-end results of these processes, but as they become more virtual, the complexity of managing them rises dramatically.

- *Infrastructure:* As virtualization increases, so does number of outside organizations with which to coordinate. The complexity and cost of doing so rises not in a linear relationship, but in an exponential one.
- *Service:* As business processes become more virtual, service levels evolve over two dimensions: the end user and the virtual service providers. This rising complexity directly impacts the types of service offered, their levels of support and the ultimate cost of sustaining them to meet contractual agreements.
- *Applications:* A business process that gets "virtualized" is often one that is commodity-like, or that can be better handled by someone else. Conclusions about virtualization therefore set the priority for internally supported business processes and, by default, the applications that power them.
- *Integration:* It's one thing to integrate internal applications, but something entirely different to do so with multiple external business partners. Internally, the architecture can be controlled, but "going external" makes architectural issues much more complex — so complex, in fact, that for some transformations, integration expenditures make up the majority of the total transformation cost.
- *Sourcing:* As an enterprise becomes more virtual, outsourcing becomes more critical, requiring a strategy of its own. Virtualization has a direct impact on how the organizational structure is built and managed.

3.1.6 Customer Interaction and Its Impact on IT Strategy Development

The degree to which the strategy is explicit about the client interface will define the true commitment to a customer. As noted earlier, it is common for strategies to state how important customers are, but quite uncommon to state how the client will really be served.

- *Infrastructure:* How far processes really extend to the customer has a significant infrastructural impact. Information presentation, order entry or integration into a customer process itself all have different connotations when considering the IT infrastructure needed and how it will be operated.
- *Service:* The depth to which the customer interface is embedded into customer processes or locations directly impacts the levels of service required, and the extent of coordinated management needed.
- *Applications:* The more integrated the client interface is, the more say the customer will have about any changes made to it. This customer influence will affect the priorities of emerging change requests and how resources are applied to them, putting bounds on internal requests.
- *Integration:* Deeper penetration into clients' processes puts more stress on architectural choices. New customers can demand modifications to maximize the value to their process.
- *Sourcing:* The balance here is about control. As customer orientation becomes more deeply embedded in the product or service being offered, the quality and integrity of the result becomes increasingly important. The sourcing decision must balance how best to control that quality and integrity as seen by the customer — whether resources are internal or externally supplied.

3.1.7 Funding and Its Impact on IT Strategy Development

In the end, it all comes down to money. Either there is enough to fulfill the strategic vision, or there in not. This consideration goes one or two steps beyond the strategy and is founded in the budget cycle.

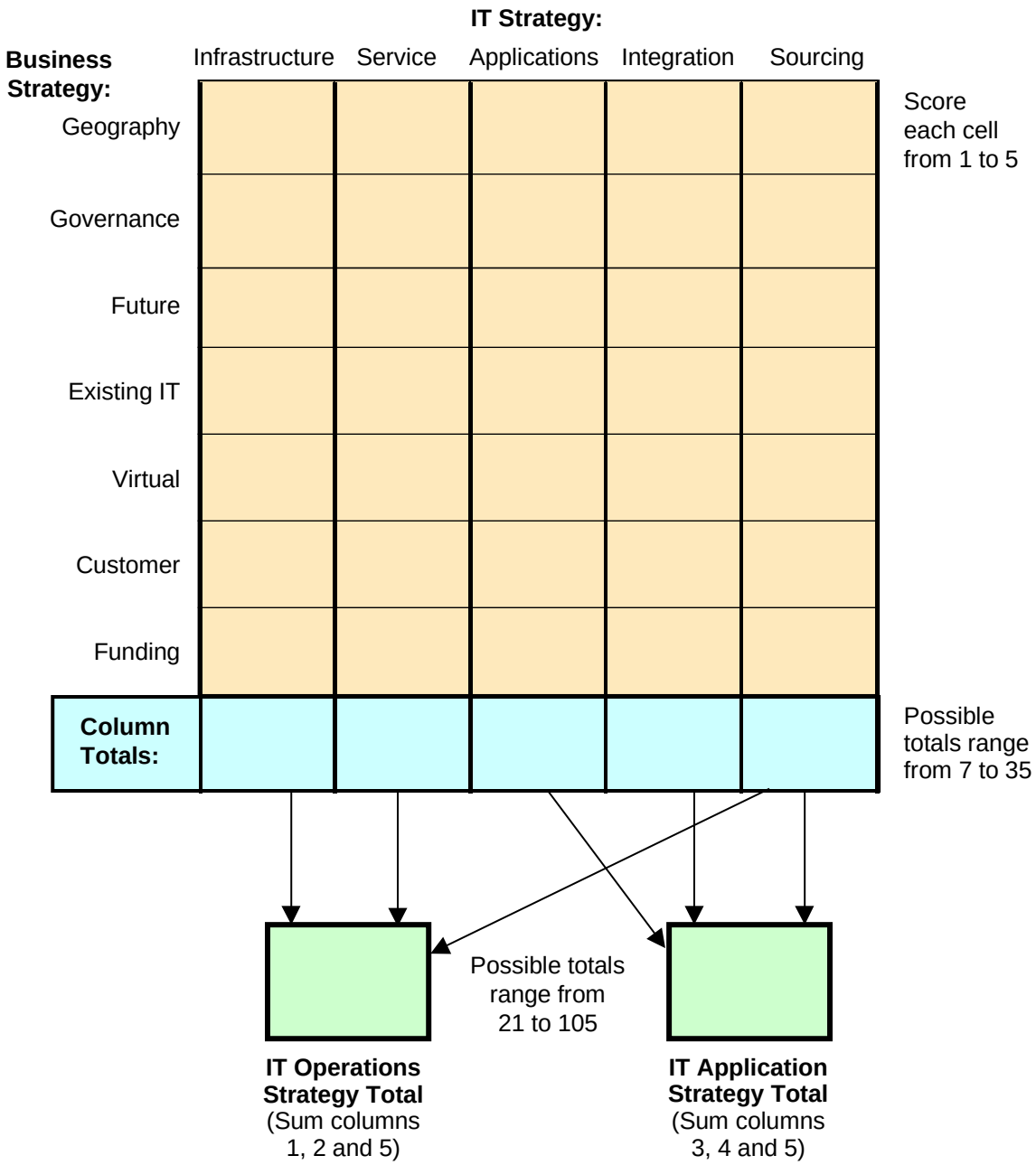
- *Infrastructure:* This issue is inevitably tied to service. Is there sufficient funding to keep the IT infrastructure current and serviced at expected levels? Priorities may be indicated, but a balance must be struck.
- *Service:* See "Infrastructure" above.
- *Applications:* The amount of funding available sets the rate of change possible. Conflicts are serious problems to be resolved before strategy finalization.
- *Integration:* The greater the need for integration, the more critical it becomes to properly fund the effort. Money defines the commitment to both change and the infrastructure needed to execute it.
- *Sourcing:* A strong statement on strategic sourcing is founded on value; a weak one relies on cost and is much more difficult to build on. Defining a sourcing strategy not only clarifies how external resources will be employed, but also how internal resources will be recruited, trained and retained.

3.2 Testing the Sufficiency of Your Enterprise's Business Strategy

To get a sense of where you are relative to creating a viable IT strategy, it's useful to develop some measurement benchmark of how good the business strategy is. The scorecard shown in Figure 6 (based on the matrix introduced in Figure 4) provides one such benchmark.

Within each column, score each box between 1 and 5 based on the following general criteria:

- 1 — Nothing available from either a business strategy or senior management.
- 2 — A few points are clear, but fewer than half.
- 3 — A bare minimum of the points are resolved — enough to go forward.
- 4 — Most of the issues are resolved, inspiring confidence that this will support a good IT strategy.
- 5 — Everything is clear; the business understands very well what is involved and is responsive to supporting what is needed.



Source: Gartner Research

Figure 6. Scoring Business Strategy Suitability for IT Strategy Development

Total the scores for each column. Possible column totals range from 7 and 35:

- If any column totals less than 18, it is doubtful it can contribute much to the IT strategy.
- A score of at least 24 is a base level on which to begin building, but still not near what it should be.
- Anything above 28 will contribute very well.

Because the focus is on building two strategies, one for applications and one for operations, we need to treat them separately when scoring. For the application strategy, add the column scores for applications,

integration and sourcing. For operations, add the column scores for infrastructure, service and sourcing. The range of possible total scores is between 21 and 105:

- A score of 51 or less indicates that building this particular set of IT strategies will likely serve only internal IS purposes. It may remain worthwhile, but it will likely be difficult to get business leaders on board.
- A score of at least 71 is a better base upon which to start.
- A score of 84 or better will yield a very solid, meaningful set of IT strategies.

The remainder of this report examines all of the elements that will determine the IT strategy (in Sections 4 through 8), and provides a nine-step process (including a documentation template) for the eventual creation and ongoing management of the finished strategy (in Section 9).

4.0 The IT Application Strategy: Application Change as an Engine of Business Strategy

Historically, application change has been viewed by the IS organization in terms of a long list projects. IS is often more than willing to show a four-page list of applications being developed, changed or supported. For strategy purposes, however, this view is not necessarily helpful. It is much more valuable to view applications in terms of those that are strategic, and those that are not. To reach this simplicity, we need to understand two issues that make it difficult to achieve — and, therefore, what structural changes are needed.

First, organizationally, IS groups are still dominated by a management approach with deep roots in the past. There have always been two distinct application sets: one serving administrative support groups and a second serving business operations. The major players in the support group, aside from IS, are typically the finance and HR organizations, followed by legal and tax functions. The operations group tends to be dominated by functions like manufacturing, customer service, order entry and distribution. Some functions, such as purchasing, may float between the two. Within this model, many business operations functions have deferred to support groups for the "care and feeding" of IT. This has led to the view that the applications in an enterprise portfolio are largely equal in importance — that is, everyone should be able to get changes implemented.

This delegated organization structure may have worked in the past, when enterprises lived within their own boundaries and exclusively controlled their own operations; however, with the business model evolving to a virtual one, the old assumptions about managing application portfolios break down. As core business processes are "virtualized," integrated and extended to encompass customers and suppliers, the resulting business processes become too complex for business operations groups not to take direct ownership of them. When dealing with a specific business strategy, it quickly becomes clear what is strategic (business operation) and what is not (support) — for example, general-ledger or HR systems do not contribute to the enterprise's competitive position in the marketplace. The point isn't that strategy is good and support is bad; it's simply that strategic activities have more relative value to the enterprise when competing for scarce resources, and this should be taken into account.

Second, under the historic approach to managing applications, users become enmeshed in an endless list of projects they feel compelled to request. With no real strategy to guide them, they revert to asking for numerous enhancements to established implementations. Most IS organizations respond by dividing their resources into two separate development groups, one focused on major new projects and the other taking care of all the maintenance activities. One of the biggest drawbacks of this approach is that, typically, no one is responsible for the quality of the application itself, or the quality of the service being delivered. If

users and IT people are not focused on sustaining an outcome defined by a strategy, the result is a muddle of projects and widespread dissatisfaction.

These two issues can be resolved by holding the business accountable for its business processes, and by channeling all IT changes that support those processes through one IS group that is specifically responsible for implementing those changes — thereby creating a clear line of accountability. Further, the underlying applications are identified as either strategic or nonstrategic — that is, they serve either a business operations function or a support function. Any results are a direct reflection on the two cooperating partners.

If no changes were made to a legacy business process implementation, all that would be needed is resources to fix any breaks or apply version upgrades to sustain contract and support responsibilities. However, if the process needs amending, this change must be evaluated and justified relative to the strategy — only the changes that add the most value should be made. The business is on a budget and can only afford so much, so the business should be responsible for determining what those "high value" changes are (see Section 7.2 for more discussion of budget issues).

The unspoken user question that must be answered by IS concerns whether users are receiving the highest possible value for the money they are spending — that is, whether the change group is functioning at optimal efficiency. This is accomplished through benchmarking against other industry groups or externally against ESPs, adopting recognized capability measurements, and building a deserved reputation for delivering optimal services.

Breaking applications down into either business support or business operations functions provides focus for the IT strategy development effort. In the sections that follow, we examine each of these two functions in more detail.

4.1 Business Support Functions

These functions are served almost exclusively by application packages. They are purchased based on the functionality offered, and implemented in stages that reflect the basic underlying modules offered in most packages in this market. This typically limits any change requests to what is already built into the software but has yet to be activated. These applications do not differentiate the enterprise in the marketplace, and the need to customize them should be very limited. Examples include accounting and HR applications.

