# Structuring Global IT Organizations

## Position Paper

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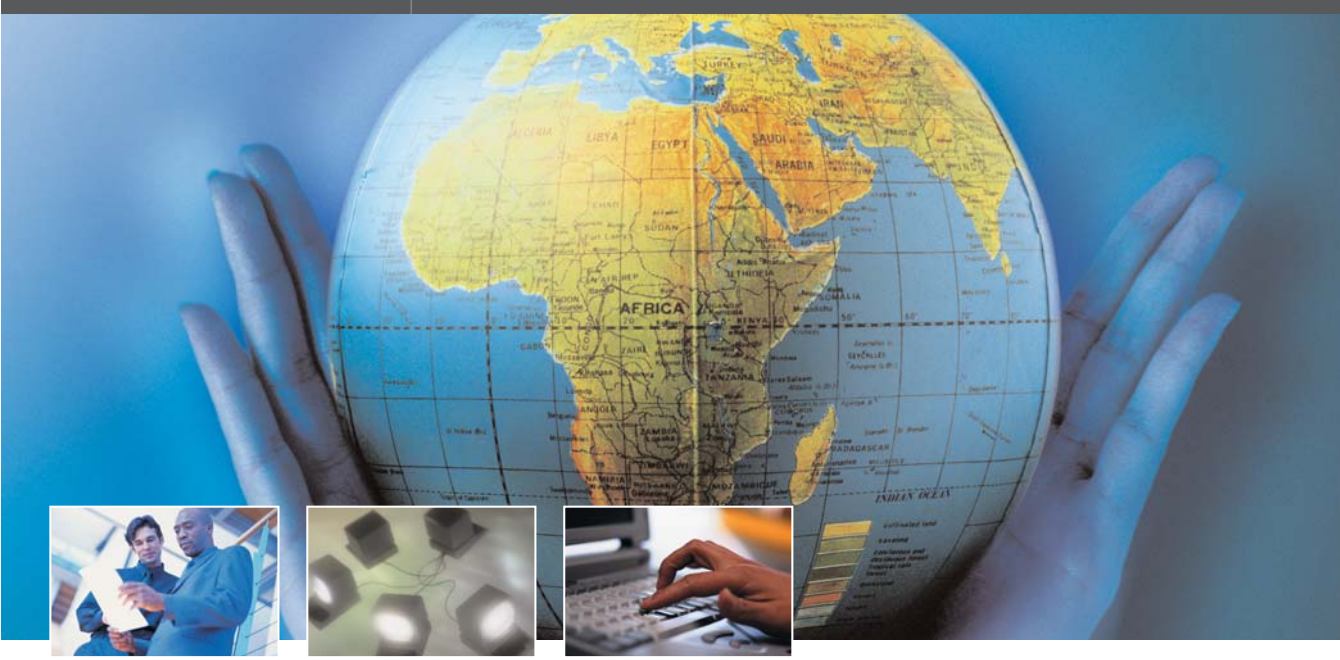








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## Contents

## The importance of IT organizational structures

**This paper identifies the adoption of appropriate IT organizational structures as a necessary pre-condition for IT effectiveness, and recommends methods to structure IT departments in global corporations. Without minimizing the importance of culture, skills, processes, team work, personal relationships and informal networks, organization charts define the framework on which businesses are built. They lay out the formal structures that channel employee efforts towards the firm's best interests, and they set bounds on what can be achieved. In this way, organization charts are to organizations what financial statements are to accounting: they may not say everything that needs to be said, but they say a lot and are widely understood.**

IT organizational structures are particularly important right now. The IT honeymoon is over and businesses are scrutinizing the value of IT in the same way that they have always scrutinized other business functions. CEOs are challenging IT and business leadership to demonstrate the value generated from their IT investments[1]. This is never easy. However, effective organizational structures offer a partial solution. The largest component of IT budgets is typically the cost of people, both internal and external. With a sound organizational structure, you can at least show that your IT staff is organized in a way that should result in business value. In other words, clearly aligning your IT organization with business needs is a significant and necessary step towards confirming the value of IT.

However, we will see that such alignment is not without risks. *Structuring your IT organization to fit your business requirements can bring about changes in responsibilities that can either reinforce or undermine key IT leadership positions including that of the CIO. It also has important implications for the way that outsourcing may or may not be appropriate.*

This paper presents an objective approach to structuring IT in the best interests of any given company. The format of this paper mirrors the evolution of our research. We first introduce some of the many factors known to play a role in managing IT in global businesses. Within this wide field, we assess the experience of a number of major corporations and identify some clear patterns. We then present a powerful new decision-making model that draws on this analysis and can be applied to virtually any company to produce an appropriate IT structure.