- *Accounting applications:* The problems facing accounting-standards organizations today will bring significant changes in how accounting evolves in both the short and long terms. There will be many demands for change, but because implementation is dominated by accounting software packages, the rate of change will be determined by the rate at which the demands on accounting are translated into new versions of the software. The changes facing this function will largely entail moving to a stream of evolving application versions, all being dictated by differing legal or advisory groups.
- *HR applications:* As we stated earlier, strategies are often confused with statements on core values that reflect how employees and their leaders are supposed to act. How serious these statements are taken is reflected in the change efforts associated with the HR function. Again, their applications are dominated by packages, and most change requests will be bounded by package functionality not yet implemented or a version upgrade.

To learn the strategy for any of these support functions, one simply asks their leaders. The result will most likely be a string of software change requests stretched out over a one- or two-year period. It should then

fall to these business support organizations to justify this change stream and get the funding in their budgets.

Based on the five elements of an IT strategy, the following items are needed to create a strategy for enterprise support functions:

- *IT Infrastructure:* Define the user interface and computing structure to support the application, locations where that interface is delivered, and the hardware, operating-system, database and network requirements.
- *Service:* Define the services being bought, and the agreed measurements of acceptable delivery.
- *Applications:* Define the packages, the rate of change, and whether operation is internal or external.
- *Integration:* Define any integration requirements, if applicable.
- *Sourcing:* Define support sourcing.

The remaining consideration is to map the business model (as depicted in Figure 4) to these strategy elements. In many cases, the business model won't significantly affect support functions because they require little or no interfaces to other functions. Although some accept feeds from, or deliver them to, other systems, these feeds are typically non-real-time, batch transactions — the most simplistic and resource-light type of interface. Governance is mostly left to the functional units themselves, so the elements above will often feed their strategy without modification.

4.2 Business Operations Functions

These functions define what the enterprise is from the perspective of its customers, suppliers and partners. Most organizations will be able to define four to six major business processes that make up their operational framework (for example, manufacturing, distribution, customer service, procurement and service delivery). However, in manufacturing, many of these major processes are coalescing into a single, end-to-end process, from initial demand through manufacture and supply.

The application portfolio that supports and runs these processes is the primary focus of the IT application strategy, and the "applications" and "integration" columns from Figure 4 define the primary framework for developing it. The business model is critical in determining how the strategy for these applications emerges. Therefore, in the following sections, we will examine these two columns — "applications" and "integration" — in the context of each of three business models we introduced in Figure 5:

- Enterprise-dominant (centralized)
- Federated (selected sharing)
- Business-unit-dominant (decentralized)

4.2.1 Enterprise-Dominant

In this model, applications tend to serve the entire enterprise, rather than being duplicated across BUs. BU variances will be managed through modifications to the core application. As global reach is achieved, most of these modifications will evolve into regional versions of the core application addressing local-language, legal and cross-border issues. Integration and an underlying architecture are both a given; it simply becomes too expensive without them. The strategies for these applications cannot be taken lightly — they require full commitment from all stakeholders in the enterprise.

This commitment is seen in how well the transition from legacy versions of applications to newly integrated ones is planned and supported. Most organizations never seem to get off the transition treadmill, although the technologies are mostly in place and readily available. The most advanced enterprises solve the commitment issue by taking the decision off the table for the BUs, and making all infrastructure transition expenses flow to the enterprise. This relieves the BUs from having to cost-justify what is already required to support the enterprise strategy (see Section 7 for a more complete financial discussion).

The most complex part of the strategy depends on how virtual the enterprise sees itself becoming in its strategy. A nonvirtual approach leads to boundaries for integration set by the extent of the physical enterprise — applications driving processes need to be integrated to the degree they need information. At the other extreme, a virtual enterprise has applications composed of many parts determined by virtual partners. With a lack of universal standards for integration, the worst case would see each partner having a unique set of integration requirements, and the end-to-end process would become very complicated to envision and manage.

There is a big downside to this strategy that most organizations have yet to fully understand and address. The more one integrates, the more difficult it is to change, because application changes become exponentially more complex and resource-consuming. IS needs to explain very carefully what it really means for an enterprise to pursue this strategy. A key part of the IT strategy, therefore, is to communicate to the business the level of financial commitment required. The best approach to accomplishing this is to present alternative scenarios (see Section 7.1.2) and the costs and effort involved in executing each.

Additional considerations include infrastructure and service. IT infrastructure needs will fall out of the application strategy, providing key input to the IT operations strategy. Service levels set the standards that end users, of all varieties, expect. As virtualization expands, service-level measurement becomes more critical and more difficult at the same time.

Finally, a sourcing strategy must be defined as a subset of the application strategy. Virtualization sets expectations about strategic sourcing of business process components, and how the ultimate organizational structure of business process operation will evolve. The sourcing strategy also needs to address the "people" aspects of internal vs. external placement. An internal focus bounds what is considered essential to the enterprise itself, while an external one identifies those resources that can be simply managed and not owned. More information on sourcing strategy can be found in Gartner's "Strategic Sourcing: The Book" (http://sourcing1.gartner.com/story.php.id.265.s.1.jsp), as well as "Understanding the Five Styles of Strategic Sourcing" (M-16-7057) and "Marketplace Realities in Strategic Sourcing" (R-17-7896).

4.2.2 Federated

In this business model, dominance is balanced somewhere between the enterprise and individual BUs. The state of this balance is often reflected in how senior management provides incentives to the individual BU leaders. Federated enterprises are often torn between letting the enterprise or BUs become dominant. Often, different constituents will have varying degrees of influence in the decision process, resulting in multiple versions creeping into the application portfolio to satisfy different players.

This business model often provides an illusion of structure, and can present a difficult environment for developing an effective IT application strategy. An example of the problem can be found in evidence from a Gartner survey of European enterprises in which SAP applications were installed. Less than half of the enterprises surveyed had core application sets — most let each BU go its own way, resulting in numerous

instances of the SAP package. Anecdotal evidence suggests that the situation may be worse in the United States. Although there may be IT governance boards or similar structures in place, the number of application versions or instances tends to proliferate.

In this model, the structure of the application portfolio and how its evolution will be managed is the basis for the application strategy. The key processes being supported, the number of application versions and the extent of integration will fill this out. This will also determine the extent of the architecture that will be needed, establishing a cost basis for ongoing support.

The more diffusion there is, the more unsettling it is for IS people: The lack of efficiency forces the organization to build a skill base that is often at odds with itself. The only way to address this is to price it accordingly back to the business. This aspect of the IT operating strategy becomes a critical link for inclusion in the application strategy. All too often, this link is not forged and the business has no idea what its strategy is forcing the IS group to do, let alone what it will cost. If this awareness is not raised until annual-budget time, the game will already be lost. This is a strategic decision and is central to making the two IT strategies work for the business.

Because this model poses the prospect of many application versions handled by a single IS organization, establishing the rate of change and prioritizing activities is crucial to the IT strategy. Processes that define how the business justifies what it wants, the priority for implementations, and how much the business will pay to install and support these implementations all must be spelled out. The tools required to accomplish this are discussed more extensively in Section 7.

As was the case in the enterprise-dominant model, IT infrastructure needs will fall out of the application strategy, providing key input to the IT operations strategy. Addressing service levels becomes more complex, since individual BUs may set their own expectations without coordination across the enterprise. These service levels are the key determinant to managing costs, and the boundaries of expectation must be clearly set in the strategy.

Again, a sourcing strategy must be defined as a subset of the application strategy, making explicit how resources will be selected and what balance of internal and external resources will be employed.

4.2.3 Business-Unit-Dominant

In this case, BUs are the source for the business strategy, so the IT strategy must account for all of the individual business strategies of these units. This is the most inefficient of the three models for the IS organization to serve. The duplication of IT resources reflects the duplication of applications, as each version of an application has a unique form of implementation in the different BUs.

Much of the discussion above for the enterprise-dominant model can be applied here — with the difference that what applies at the enterprise level in the first model is repeated here for each BU. There is often little pressure to integrate any applications across the enterprise. This model reflects a philosophy that each BU knows what's best, and the BU's financial performance defines the success or failure of its strategy.

The difficulty with creating a strategy for this model is dealing with the different, competing needs of each BU. The simplest way to address this is to state a separate strategy for each BU. Attempting to create a single, unified strategy is not worth the effort, because the audience of multiple BUs would get far too confused in trying to extract what it means to them. The commonalities should be masked to the enterprise and articulated in an addendum for IS consumption only. The IS version bounds the strategy for the IS organization, basically setting out how it will organize and manage itself.

Again, IT infrastructure needs will fall out of the application strategies, but in this model it is much more complex. There are so many technology choices and associated skill sets required that costs rise dramatically. There is no sense of architecture here, except to the extent an individual BU needs one. Service levels also become more complex, because individual BUs will be setting their own expectations, and costing them raises significant pricing issues for IS to resolve. We often see IS organizations struggle with the inefficiencies of this approach, trying to explain to the BUs how their decisions result in higher enterprise costs. Unfortunately, it is mostly a losing battle, since it goes against the business model and how BU managers are ultimately rewarded and promoted.

A sourcing strategy may prove less relevant in the BU-dominant model, because scale is not as much of a consideration. However, it remains a best practice to define one as a subset of the application strategy. In the end, for all BUs, it must be made explicit how resources will be selected, and what kind of balance between internal and external resources will be employed.

4.3 Dealing With Uncertainty

While it is necessary to identify a number of strategy-bounding conditions, the real challenge lies in making decisions about them. Historically, risk has been used as a major factor in decision making, but a more practical approach is provided by Hugh Courtney in "20/20 Foresight" (see Appendix A). Courtney proposes that the level of uncertainty — or more specifically, "residual uncertainty" — is the appropriate framework to use in designing strategies. He defines four levels of residual uncertainty:

- Level 1: A single possible outcome; no uncertainty
- Level 2: A limited set of specific possible outcomes
- Level 3: A range of possible, unspecific outcomes
- Level 4: Nothing specific, not even a range of possible outcomes

Although Courtney's book focuses on business strategies, his concepts surrounding uncertainty are applicable to IT strategy development. A more in-depth look at uncertainty and how to deal with it is presented in Section 7.1. For now, we will examine the kinds of uncertainty that IS organizations face in building IT application strategies.

For business support functions (see Section 4.1), two major uncertainties apply to applications. One concerns what changes will be required due to decisions from external legal or regulatory groups, and how quickly the package vendors will get them implemented. The second is whether they will receive enough funding in each annual budget cycle. The first should resolve itself rather quickly into a Level 2 uncertainty, with the timing determined by external events. (For example, given the current state of accounting standards, it is likely that changes will impact how companies manage their finances in the future.) The uncertainty in this case would probably affect tactical decisions more than broader, strategic ones. The second uncertainty is strictly internal, again representing a Level 2 uncertainty with defined possible outcomes.

For business operations functions (see Section 4.2), application uncertainty is a major issue because it directly reflects uncertainties in the business strategy. There is residual uncertainty for each of the elements of the IT strategy — a much more complex situation than the one facing the support functions.

For example, globalization is part of many business strategies, and represents a significant area of uncertainty. It is such a broad area, this uncertainty must be broken down further to assess it at a more granular level. One subset of uncertainly could be market potential. The level of residual uncertainty about

markets should affect how the business sets its own strategy. Again citing Courtney, this poses three choices with two options each:

- Shape or adapt
- Commit now or later
- Focus or diversify

The business choices will translate directly to the IT strategy, establishing the level of uncertainty faced.

In strategy development, there are major differences in how one approaches Level 2 uncertainties compared to Level 3 or 4 ones. One can cover oneself when there are a few limited choices, but when ranges appear, the uncertainty of choosing correctly increases dramatically. Section 7 discusses how best to manage decisions in these complicated situations.

Architectural issues are at the core of any IT strategy involving a business model transformation to a more virtual structure. Uncertainty regarding the enterprise's commitment to supporting an IT architecture — and all this entails in terms of costs and decision discipline — must be considered. The outcomes in this case are likely to represent a Level 2 uncertainty, if not a simple dichotomy. In cases where uncertainty is high regarding architectural commitment, an IT strategy response might be to test this commitment frequently, taking smaller steps along the strategic path and preparing for potential adjustments in strategy.

As noted in Section 1.2 (see Figure 1), growth through acquisition is part of the stated strategy of 24 percent of Fortune 1,000 companies. Although the total value of acquisition deals in the United States has fallen dramatically in 2002 (over 50 percent), the number of deals (which, from an IT perspective, is all that matters) is down by only one-third. These events cast significant uncertainty on application groups' capability to sustain other components of a business strategy. Uncertainties posed by potential acquisitions directly affect resource planning, which underpins the execution of any strategy. Again, this is a Level 2 uncertainty whose impact should be explicitly introduced into the IT strategy for the business to address.

5.0 The IT Operations Strategy: Delivering Cost-Effective, Credible Service

IT operations is the IS organizational component that users "see" every day as they go about their work; its effectiveness is measured constantly. It also accounts for a major portion of the total IT budget of a typical enterprise — 60 percent to 70 percent, according to Gartner surveys.

When credibility is an issue, the problem users have with operations is framed by the common question: "Why am I paying so much for such marginal service?" A typical IS operational organization is structured along the lines of what is needed to support the IT infrastructure — that is, to satisfy internal IT needs. Because IT operations are founded on this internal operating structure, the costs are typically incomprehensible to users.

Some IS organizations can make this traditional approach work, but this usually happens only when an enterprise understands very well the contribution IT must make and funds its support accordingly. For most enterprises, we believe the IS operating component must be reformulated to make it more comprehensible to the paying user, through the adoption a service model.

To accomplish this, we recommend the use of Gartner's Internal Service Company (ISCo) model as a framework for developing the IT operations strategy. Note that this model is equally applicable to the application change group, but we have chosen to explain it here, in the context of IT operations. In this

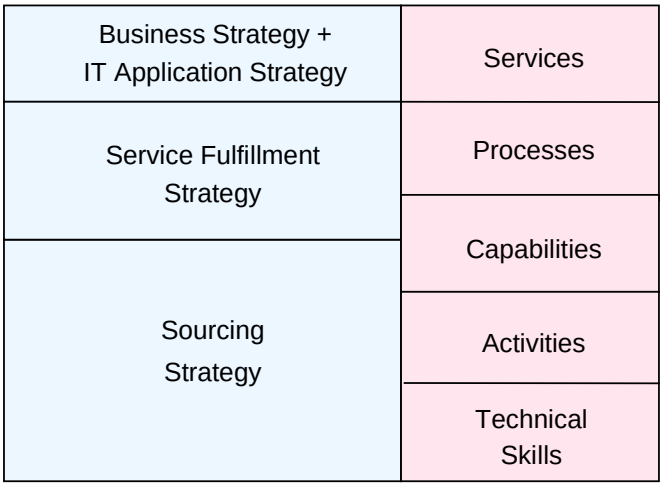
report, we review this model in summary; for a more in-depth examination of the ISCo model, see "The Core Elements of IT Service Design" (COM-11-5095), "IT Services: A Framework of Organizational Design" (COM-11-7679) and "Designing Customer-Focused Service Portfolios" (COM-15-0890).

5.1 Organizing for Service

Traditionally, IT operations are organized around the major components of IT infrastructure — hardware, software and networking — which are further broken down into skill groupings that reflect some uniqueness (for example, server, mainframe, operating system or database). Since this is the basic structure and for cost recovery, the natural tendency is to price based on resource usage out of each of these organizational subgroups, using measurements such as computer cycles, disk space or communications lines. It isn't unusual to see up to 200 such subgroup processes in place, all of which are actually needed to manage the operation.

From a user perspective, however, the result is a mind-bending mix of charges that leaves most users hopelessly lost. It's not that the approach itself is wrong; the problem is that a layer is missing — one that would provide an understandable framework, enabling users to grasp the strategic purpose and value behind the complexity. The processes that were the focus of traditional approaches remain valuable; they simply fit in a different part of the framework — the area that is meaningful to IS, but not to the business constituents who "pay the bills." Think of it as a way to simplify billing (or, in IT terms, "chargeback").

Figure 7 portrays Gartner's IT Service Management Decision Framework, which is the foundation on which the ISCo model rests. The left-hand column shows the strategy portions necessary for creating an IT operations strategy. The business strategy we discussed is Section 3, and the application strategy components in Section 4. In this section, we will address the service and sourcing strategies. The right-hand column decomposes the service model by identifying the elements required for service fulfillment.

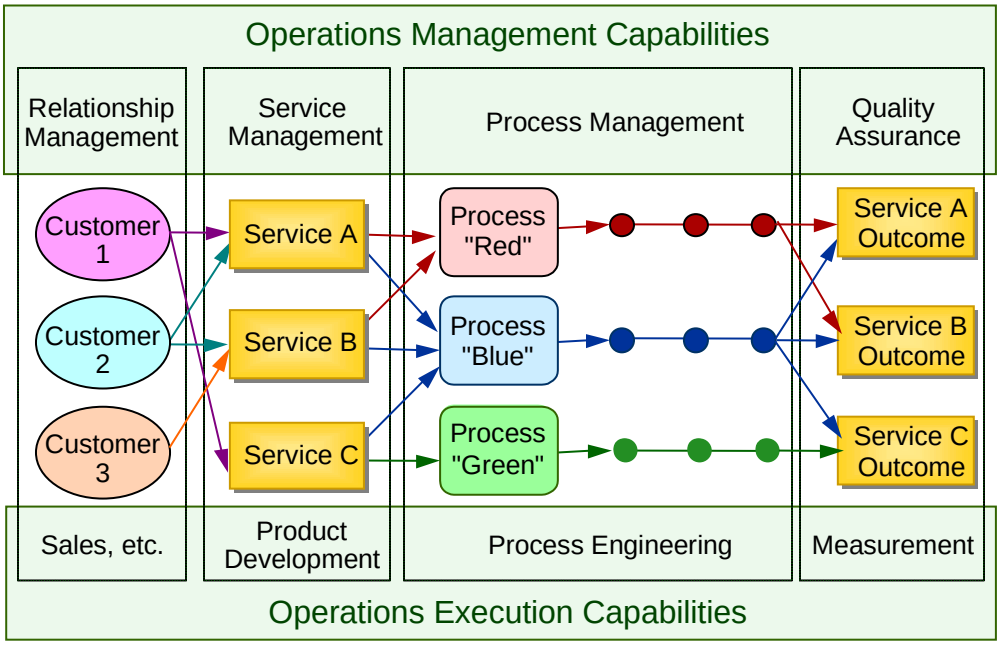


Source: Gartner Research

Figure 7. IT Service Management Decision Framework

At the core of the service model concept is the need to select the dozen or so services that define the entire IS group: application change and operations. When attempting to identify services, the common trap most IS organizations fall into is to list the subprocesses that define how they work — rather than identifying the services that make sense to the business, so that the charges that arise from purchasing them are understandable. A comparison to ESPs and the services they offer is appropriate because, in a sense, internal operations groups are in competition with ESPs when they provide comparable services.

Figure 8 presents a picture of how the ISCo model transforms this approach into real-world operation. It starts with relationship management — that is, getting to know the needs of your customers. Every customer will need to "buy" a set of services, each of which has its own management structure. Underlying the services are all the processes necessary to make everything work. As Figure 8 shows, services can share processes, which optimizes IS resources to maintain an efficient cost profile.



Source: Gartner Research

Figure 8. The ISCo Model

Ultimately, users have specific expectations about the quality of service that they are paying for, usually defined in SLAs. Of the four components shown — relationship management, service management, process management and quality assurance — the user sees only three of them, while the complexity of process management is masked from their view.

Organizing along service lines is an optimal structure regardless of business strategy, because all that changes is how much quality is built into any given service. If a service component has a high strategic impact, it will receive support for a higher level of budgeting.

5.2 Building an IT Operations Strategy

As a general trend, Gartner believes that IT strategies will evolve to an ISCo model. Users will be presented with services, and will have to determine the levels of quality they are willing to pay for. This payoff balance between service and price becomes the core of an IT strategy; all that remains is to map the business strategy to it, which is highlighted in the first two columns of Figure 4. All of the business strategy elements affect how services are organized and populated with resources.

Price becomes a measure of efficiency — and this efficiency is driven by how much the IT infrastructure conforms to a consistent architecture. The more diverse the architecture is, the more expensive the services will be. This is explored more fully in Section 6.1.

The objective of the strategy is to make it clear to users what they are buying, and that they are receiving service at the optimal price point given their operational expectations from the application environment they create. The main means of proving this is through comparison to similar outside services, where the

marketplace establishes the price/service balance. One of the true powers of a service approach is the ability to effectively manage customer expectations — the mysteries of IT are hidden from view, replaced by a competitive marketplace and manageable costs.

The appropriateness of the ISCo model is independent of the business model. If BUs demand unique application choices and supporting infrastructure, the service-level support required by that BU will be costed to cover the expense. The effect can be felt in any of the dozens of processes — associated with storage farms, data management, reporting, electronic data interchange, Web sites and the like — that go into supporting the services. It could get very complicated if a full spectrum of service levels were offered, yielding infinite pricing options. Therefore, a discrete set of service levels must be established, with prices that accurately reflect the cost of providing them. It is these levels of service, built over the subprocesses, that make the ISCo model real. A fully functional model is powerful in both serving clients and focusing the IT operations organization on what it must do to be successful.

The final portion of the service strategy (as shown at the bottom-left of Figure 7) is to develop a strategy for the sourcing of resources. As seen in the final column of Figure 4, many business inputs affect not only the decision to outsource, but also the skills and organization structure needed internally.

5.3 Uncertainty Considerations

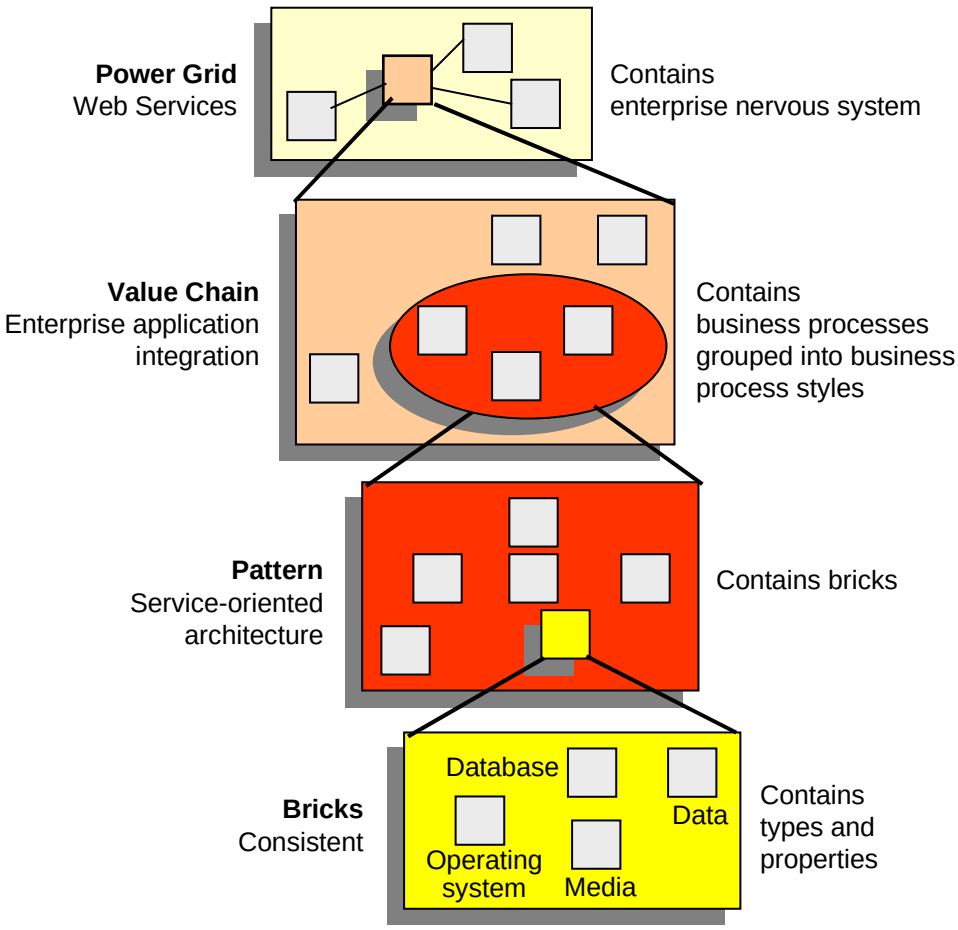
The principal uncertainty facing the ISCo model is how the business interacts. If BUs understand their needs and can effectively strike a balance between what they want and what they can afford, the service model is quite stable. However, if BUs are volatile — with unclear business strategies and constantly changing courses — the service model allows them to keep changing services and service levels, which can wreak havoc on any operational planning. This is a Level 2 residual uncertainty with a discrete number of outcomes.

In the latter scenario, however, the service model actually works well, because the higher prices that reflect supporting this type of volatile service environment would also be seen in any competent outside competitor — the BU has no real cost-effective alternative. An increase in volatility would seem to imply using more outside sources, but for entire processes, most suppliers would require a long-term contract to protect their investment, making short-term changes costly. An alternative is to staff operations with outside people that can be adjusted in the short run, retaining management internally.

6.0 IT Architecture: What the Business Needs to Understand

Many nontechnology professionals believe themselves to be technology-literate, but few really are. For most senior managers, technology is equivalent to PCs, which they often know quite a bit about. This is why so many are perpetually somewhat confused about why IS says technology is all so complicated. A language for explaining what they need to know must be developed. Going to the depths of IT is never helpful and trying to explain computers themselves is of little value. What they need to understand is the basic structure of IT architecture and why it is necessary.

New formulations of IT architecture are attempting to supply this needed new language. Gartner's Enterprise Architecture Model (see Figure 9) depicts IT architecture in terms of four related, increasingly complex layers. The top two layers are for business consumption, while the bottom two at strictly IT-specific and therefore should remain internal to IS. The top layer depicts the emerging virtual business model, and is appropriately termed the "Power Grid." The second layer addresses how the business goes to market, i.e., its business processes. Gartner has identified five "styles" that these processes can take. (See "Key Components for Building Your Architecture," AV-17-4818.)



Source: Gartner Research

Figure 9. Gartner Enterprise Architecture Model

These are appropriate concepts to address with the business, for they provide a meaningful basis for discussions that reveal how their business decisions impact IT decisions. As the top layer in the model above suggests, architecture becomes especially important as enterprise business models evolve to more-virtual structures, which will be totally dependent on rational architectural implementations. One good method of explaining this importance to non-IT management is to reduce it to two simple points:

- Architecture's impact of complexity
- Architecture's impact on costs

6.1 Complexity and the Lack of an IT Architecture

The key underlying factor in any discussion of architectural complexity is that for every new layer of complexity added, overall reliability drops and cost goes up. High reliability for a single component often leads people to falsely assume that this reflects total reliability. The reality is that the reliability of the whole reflects the multiplied lack of reliability of all the individual components. Therefore, a certain level of complexity and expense in operating an IT infrastructure is unavoidable. However, the ISCo model ensures that the expenses in operating this infrastructure are optimized to the buyer's advantage.

Many organizations can point to more than 200 processes that underpin IT infrastructure operation, and each of these is scaled depending on how many "things" each process has to deal with in the infrastructure. To again attempt to make this all relevant to an executive, take that single PC the executive

has at home and start "connecting" it to other things. First put in a network that will connect all the PCs at home, family, friends and associates. Then pile on a myriad array of software packages to satisfy all these users. Put in servers and mainframes to ensure enough computing power is available to make all this work, along with the disk storage to keep all the children's digital music files. This just gets the basics in place for how the reliability issue comes into play. Each piece of hardware and application software, and each network component, operating system and database, needs skilled people to interact with customers to maintain reliability, or to get things going again after a failure. Just to keep the whole process operating, the reliability factor must be as high a value as possible for each part — a monumental task.

This is a key reason an architecture is needed to constrain this explosion of complexity and associated cost. Directly correlated with this complexity is sustaining an enterprise's agility to react to change. From this perspective, architecture basically serves to reduce complexity by selecting single-source functionality, reducing the number of multipliers in the complexity equation and improving the enterprise's ability to absorb future change. Without support for an architecture, the non-IT managers who "pay the bills" better have deep pockets, for they will suffer the situation that prompted the operations question raised earlier: "Why am I paying so much for such marginal service?"

6.2 Measuring the Cost Value of IT Architecture

It is difficult to calculate a general cost figure for the lack of an IT architecture — it depends on each organization's unique situation. That said, we will attempt to expose some general "rules of thumb" that can be used to make a summary argument. As an example, we examine two areas that represent the bulk of cost in any operational budget: distributed operation support and software procurement.

6.2.1 Distributed Operation Support

Gartner Measurement's TCO Manager tool was used to develop four operational expense scenarios for two hypothetical companies:

- A midsize enterprise, with $700 million in annual revenue and a $22 million IT budget
- A large enterprise, with $5 billion in annual revenue and a $100 million IT budget

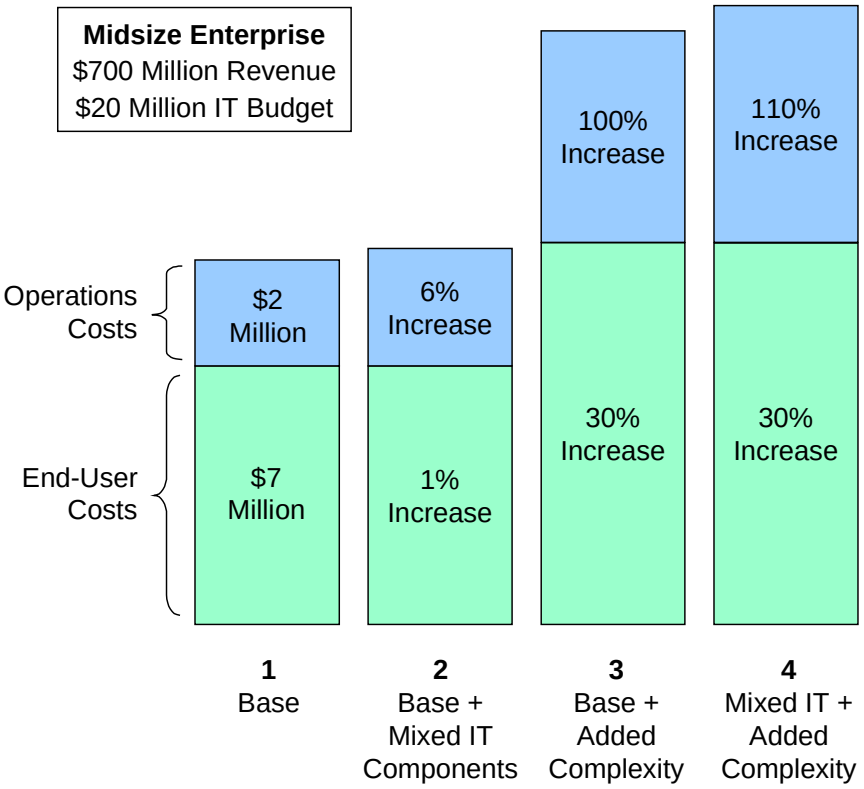
The base numbers reflecting budget, IT employees and end users were extracted from the 2002 Gartner IT Budget Survey for the business sizes being modeled. The object was to start with a relatively simple environment controlled by an architecture, and then to vary this to reflect models that relax architectural compliance by letting the BUs go more their own ways.

The focus was not on the absolute operating costs, but rather on the degree of change between the costs of the different environments. We focused only on the people costs involved, and chose not to deal with hardware cost differences (which would likely have less impact, given their commodity nature). Within the people costs were both direct and indirect costs — the first incurred by the operations support group, and the second incurred by the end-user community. We developed four scenarios for each enterprise size:

- The base scenario had an average level of best practices and an average level of complexity.
- The second scenario increased the variety of servers and desktop and mobile PCs to represent a lack of architectural control.
- In the third, complexity was increased by 50 percent to represent a more variable environment facing the operations group. This complexity reflected not only the mixing of architectural components, but also the more complex integration environment that results from adopting a virtual business model.

- The final scenario combined the mixing of architectural choices and the added complexity to provide a more realistic picture of a complex architectural environment.

The Midsize Enterprise: The base value was $2 million for operations and $7 million for end users. The end-user portion is somewhat subjective, but in our scenario it represented a relatively small amount of learning and peer support time for each user, which was then multiplied by the number of people involved. The mixing of architectural components by themselves (Scenario 2) led to single-digit percentage increases for both operations and end-user costs. The impact of added complexity (Scenario 3) was more dramatic, yielding a 100-percent increase in operations costs and a 30-percent increase in end-user costs (see Figure 10).

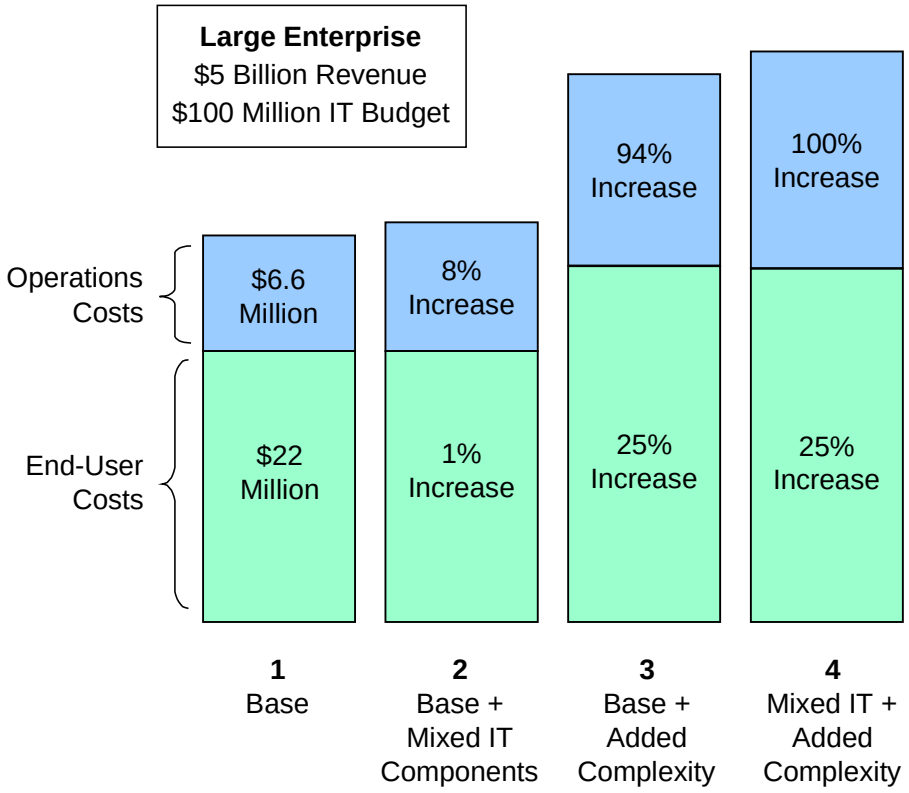


Source: Gartner Research

Figure 10. Midsize-Enterprise TCO Scenarios: Architecture Cost Differences

This represents an increase of more than $4 million for the business to absorb in its annual budget, seen in higher charges for IT operation services and more employees in the BUs. When compared to the total IT budget of $22 million, this is an 18-percent penalty for ignoring the value of architecture, just in operations costs alone.

The Large Enterprise: The base cost was $6.6 million for operations and $22 million for end users. Again, the end-user portion is subjective, but represented a relatively small amount of time for learning and peer support, multiplied by 10,000 people. In this case, mixing architectural choices had slightly more impact, increasing costs by almost 10 percent for operations but not changing them as much for end users. In Scenario 3, complexity by itself increased operations costs by more than 90 percent and end-user costs by about 25 percent. When both variety and complexity were combined in Scenario 4, the operations delta grew to 100 percent, and the end-user delta remained at about 25 percent (see Figure 11).



Source: Gartner Research

Figure 11. Large-Enterprise TCO Scenarios: Architecture Cost Differences

This represents a $12 million hit to the annual budget from higher charges for IT operation services and more employees in the BUs. Compared to the total IT budget of $100 million, this is a 12 percent penalty for ignoring the value of architecture — again, just in operations costs alone.

The results for the large-enterprise model are similar to those of the midsize business modeled earlier. This reinforces the point that ignoring architecture hurts enterprises of all sizes. It also bears noting that, in both cases, simply examining the cost of mixing technologies alone (Scenario 2) would lead to the wrong conclusion about real cost growth. One cannot mix technologies without making the environment more complex to manage, which is what is more realistically shown in the fourth scenario.

6.2.2 Software Procurement

Using the two enterprise size models defined above, Gartner's 2002 survey indicates that the midsize enterprise spends 16.6 percent of its IT budget on software, while the large enterprise spends 13.7 percent — far from trivial sums. Many factors go into negotiating software contracts, terms and conditions having the greatest impact. That said, there is still value to be found in seeking discounts based on the size of the enterprise's commitment. The more one can consolidate software expenses among fewer vendors, the more money can be saved. This is a natural byproduct of an architecture.

Gartner analysts who deal with contract negotiation have observed some general rules of thumb regarding how much money can be saved. These estimates cannot apply to all vendors and all enterprise software situations, however, and individual vendors should not be held to them without considering the unique variants of any given situation. Nevertheless, they can serve to make the point to senior management that sticking with architectural software choices saves significant money.

To model the cost impact of architecture in the area of software procurement, we will examine two categories: system software and application packages.

- **System Software:** This category represents all non-application software. Although some vendors in this market are starting to publish price lists specifying discounts for volume purchase, this practice has yet to become the norm. In the absence of defined discounts, a general rule of thumb is that, for every 20 percent increase in purchase commitment an enterprise makes to a vendor, it can expect to see a 14 percent discount overall. For example, if the enterprise now spends $1 million with a vendor and boosts this to $1.2 million (before discounts), the overall cost would become $1.032 million with discounts applied — an increase of only $32,000, rather than $200,000. The value to the vendor is a larger stream of income, usually over a longer period of time, which it is willing to offer a concession for in form of a discount. It will also gain another stream of income related to maintenance charges, which may also be discounted depending on the investment amount.
- **Application Software:** Some application vendors have published price lists with volume discounts, but in this market in general, the relationship between buying volume and the discounts actually received can be even more vague than in the system software market. Considerable negotiation goes on, and buyers are often unsure what a "good" discount really is. As a general rule, however, purchase volume makes major difference, with particularly significant discounting taking place for purchase commitments of $1 million or more. Strictly for the purpose of making the case for the value of architecture, our rough observation is that there is a 5 percent progression in discount increases for every million-dollar increase in commitment above the $1 million level. On average, this results in a range of 45 percent to 60 percent as one progresses up that spending curve. Again, this does not include ongoing maintenance discounts that may also be achieved depending on the investment level.

7.0 Useful Tools in Creating and Managing Strategies

The language for business decision making is founded on a set of financial and decision-modeling tools, the selection of which varies by enterprise. For financial tools, this selection is often dictated by the enterprise's financial organization. These tools are so central to IT activity, however, that IS managers should be aware of the options and limitations of each, and be in a position to influence the choice of tools appropriate for IT decision making. A warning however: There is no "silver bullet" tool to use; they all have drawbacks.

We will approach this by dividing these tools into two main groups — those that support decision making, and those that manage those decisions going forward.

7.1 Decision Tools

Before examining individual decision tools, it is important classify the type of decisions to which they will be applied. Application changes come from a broad spectrum of users covering a wide range of resource or cost commitments. Most IS organizations have a backlog of project requests that involve a seemingly endless number of parties. Unfulfilled project requests are often at the core of diminished IS credibility — they gradually disenchant and frustrate users whose requested projects never seem to get done.

The response for many organizations is to divide these requests into two groups and to fund them differently. One group comprises requests for large projects that drive a strategy, and the second comprises the numerous requests for small, incremental changes that users feel they need to improve their established processes and systems.

One can use the same toolset for both, but this can become impractical for many of the small-improvement requests, because the time it takes to generate the justification numbers can begin to approach the time required to actually fulfill the request. Therefore, we will begin by discussing decision tools in general and later discuss those appropriate to small-project and large-project requests.

7.1.1 Traditional Financial Tools

Many of the decision tools used today have been in place for some time. Each has unique benefits and drawbacks, but all are limited by the same fundamental challenge: Trying to predict an uncertain future. The problem with these tools is that they were formulated in a world of relatively long decision horizons and limited uncertainty. In today's business world, many of these time horizons have shortened dramatically, while uncertainty has escalated.

Therefore, in some cases, decision making using this traditional toolset leads to suboptimal or incorrect decisions. It's no longer sufficient to simply generate a cash flow stream, apply a tool and output a solution. Some decision spaces actually have no solution, but instead need tools to evaluate consequences and shed light on underlying assumptions. Therefore, new tools are emerging that address situations that are highly dependent on time and uncertainty (see Section 7.1.2). For the traditional tools below, we will apply the four uncertainty levels defined earlier (see Section 4.3) to help define the appropriate tools to use for given levels of uncertainty.

At the core of all of these tools are estimates of future costs, returns and when they occur. It is important not to get carried away with precision, since this implies a level of accuracy that that cannot be obtained when making forecasts about the future. It is best to be conservative when using these tools and to ignore decimal points. (A more in-depth presentation of the issues underlying many of tools below can be found in the article by Ronald Shrieves and John Wachowicz listed in Appendix A.)

Payback Period: This calculation estimates how quickly the initial payout will be recovered. This is probably the simplest of all the tools because it examines only an initial cost to be recovered, and the returns are usually not discounted. The fixed time horizon ignores any additional future returns and doesn't handle costs along the way. There is an implied assumption that the shorter the payback, the lower the risk or uncertainty in getting there. For small projects, this is a simple way to "rack and stack" requests with short paybacks due to low execution expenses, with uncertainties that are usually closer to Level 1 than to Level 2.

Discounted Cash Flow (DCF): This tool based on the fundamental concept of examining cash flows that represent what is being paid out and what is coming in. It involves developing a single net present value (NPV) using a discount factor that progressively reduces the value of cash flows as they occur further out in the future. Added to the challenge of estimating these future cash flows is the need to select an appropriate discount factor. The ranking of projects is simply determined by their NPV — the higher the value, the better the investment.

This is a solid, proven method, but it relies on having a long period for the flows to occur and a fixed picture of the future. Increasingly, this isn't the real world faced in formulating business or IT strategies. Strategies are now made up of portfolios of projects — with shorter, linked time horizons — that shift depending on how the strategy unfolds. Therefore, taking a fixed, long-term view can lead to poor strategy execution by inappropriately superceding lower-value, shorter-term options. Because total value sets the standard, "bigger is better" is "baked in" from the start.

This tool can be useful up to a Level 3 residual uncertainty, but its value diminishes considerably above Level 2 due to the inherent flaw that long-running cash flow streams do not always reflect the reality of a changing strategy.

Internal Rate of Return (IRR): This is based on the same cash flow picture provided by DCF, except no discount rate is applied. Instead, IRR examines the return rate that would exactly balance the outflow and inflow, yielding a zero NPV. When examining cash flow streams in this fashion, a higher-yield IRR is better, providing the basis by which projects can be ranked. To merit consideration, any project would need to be above some hurdle rate, the lowest being that which would cover the cost of capital.

In addition to posing some of the same cash flow drawbacks as DCF, IRR also poses the problem of failing to address the magnitude of the return. Small-value projects with high IRRs could swamp many high-value, lower-IRR ones that are more strategic. In addition, if there are no significant initial cash outflows, the resulting IRR can be misleading.

Return on investment (ROI): ROI is a generic term that has been defined and specialized in many forms (for example, return on assets, return on invested capital, return on capital employed and return on equity). The underlying formula, however, is basically the same — (gains – investment costs)/investment costs — with different factors plugged in depending on the area being measured. The result of the formula is a percentage, and higher percentages are ranked as better investments.

This is probably the most popular tool in use, but it has several drawbacks:

- As with IRR, there is no recognition of the magnitude or uncertainty of returns.
- It is sometimes difficult to accurately match returns to specific costs or vice versa, which may cause pertinent elements to be dropped from consideration, or bring some in that may not be appropriate.
- The cost and return estimates are optionally discounted for time; often, this is just too complicated, so large values that would be gained far into the future may skew the entire estimate.
- Questionable cost allocation, or inclusion of indirect costs, can undermine the credibility of this tool, because these factors can be manipulated to achieve a desirable ROI.
- If the projects being weighed cover different time periods, the ROI for individual projects could vary considerably. Changing the time period for a single project can alter the ROI dramatically, again posing the potential for manipulation.

Projects for comparison need similar underlying parameters, to ensure these comparisons are "apples to apples" ones. With shortened time frames, this tool can be useful for decisions with a residual uncertainty of up to Level 3, but it still doesn't account for making choices on how to address this uncertainty. The shorter the time frame under consideration, the lower the risk or uncertainty.

Economic Value Added (**EVA):** This method uses the DCF technique, but moves beyond the goals of the tools above by attempting to address what lies at the core of determining enterprise health. EVA is commonly used to value companies, and competes primarily with other valuation techniques such as free cash flow (see below). Here, we address its more narrow use as it applies to project selection decisions.

There is considerable math behind EVA, but the basic concept is that it attempts to measure the incremental value created by an investment. The basic equation is:

- EVA = (return on capital – cost of capital) x capital invested in the project

"Return on capital" represents earnings before interest and taxes during a given time period. "Cost of capital" includes the rate at which the enterprise borrows money. Since operating expenses are a component of return on capital, this accounts for the capital or depreciable expense involved.

The solution can be transformed to an NPV for comparison purposes. This method gets closer to making better economic decisions tied to maximizing enterprise valuation, but it still suffers from the drawbacks discussed earlier for DCF-based tools.

Free Cash Flow (FCF): FCF is another technique that is commonly used to value enterprises and that can be applied to project valuation as well. The basic equation for the FCF associated with each project is:

- FCF = ((revenue – expense – depreciation) x (1 – tax rate)) + depreciation – (change in net long-term investment + change in working capital)

This formula introduces factors to offset the distortion introduced by taxes and depreciation, raising some challenges in calculating the appropriate values to use. Through some more complicated math this can be converted to an NPV, providing a means of comparison with the DCF method discussed above. Like EVA, this method also gets closer to making better economic decisions tied to enterprise value, but still suffers from all of the ills discussed earlier for DCF-based tools.

7.1.2 Newer Financial Tools

Total Value of Opportunity (TVO): This Gartner-developed model brings a number of factors together to derive the business value of IT investments, thereby providing a basis for IT decision making (see "The Total Value of Opportunity Approach," DF-17-0235). TVO is a metrics-based approach to measuring business performance based on three important factors: risk, time and the effectiveness of converting projected value into actual business benefit. It is important to note that these metrics must be rooted in the business, not in IT. The business and finance stakeholders determine investment criteria for all types of investments, and must bear much of the responsibility for exploiting the technology correctly to deliver the projected business benefit.

The key components of the TVO methodology are:

- *Cost analysis:* Cost must be examined on the basis of TCO principles to ensure that visible, hidden, one-time and recurring costs are all included.
- *Benefit analysis:* Benefits must be modeled against a holistic framework of business metrics, which represent all of the controllable activities of an enterprise. A sample set of these activities is discussed DF-17-0235, and divided into nine categories: market responsiveness, sales effectiveness, product development effectiveness, customer responsiveness, supplier effectiveness, operational efficiency, HR responsiveness, IT responsiveness, and finance and regulatory responsiveness.
- *Future uncertainty:* Many IT-enabled business initiatives, particularly those with infrastructure components, are not expected to deliver all their value to a single source, or to meet a single need within a precise time frame. A complete value analysis must enable some quantification of the value that a successful initiative would deliver to the business at a future time.
- *Enterprise needs:* IT initiatives need to be measured against enterprise needs in five areas: strategic alignment, risk, direct payback, architecture and business process impact. The more closely a project meets the needs of the areas deemed important by the enterprise, the more likely it is to be an appropriate investment for that organization.

Each of these components is assigned a weighting relevant to the enterprise. The resulting product determines each project's value and therefore its priority in the portfolio of changes being contemplated.

Intangible Components: For traditional tools based on DCF techniques, the concept of adding the value of intangible components is receiving more attention. This has become an issue as the value of a company represented by its stock price and its value based on assets and liabilities diverges, sometimes to a dramatic extent. In 2000, the value of the former was over than six times that of the latter for the Standard & Poor's 500 — that is, the value of these companies as measured by their balance sheets represented only 10 percent to 15 percent of their market value.

The goal of adding intangible components is to recognize the long-term value that strategic efforts are contributing beyond the value measured by traditional financial metrics. This same approach can be applied to consider the intangible aspects of value contribution when comparing IT project options.

However, adding intangible components (sometimes referred to as "the soft stuff") can raise accusations — similar to those mentioned in the previous section — of manipulating figures to achieve a favorable outcome. To offset this and provide some rigor to the approach, it is useful to apply some concepts from the work of Baruch Lev (see http://pages.stern.nyu.edu/~blev/), who is trying to bring a level of consistency to these added valuations. At the foundation of his efforts is a division of these intangibles into four categories:

- Product innovation (such as research-and-development success)
- Brand
- Structural assets (such as better ways of doing business)
- Monopolies

Lev is attempting to establish a link between intangibles and the ultimate valuation of the enterprise. This is emerging research, which should be revisited on occasion to help determine when the time is right to begin adding intangible components to the IT project evaluation and decision process.

Real Option Valuation (ROV): ROV is a tool specifically suited to a Level 3 uncertainty situation. It can be used to sort through a range of discrete options with considerable uncertainty, a common environment in the execution of many strategies. Derived from the Black-Scholes option-pricing model, ROV is a complex tool that requires considerable sophistication to use. What follows is a basic overview. (For more in-depth information, see the articles on "real options" listed in Appendix A.)

The ROV method needs five variables to determine a value, of which the first two represent the positive and negative components of a DCF valuation. The variables are as follows (the words in parentheses are the comparable stock option terminology):

- The present value of a project's contribution to revenue (stock price).
- The present value of costs to provide the revenue stream (exercise price).
- The length of time the initiation of a project can be deferred (time to expire). This contributes two new pieces of value. First, the further an expense is pushed into the future, the more can be earned on the investment amount being deferred. This gets added to the project's value. Second, uncertainty drops over time, because the closer we get to a point in the future, the better costs and revenue can be estimated to determine whether a decision is a sound one. This is in contrast to the normal DCF

method, which assumes fixed time frames with no changes. Consideration of this factor also adds to or subtracts from the project's value.

- Time value of money (risk-free rate of return). For project valuation purposes, this would represent the guaranteed rate an organization could get for an investment (measured using a short-term fund rate, for example).
- Uncertainty or risk (variance of returns on stock). The mathematical tool for dealing with uncertainty is the use of probabilities. Three basic steps are taken to set a value for this variable:
  - Identify a set of possible values over given periods, and assign a probability to each.
  - Reduce these sets to a single value representing the variance per period, using another mathematical tool called "variance."
  - Arrive at the total uncertainty by multiplying variance per period by the number of periods.

This dynamic approach will provide a potentially different assessment compared to those using traditional tools. Calculating project values using ROV can be fairly complicated, but it illustrates how uncertainty and the effects of time are new factors to consider in weighing options. This builds on the common tool of DCF, and helps planners better consider real-world factors when faced with Level 3 residual uncertainties.

ROV is a rigorous, financially based methodology for managing the course of a changing strategy. Unlike traditional valuation techniques, where choices are fixed, stand-alone ones, ROV examines how possible future options may influence today's decisions. The new perspective this provides is the ability to estimate how projects will affect one another. These interrelated project options reflect the uncertainties facing the eventual unfolding of a strategy. If decisions along the way better account for these uncertainties, this can improve the chance of optimizing selections to maximize returns and minimize expenditures. However, due to its sophistication, ROV is only practical to use when the financial organization is willing to adopt it.

7.1.3 Nonfinancial Decision Tools

The final two decision support tools examined here are not principally financial in nature. They are designed to aid in the decision-making process by systematically applying a rigorous methodology to sort through the uncertainties facing any strategy. Although other nonfinancial decision tools (such as game theory and system dynamic modeling) are sometimes used to develop strategies, they are generally not as applicable to IT strategy building.

Scenarios: The Achilles' heel of every decision made based on what the future will be like is the set of assumptions one has to make to get there. Scenarios are a tool that can flesh out those assumptions and test their impact on decisions about the future. The method starts with key basic assumptions about what the future will look like, and then identifies future "milestones" to corroborate whether a particular scenario is actually unfolding. This tool is effective for Level 2 and Level 3 uncertainties.

Scenario building can be daunting, but a relatively simple approach is provided by Peter Schwartz in the "The Art of the Long View" (see Appendix A). It relies on selecting the two most influential components of a future, creating a matrix with these two components as opposing axes, and developing a world view scenario for each of the four quadrants in the matrix. This can be an effective approach, but it sometimes causes effort to be wasted on scenarios that are unlikely or that don't make much sense. The more difficult approach is to define the parameters of a scenario directly, but the problem to overcome is the propensity to see the future as an extension of the present.

The scenario-building process provides two key benefits:

- *A testing of assumptions.* Because most people view the future as an extension of today, they tend to pick assumptions that reflect the present. This pitfall must be aggressively attacked by looking deeply into any assumption to understand its foundations. All assumptions are built on other assumptions. The decomposition of those layers can be very revealing and will often change thinking about how the future is likely to evolve.
- *A tool to focus discussions:* A scenario creates a possible "world" that everyone can consider and discuss. This discussion becomes a powerful vehicle for working through all the issues associated with that world — for example, what is wrong with it, what is good about it, how it would influence decisions, whether it is realistic, what would have to occur to make it real, and how it would it affect us.

By digging into assumptions and creating possible pictures of the future, this method provides a frame of reference to examine what decisions are appropriate under given scenarios. IT scenarios could be built to explore areas such as global strategies, virtual models, architectural evolution and governance.

Decision Analysis: This refers to a set of tools that help make strategic choices among multiple alternatives. It applies mostly to Level 2 uncertainties that have specific options, but it could also be used for Level 3 decisions by simply bounding ranges into representative groups.

Decision analysis can start with a simple decision tree, where various strategy options and their economic values (as represented by NPV) are laid out, with different assumptions represented by branches to alternate strategies. Each of these branches is assigned a probability to represent its uncertainty. The result is tree-like diagram that becomes the input to the final strategy selection process. The answer, however, doesn't just jump out of a decision tree, although additional tool elements can be applied to get closer to it. (These include "outcome dominance" and "minimax regret"; see Hugh Courtney's book in Appendix A for details.)

The different possible strategies from the decision tree could be explored further using the scenario tool discussed above. The more promising strategies deserve a careful review of their assumptions. Recall that the foundation for these strategic options has focused on the financial aspects, and may not have rigorously dealt with the assumptions underlying them. Scenarios can test parts of the decision tree much more thoroughly, looking into the assumptions behind why the branches are there.

The point of using tools like this is to formalize the evaluation process. Effectively building and managing strategies requires a repeatable process that responds consistently to the world it is evaluating. Without a tool, each strategic effort becomes an "original work of art" subject to all the vagaries that the participating individuals can contribute. Further, making necessary modifications to the strategy later on will become a similarly useless exercise in creativity if there are no consistent tools to provide a framework for doing so.

7.1.4 Tools to Analyze Small-Project Requests

Large projects tend to focus on one group to the exclusion of others, leaving the latter with no opportunity to get their requests for smaller, simpler projects addressed. To rectify this, it is important to give some control to the individual BUs so they can prioritize what is important to them among their large and small projects, and to provide an opportunity to get a limited set of small-project changes acted on. At the BU level, however, many political factors will directly affect any decision process put in place. This leads to a fundamental decision about how to establish a project selection process: either leave it to a scheme that lets the politics of the BU drive the prioritization process, or adopt a basic financial tool to guide the process.

The limiting factor on project requests for the BU and IS is the budget, and each BU can only request work within the budget constraints. Going overbudget is a factor that must be defined for management so it can make adjustments in each budget cycle. With this financial constraint in place, the IS group simply lets each BU set the pace and direction of change.

With this established, the use of financial tools in small-project prioritization becomes relatively straightforward. Applying advanced decision tools, like scenario building and decision analysis, would be overkill for these projects. A basic financial tool like IRR, ROI or DCF is all that is needed. For some small-project decisions, payback period works just fine. The key requirement is to establish consistency in the tools and process used to get all the players used to the process, so that all discussion goes into the values feeding the tool rather than the tool or process itself.

7.1.5 Tools to Analyze Large-Project Requests

If properly identified, this group will comprise all the strategic projects. The choice of tools will depend to some extent on how much of a real business strategy exists for the enterprise. If the IS organization has been forced to largely derive this strategy, going beyond the basic financial tools becomes a personal choice for IS. For example, the IS organization is in no position to persuade the financial group that FCF or ROV is the right way to go. However, exercising these tools within IS may prove worthwhile in clarifying its own strategy.

If the business has an aggressively defined strategy, with IT leading the way in transforming the underlying business processes, some of the newer and more advanced tools are worth trying. These tools all deal with uncertainty in a more effective way than the basic financial tools can.

Among the newer financial tools, the choice of EVA, FCF or ROV is a decision largely dictated by the culture and preferences of the financial organization. However, as discussed above, the potential flaws inherent in these tools — and in the DCF method on which they are based — should be kept in mind by IS to ensure that the resulting decisions are appropriate and consistent.

The use of nonfinancial decision tools, such as scenarios and decision analysis, is most effective when driven by a clear business strategy. These tools will be used to test the impact of IT decisions on the business strategy, so the better-defined the business strategy is to begin with, the more clearly these tools will help analyze the IT strategy options that follow.

7.1.6 Portfolio Management — A Tool To Organize the Tools

To this point, we have discussed a variety of financial and nonfinancial tools for evaluating decision options. For an increasing number of enterprises, these stand-alone tools are being incorporated into a portfolio management approach that brings a working set of them together. At the core of this method are alternative approaches (see "Gartner Portfolio Management Tool for IT Investment," TU-14-0675), but two steps are usually required. The first is to identify a set of focus areas that will define the various ways a project will be evaluated. The second is to establish a set of measurement criteria for each of these areas. For example:

- Business value — financial return; customer satisfaction; time to market
- Alignment with strategies — business strategy; IT strategy
- Risk — unexpected future outcomes; implementation complexity
- Other — time to implement; cash flow demand; dependency on other strategic projects

The process is to determine a value for each measurement metric. When a specific monetary value is unavailable, typically a number between 1 and 10, or between 0.1 to 1.0, is assigned. The product across all the focus areas of a project yields a single value, which is used to rank all the projects under consideration. This approach is also being extended to evaluate whether projects already under way should continue or be terminated. Portfolio management enables the IS organization to stay focused on what is best for the enterprise, rather than wasting valuable IT resource investments.

7.2 Management Tools

To this point we have primarily addressed what is necessary for strategy *creation*. However, the strategy process does not end there; it is important to adopt a process that will formalize the *management* of the strategy after it has been developed.

In examining tools that help formalize the strategy management process, this section will focus on three key areas:

- Funding IT
- Developing budgets with associated chargeback considerations
- Using balanced scorecards to boost the effectiveness and efficiency of business process operations

7.2.1 Funding IT

For most organizations, funding equates to budgeting. Some more-advanced companies, however, are engaged in a transformation to an integrated business process model involving virtual components and globalization. For these enterprises, the funding issue is addressed quite differently. These transitions will dramatically change IT infrastructure and incur high capital costs.

Therein lies the problem with traditional budget approaches and the financial tools already discussed. Traditionally, the first projects through that require significant IT change also bear the burden of justifying paying for the infrastructure. All too often, this can overwhelm the business case and make such projects inaccurately appear to be only marginally worthwhile, or not worth doing at all.

The better approach is to take all capital spending on IT infrastructure required by the business strategy out of the project justification and place it at the enterprise level. The argument for doing so is that the business has adopted a strategy that requires the infrastructure change, so the decision has already been made — it shouldn't be justified again at the project level. What is needed is the assurance that these technology decisions are the right ones, but that isn't a project justification or funding issue; instead, it should be addressed at the architecture level. The capital costs work their way through the architecture component of the IT strategy. Any unexpected cost bumps need to be resolved, but this is addressed at a business strategy level, where these costs won't compete with those of individual projects.

By taking the IT capital expenditures out of the decision cycle for determining the sequence of projects to implement, this moves project justification squarely onto a business case — what projects best meet the strategy needs, and in what order. This becomes especially useful when applying some of the more esoteric strategy tools, which consider uncertainties and project interdependencies. Project justifications become business case issues, rather than technology cost hurdles.

7.2.2 Budget and Chargeback

Traditionally, the budget cycle is where project priorities are set for the following fiscal year. Because it usually begins at least four months before year-end, the process involves attempts to forecast events up

to 16 months into the future, which poses a problem for short-horizon projects. Gartner has presented alternatives to better manage this process, principally by adopting a portfolio management perspective (see "The Gartner Portfolio Management Tool for IT Investment," TU-14-0675).

The strategy framework presented in this report also provides a means of addressing this issue. With two strategies and two IT organizational components, there are two budgets. If the operational budget is based on the service structure presented, the budget will be aligned with the business strategy and the chargebacks will be understood and managed in each BU's budget. The projects associated with keeping the IT infrastructure current are built into service pricing; they don't surface as individual competing events that the business must contend with. The business is then charged with setting its own service levels for operation, and determining the extent of change it wants to pay for over the budget period, all within the context of the strategy.

Although the Gartner portfolio model addresses a number of categories, these can be grouped into two main ones: strategic and maintenance. When IT strategies are driven by coherent business strategies, almost all projects should be strategic by definition. The less the business is focused on a strategy and the more IS must extract one, the more the strategic component will shrink and maintenance will grow.

Another way of viewing this from a budget perspective is to start with the total revenue the enterprise is projecting to satisfy investor expectations. Out of this amount, the enterprise typically has a feel for how much it is willing to spend on IT. Subtracting the IT operating budget from the total IT budget leaves the amount assigned to IT investments. By subtracting from this investment amount what is needed for infrastructure transformation, the remaining amount represents the investment that can be dedicated to business process change. This IT investment in change is then apportioned between strategic and maintenance projects.

This approach, which is iterative in nature, strips out all costs associated with infrastructure and operations to highlight the amount dedicated to strategic IT investments. From there, it is left to the business to determine whether the amount it has devoted to nonstrategic investments is justified in light of what it could otherwise strategically invest in process change.

7.2.3 Balanced Scorecards

Financial management of a strategy serves to ensure that decisions are appropriate and information is captured and passed on correctly. But beyond this, the most-successful organizations take steps to ensure these strategies are seen, understood and actively participated in by everyone. An effective tool to help accomplish this is the balanced scorecard, a rigorous methodology described in detail in Robert Kaplan's and David Norton's book, "The Strategy-Focused Organization" (see Appendix A).

Strategies focus everyone's attention on what to do, but by themselves, they don't offer guidance as to how effective these efforts are, or whether events are really unfolding as the strategy intended. The concept behind the balanced-scorecard approach is to provide a framework to bridge the more general nature of a strategy to its implementation and ongoing operation.

Kaplan and Norton organize the balanced-scorecard framework along five principles:

- *Translate the strategy into operational terms.* This is the bridging part. All change translates into an effect on the business processes that define operations. For IT, these are the projects that are juggled using decision tools to determine their priority.

- *Align the organization to the strategy.* This sets up accountability and engages the functional units. The simplification of organizing IS into operational and application change groups is one high-level example, as it positions these groups to best serve the business strategy.
- *Make strategy everyone's everyday job.* Everyone must understand not only what the strategies are, but also how he or she fits in executing them. Otherwise, the strategy will fail in the long run. For example, the strategy should be translated into every employee's annual objectives, so they are focused on what is important to the enterprise.
- *Make strategy a continual process.* It isn't a one-time event. The strategy must be adapted as more information is gathered and circumstances change. The scorecard becomes the link between the strategy and the real world; it "sees" and measures what is really happening and is actually possible.
- *Mobilize change through executive leadership.* No discussion of strategy can let senior management off the hook. Nothing happens without leadership.

8.0 People: The Right Ones in the Right Jobs

The approach presented in this report poses several organizational implications. With the application change group closely aligned with business operations, it suggests a potential evolutionary path for the group's migration into a business operations group reporting to the COO. With the IT operations group now on its own, the value it delivers to the enterprise is more easily seen, and it can evolve into a strong proponent for balancing internal resources and ESPs.

For both groups, a critical component to creating and sustaining strategic focus lies in focusing on the people involved. No strategy discussion is complete without consideration of people since, historically, a key factor in successful business strategies has been ensuring that the right people were in the right jobs at the right time. For many IS organizations, the subject of people issues equates to a focus on managing the skills inventory — a subject that Gartner has covered extensively in other research. For three recent examples, see "Workforce Related Risk: How To Identify It" (SPA-16-2912), "Workforce Related Risk: How To Manage It" (SPA-16-2051), and "IT Skills and Competencies On the Rise Through 2003" (COM-15-6441).

In this report, however, we focus our attention not on specific IT skills, but on an additional, less discussed dimension of people — *talent.* Our distinction between skills and talent is based on a concept advanced by Marcus Buckingham and Curt Coffman in "First Break All the Rules" (see Appendix A). This concept posits that people are constructed with basic abilities that drive how they instinctively act, react and see things not obvious to others. Talent cannot be taught and it can't be overridden; it constitutes our "internal wiring." Although skills are necessary, they are not sufficient to become truly outstanding in an area of expertise. Reaching the highest capacity levels requires talent.

Certain roles in IT require specific talents. For example, working effectively with senior management in strategy formulation requires a talent for engaging with those managers and gaining their trust, which is not a skill that can be learned. Similar distinctions apply to most key roles within the IS organization.

Defining the IS organization in two groups, each with its own unique strategies, helps define the roles — and therefore, the talents and skills — needed for each group to execute those strategies. The following sections examine both groups and the subtle differences in the talents they require. The talent selections were drawn from the set generated by Buckingham and Coffman.

8.1 Necessary Talents for the Application Change Strategy

- *Vision* — This is an overused word, but the talent it describes is nevertheless critical. Unless there are people who can see and articulate an achievable objective, there can be no strategy — all roads lead anywhere. People who possess a true talent for vision can see how to reach this objective without knowing the details — they instinctively know the key milestones and how they connect. These are people that have a track record of seeing what is wrong, envisioning how things should be and describing how to get there.

- *Strategic thinking* — This talent feeds the bounding part of strategies. It is the ability to see limitations, and the optimal paths to an objective within those bounds. People with a talent for strategic thinking can intuitively comprehend the capabilities of an organization and its ability to achieve. The challenge for strategic thinkers is to keep the bounding part under control, so that the limitations aren't expressed in a manner that implies weakness or an unwillingness to go far enough.

- *Conceptualization* — Creating a picture of the strategy requires a framework in which to posit discussion. One knows this talent is present when those who possess it describe a concept and people respond with the phrase: "I see it now."

- *Business thinking* — For IS people to be respected for their contribution to a business strategy, they must be seen as businesspeople. Those with a talent for business thinking can see, communicate and contribute to the market strategies that are the goals of each BU and the enterprise. Those with this talent are recognized by businesspeople as being capable of working in their environment.

- *Interpersonal* — Strategy is very personal; it involves creativity, which has a strong emotional base. IS people are almost always in a supporting role to the business, with their strategies evolving from the business case. Even in this supportive role, they need to influence the business strategies, which is what the first three talents are about. However, in the personality-charged environment of strategy building, the talent for managing interpersonal relationships becomes essential for success.

- *Multirelator* — This is another dimension of relating to people that leads to a network of relationships. Having an extensive set of contacts allows people to tap knowledge and experience beyond their own from credible sources. For IS people, this talent adds to the perception of credibility from senior management. It not only provides added support recommendations, but also conveys that people are being honest in recognizing their limits and going that extra step to back up what they say.

8.2 Necessary Talents for the IT Operations Strategy

- *Service* — Although the concept of a service organization is easy to understand, the actual identification and grouping of services is proving complex for most who use this model. It takes a special talent to see the half-dozen or so services and envision how they should be packaged and managed. Those with a talent for service can see through they eyes of the customer to envision how to make things work better from the customer's perspective. They have the ability to view service as the most important factor in managing any business process.

- *Competence* — To have the best services is to excel at competence, rather than settle for second best. People with this talent are not satisfied with the status quo, but are constantly searching for ways to make things better.

- *Focus* — Delivering service requires a sharp focus on what is important, without being distracted by extraneous factors. People with this talent seem to know how to set bounds in which services can be delivered at the price points that customers are willing to pay.

- *Discipline* — While focus is important, discipline is needed maintain this focus and not be led astray. Many options will present themselves as a strategy unfolds. It takes people with a talent for discipline to prevent the organization from casting about making changes to plans when such changes cannot be strategically justified.
- *Performance orientation* — In a service organization, performance is the measure of success, and excuses for the organization's failure to perform are unacceptable. Those with this talent believe this at their core, and will daily prod the organization to ensure that the strategy is really working.
- *Teaming* — Teamwork is needed to provide service; it isn't an individual art. IT operations are an especially difficult area in which to sustain team morale due to the pressures of facing a seemingly endless stream of customers with problems. The potential mix of internal and external people providing the services further complicates the functions the team performs, and the way it performs them. The teaming talent is seen in people with a good track record of developing teams and sustaining team spirit over time, which in turn is recognized by the customer.

9.0 Putting It All Together: Nine Steps to Creating IT Strategies

The building blocks for IT strategy creation have been fully discussed above. In this section, we present a process that utilizes these building blocks to assemble the enterprise's IT strategies. The first eight steps address the creation process itself, while the final step involves how to manage them going forward.

9.1 Step 1: Understand the Business Strategy

If a well-articulated business strategy is available, that is the obvious starting point. If one isn't available, this opens up the traditional option of interviewing key senior executives and eliciting one from these discussions. The problem with this approach, however, is that the result is often a wish list of projects, mostly made up of things executives would like to see improved in their current systems. It is difficult to get executives to think strategically — defining what the enterprise should look like in the future — if they don't already have that built into their management processes. In these cases, a strategic future looks a lot like an extension of today. While such a future can be the basis of a workable strategy, it is one that will leave the company unprepared to shift its approach to the market when it runs up against a changing future.

With these issues in mind, this report has presented an alternative approach that seeks a deeper, more fundamental understanding of enterprise activity to lay the foundation for a more future-oriented IT strategy. The mapping shown in Figure 4 and discussed in Section 3 is designed to elicit this deeper understanding. In this step, one is attempting to understand how the business views its future — how it expects to survive and grow. The options are almost limitless, but they all come down to some basic decisions regarding implementing an IT infrastructure. Within IT, a limited set of basic elements go into executing a strategy: computing power, software, data storage, communications, user interfaces and people. While a certain degree of variety exists within each element, each fits in a prescribed manner.

The object of this step is to understand the direction the business is moving and to understand how to build an architecture that can remain agile as the business strategy flexes and changes. The top two layers of Gartner's Enterprise Architecture Model (see Figure 9 in Section 6.0) depict this key area of understanding. These top layers elicit the business model and business process styles the enterprise favors. Their definition is critical to the creation of an agile set of technology layers below, which are developed in direct response to the definition provided by the top layers. To have an effective enterprise architecture, all four layers must be in sync, and thoughtful strategy development makes this happen.

9.2 Step 2: Establish a Governance Process and Financial Toolset

From this point on decisions will need to be made, so a mechanism for handling these decisions must be established. The current process is the natural starting point. The question to examine is whether this process is adequate for executing the strategies being created. The business model itself basically defines the governance choices (as depicted in Figure 5 and discussed in Section 3.1.2). For a deeper examination of the issue, see "Using Governance to Stabilize Organizational Change" (COM-14-0414).

The measure of whether your governance structure will work is to examine whether the decision makers in the chain of governance have the correct span of control. For example, if the strategy requires BU cooperation, is there a decision maker in place who can make that happen — and can do so now, without a lot of meetings? Even this gets tempered by how far-reaching the strategy is, and therefore how much change the enterprise faces. If the strategy is an extension of today, the current governance process will probably need little or no change. However, if the enterprise is embarking on a significant restructuring, this is new territory and governance will likely need to be redefined.

Decision-making tools can always be upgraded, regardless of the strategy. While most organizations still depend on the basic financial tools discussed in Section 7.1.1, decision making has become much more complicated. In addition, in many organizations, one large BU or may be perceived (rightly or wrongly) to be hogging a disproportionate share of the resources, and many other players may feel that the decision-making process in an unjust one. Revisiting the decision tools with the objective of making them as fair as possible is a win-win for everyone, especially as the degree of strategy aggressiveness rises.

9.3 Step 3: Define What the Enterprise Architecture Must Look Like

This is a key point where the input from Step 1 is applied. Again, it is the top two layers of the Enterprise Architecture Model that put general bounds on the underlying infrastructure. The detail in the bottom two technology layers are more tactical and don't need to be addressed in the strategy development stage (other than to ensure there are options available for the choices made in these two layers). Gartner's Enterprise Architecture Model is evolving, so clients are advised to periodically search gartner.com for the latest available research on this topic.

This step is designed to paint a general picture of the IT infrastructure required to execute the business strategy, and therefore is a key foundation piece for the IT strategies being created.

9.4 Step 4: Understand the Boundaries Implied by the Current Infrastructure

While Step 3 painted the future, this step addresses the present — and resolving the difference between the two is a key challenge facing IT strategists. As stated earlier, strategies bound the multitude of options available into a workable few. This is an important step to understand and manage, since the business can usually move much faster than IS can. For example, the enterprise can often build plants, close offices and open new ones faster than IS can implement a new ERP II system. This difference can lead to friction between IT implementers and business users, and careful communication on both sides is needed to keep expectations manageable.

This examination of "where we are" and "where we want to go" will directly impact Step 5 and Step 6. The impact will be felt at the tactical level as projects are selected and executed, forming a linked chain connecting the past with the future. The objective of this step is to set realistic constraints on strategy development in those implementations. Implicit in any strategy discussion is an underlying, often unstated, sense of timing. Once a strategy is developed, there is a natural tendency to want it finished

tomorrow. This step gives both business and IS partners an initial awareness of the possible complexity necessary for achieving the strategic objective. Steps 5 and 6 will complete that picture.

9.5 Step 5: Define the Application Change Strategy

The level of anticipated change in business processes — whether explicitly stated in the enterprise's strategy or implied by its fundamental operation — drives this step. This level was set up in Step 1, refined in Step 3 and bounded in Step 4. It is important at this point to guard against digging down into defining projects and beginning a selection process — these are tactical areas that are appropriate to address only after the strategy is created. The object of this step is to see the outer bounds of how the business can evolve its current set of business processes into those envisioned by the strategy. Section 4 examined these issues in some depth.

Whether the strategy is derived at the BU or enterprise level, it still is determined by the business processes themselves. Advanced organizations that have defined themselves as an organized set of business processes have reduced the number of these to six or so. The starting point is to define this set for your organization, and to develop a transition outline for getting from the present to the desired state. This entails identifying the major moves necessary, and getting a sense of the complexity, time and costs involved in executing them. Going into too any details is not worthwhile since, for most strategies, they will change anyway. Everyone involved must perceive and internalize a "big picture" of what is involved. Details inevitably inhibit this, and can therefore defeat the strategy process itself.

In general, the right level of detail to provide the "big picture" needed will be reached when a transition plan has been developed for each of the major business processes — a plan that has two or three distinct phases, and appropriate links between them as they evolve. There will be a sense of agreed cost, effort and time from both business and IT personnel. Step 9 will reinforce this by addressing unfolding realities and inevitable changes.

9.6 Step 6: Define the IT Operations Strategy

With the business and application change strategies now defined, an IS operations strategy can be developed based on the organization's established approach. However, Gartner believes that to be truly competitive in the future — and to ensure the long-term viability of an internal IT infrastructure operations group — a transition to a service model like ISCo will be the best approach. Although this approach is a new one, strategies are about seeing into the future, and we believe that ISCo provides the picture that most organizations will eventually see. Section 5 discussed the ISCo model; however, because this is an evolving area of analysis, Gartner's research on the subject should be revisited and monitored for the most recent and relevant advice.

Although we discuss application change and IT operations strategies here in the context of two steps, they are intrinsically intertwined and feed one another. It is important to note that this process of interaction will be happening simultaneously within both of these strategies.

9.7 Step 7: Define the People Strategy

The previous steps have all implied a level of skill and talent required for executing the resulting strategies. The objective of this step is to lay out a strategy for how the various people resources will be managed — whether these resources come from the enterprise or external organizations. Much has been written in this area, only some of which was touched on in Section 8. More information can be obtained by consulting Gartner's considerable research in the area of IT workforce performance (see www.gartner.com/IT-Management).

The area of external sourcing is a rapidly changing topic, and many enterprises are more aggressively exploring the outsourcing of various operational pieces, both in IT and in the business. The management of the resulting organization structure — a mix of internal and external people, along with the external organizations themselves — is more complex, and therefore more challenging. Gartner's latest research on strategic sourcing is on its Web site (see www.gartner.com/pages/section.php.id.2025.s.8.jsp).

9.8 Step 8: Document the IT Strategy in Written Form

Most written IT strategies Gartner has seen dedicate themselves to presenting a list of projects and a timeline for executing them. However, such statements address only the tactical part of executing a strategy. Many have only a one-year time horizon and don't address the uncertainty factors surrounding strategy evolution. This approach is not a strategy as we have defined one — that is, it doesn't take a vision or objective and bound the options for attaining it. The correct approach is to keep strategies and project management separate. The latter area is where portfolio management comes into play.

With this point in mind — along with the six building blocks presented in this report, and the seven steps discussed above — the list below presents a high-level template for organizing a written IT strategy.

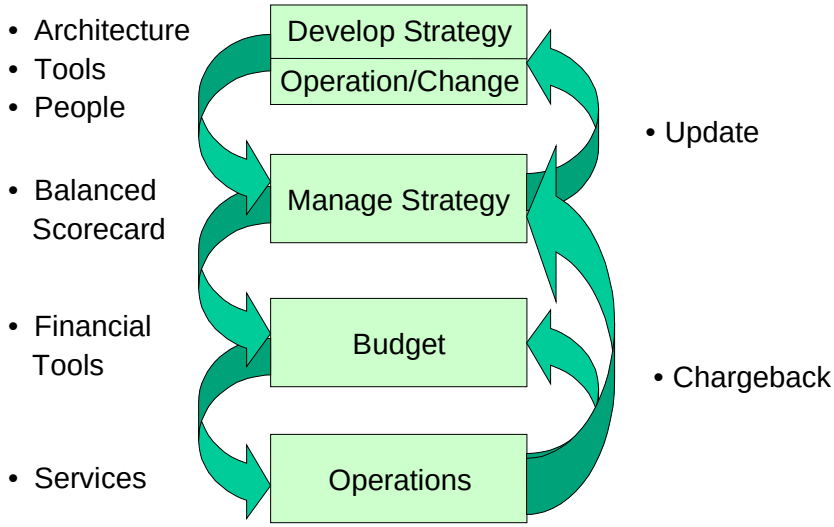
- **Executive Overview:** This section explains the purpose of the IT strategy and how it is designed to support the business strategy. Each of the five key IT elements should be briefly presented in terms of the business strategy — either as developed by the enterprise or inferred by the IS organization. Follow this with summary descriptions of the application change and IT operations strategies. This section concludes with a summary explanation of how the strategy will be executed.
- **The Five IT Strategy Elements:** For each element, explain how the business strategy has bounded the choices and established the cost basis going forward. This section is where IS talks to the business in business terms, making it clear how the business's strategic choices, either direct or implied, affect the resulting IT strategy.
- **Application Change Strategy:** Present the choices made for each of the five elements.
- **IT Operations Strategy:** Present the choices made for each of the five elements.
- **IT Architecture:** Present the required elements for an architecture that can effectively and efficiently support the business strategy. Stay focused on the top two layers of Gartner's Enterprise Architecture Model. These are the layers that can be discussed with the business in business terms; the lower, technical layers are driven by the decisions made for the top two. Lay out the cost impact of executing the architecture well or poorly.
- **Tools to Manage and Measure the Strategy:** Describe the governance process that will control decision making as the strategy unfolds, defining the tools to be used for selecting what projects will be executed and the priority of their implementation. Define how the IT and business strategies will continue to serve each other going forward.

9.9 Step 9: Use a Management Framework to Keep Your Strategies Alive

As stated earlier, strategies cannot be one-time events. Historically, the failure of past strategy efforts has been attributable to their long-term view — i.e., expectations that the future is a more or less fixed thing. The 1990s proved this wrong, and an unfortunate casualty was the idea of developing and keeping a strategy alive. However, with CEOs reporting that a business strategy is third in importance to enterprise success (after earnings and cash flow; see Section 1.2), this issue must be re-examined more

pragmatically. The first time through, the eight steps above can be viewed as a major, one-time event, but it's ninth step that makes it all worthwhile.

Figure 12 (adapted from Kaplan and Norton) is a simplified picture that shows where all the tools discussed fit within the context of the strategy development and management process. This process is a continual and iterative one, in which components are linked and feed one another.



Source: Gartner Research, Kaplan and Norton

Figure 12. Integrated Strategy Management Model

The left-hand side shows the process flow, and relevant tools used, from strategy creation through operations. At the top is the creation of the IT operations and application change strategies using the tools and concepts discussed earlier in this report. Below that, a tool such as the balanced scorecard is used to manage the ongoing process of ensuring that the strategy runs true. Next, the budget reduces the planning horizon to 12 months using financial tools to make the appropriate decisions. Finally, the services established for both the IT strategies form the basis for operations.

Working from the bottom up on the right hand side, the chargeback incurred during operations feeds both the budget and the process management tool. Feedback from both of these provides input into making the appropriate updates to the strategies at the top, and the cycle repeats from there.

10.0 Summary and Recommendations

Most enterprises claim to have an effective strategy in place, but don't really possess one. This is probably the single largest problem facing IS organizations in their quest to manage enterprise IT expectations. Nevertheless, regardless of whether business has an effective strategy — one that states a clear vision and objectives, and bounds the options for attaining them — the IS organization must identify one to guide its application change and operational support efforts.

By following the model provided in this *Strategic Analysis Report,* IS organizations can develop an IT strategy that serves enterprise's actual or implied business strategy — that simultaneously provides effective, efficient IT operations, while developing new applications to power the business processes needed to ensure enterprise competitiveness and growth.

To help IS organizations accomplish that goal, Gartner offers the following high-level recommendations, each of which is keyed to the analysis offered previous sections of this *Strategic Analysis Report:*

- Focus IT strategy development, and the IS organizational structure, on two main functions — application change and IT operations — each of which has a unique mission in serving the enterprise (see Section 2). By developing separate but linked strategies for these functions, each can more readily be structured to fit the business strategies that drive them.
- Assess the nature of the seven key elements of the enterprise business strategy that contribute to IT development (see Section 3). If the enterprise's strategy is poorly defined or nonexistent, use these elements to infer a business strategy for IT strategy development purposes.
- Using the model in Figure 4 as a guide (see Section 3.1), define the nature of the IT strategy by mapping the seven business strategy elements to the five foundation elements of IT strategy definition — infrastructure, service, application change, integration and sourcing:
  - The application, integration and sourcing elements will serve as the foundation for developing the application change strategy (see Section 4).
  - The infrastructure, service and sourcing elements will serve as the foundation for the developing IT operations strategy (see Section 5).
- As part of the IT strategy development effort, define the IT architecture needed to effectively and efficiently support the business strategy. Ensure that enterprise and BU management understands the negative impact — in both cost and complexity — that the enterprise will suffer if it fails to invest in implementing the required architecture (see Section 6).
- Define the financial and management tools (see Section 7) that will be used to govern decision making as the strategy unfolds — including the selection of which projects will be executed and the priority of their implementation.
- Ensure the IT strategy and IS organizational structure focus on a critical element of successful strategy execution: having the right people in the right jobs. This goes beyond managing the IT skills portfolio, to include identifying the unique talents needed to create and sustain strategic focus for both the application change and IT operations groups (see Section 8).
- Use the nine-step process described in Section 9 to guide the IT strategy development and documentation process. If developed effectively, the resulting IT strategy document will:
  - Clearly state objectives and bound the options for attaining them.
  - Define how the IS organization will focus and direct its activities to support the business strategy, while allowing business management and BUs to prioritize and justify the IT projects that best fulfill their strategic requirements.

Appendix A: Recommended Reading

- Robert Bradford and J. Peter Duncan, *Simplified Strategic Planning: A No-Nonsense Guide for Busy People Who Want Results Fast* (Chandler House Press, 1999)
- Marcus Buckingham and Curt Coffman*, First, Break All the Rules: What the World's Greatest Managers Do Differently* (Simon & Schuster, 1999)
- James Collins, *Good To Great: Why Some Companies Make the Leap ... and Others Don't* (HarperCollins, 2001)
- James Collins and Jerry Porras, *Built to Last: Successful Habits of Visionary Companies* (HarperCollins, 1994)
- Hugh Courtney, *20/20 Foresight: Crafting Strategy in an Uncertain World* (Harvard Business School Press, 2001)
- Dr. Bob Frost, *Crafting Strategy: Planning How You Will Prevail Over Competitors and Obstacles* (Measurement International, 2000)
- Robert Kaplan and David Norton, *The Balanced Scorecard: Translating Strategy into Action* (Harvard Business School Press, 1996) and *The Strategy-Focused Organization: How Balanced Scorecard Companies Thrive in the New Business Environment* (Harvard Business School Press, 2000)
- Timothy Luehrman, "Investment Opportunities as Real Options" (Harvard Business Review, July-August 1998) and "Strategy as a Portfolio of Real Options" (Harvard Business Review, September-October 1998)
- Michael Porter, *Cases in Competitive Strategy* (Free Press, 1983) and *Competitive Strategy: Techniques for Analyzing Industries and Competitors* (Free Press, 1998)
- Peter Schwartz, *The Art of the Long View: Paths to Strategic Insight for Yourself and Your Company* (Doubleday, 1996)
- Ronald Shrieves and John Wachowicz, Jr., "Free Cash Flow (FCF), Economic Value Added (EVA), and Net Present Value (NPV): A Reconciliation of Variations of Discounted-Cash-Flow (DCF) Valuation" (The Engineering Economist, v. 46, No. 1, 2001)

Appendix B:

Acronym List

BU	business unit
CEO	chief executive officer
CFO	chief financial officer
COO	chief operating officer
DCF	discounted cash flow
ERP	enterprise resource planning
ESP	external service provider
EVA	economic value added
FCF	free cash flow
HR	human resources
IRR	internal rate of return
IS	information systems
ISCo	IS Service Company
IT	information technology
NPV	net present value
PC	personal computer
ROI	return on investment
ROV	real option valuation
SLA	service-level agreement
TCO	total cost of ownership
TVO	Total value of opportunity