Later sections demonstrate the model's effectiveness in four large multinational companies that are generally regarded as having 'good practice' IT units. Finally, we summarize the core ideas in the model and recap how you can apply them to your own organization.

## The challenge of structuring IT in a global business

The literature on structuring IT organizations is extensive and appears exhaustive. The sheer volume of analysis tends to obscure both the challenge and the solution, and, as far as we are aware, no one has yet suggested a single, consistent recipe for structuring IT to meet the needs of global businesses. This is what we have set out to do.

In the first phase of our research, we wanted to understand the basic challenge. We followed a four-stage process:

1. Examine what an IT department does, from both the IT and business perspectives
2. Understand the forces affecting the structure of a modern IT department
3. Appreciate what IT issues really matter in today's business environment
4. Recognize the variables at our disposal when structuring an IT organization

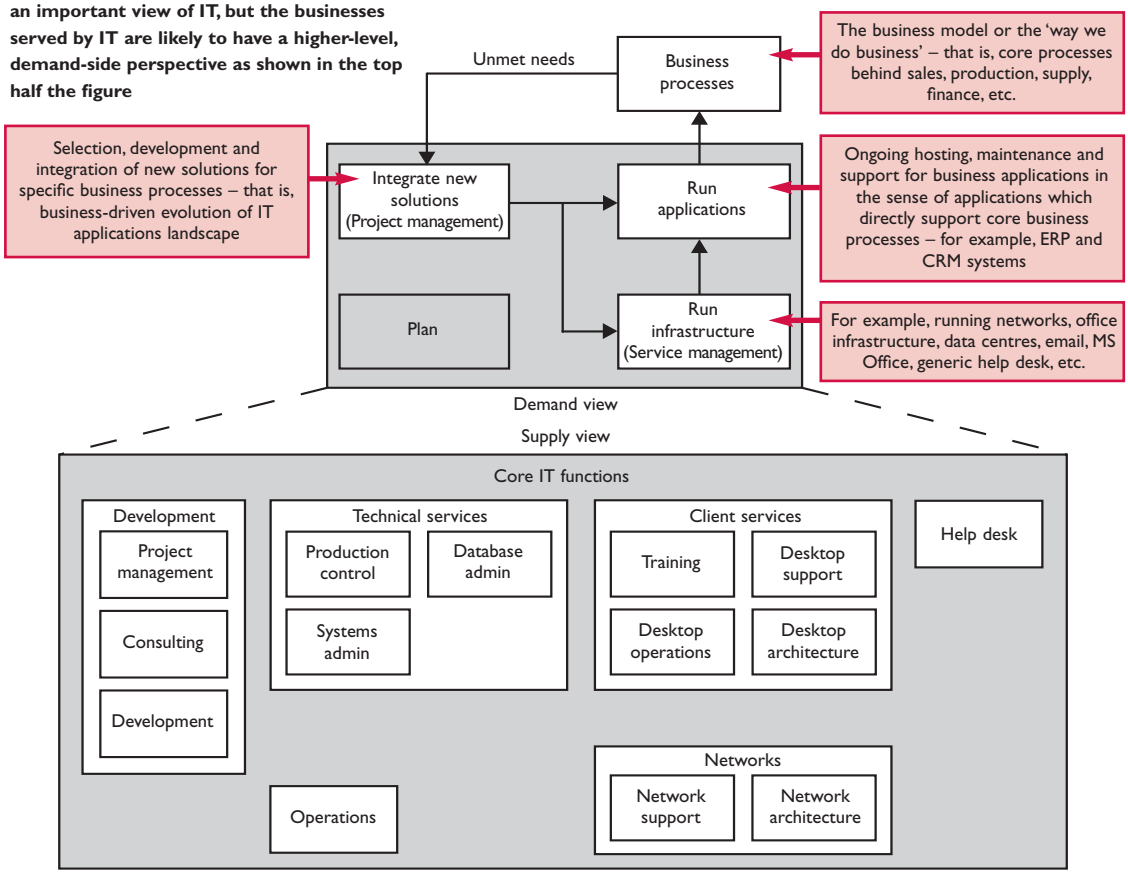
These steps by themselves solve nothing, but they provide an overall picture of the key factors involved in structuring global IT operations. Later in our research, when we interviewed leading global firms, we went informally through these four steps to establish the overall IT landscape before validating our model for structuring IT organizations.

Step 1 examines what an IT department really does from both an IT and business point of view. From a traditional IT perspective, IT is a complementary set of expert activities ranging from database administration through server operations to running help desks. By contrast, from a business perspective, an IT department runs IT infrastructure and business applications, and integrates new solutions. These are respectively the 'supply' and 'demand' views. Both are important. However, the demand view should set the tone when determining the high-level structuring of IT. The supply view is relevant at a lower level, for organizing skills and resources once the overall direction has been set.

1. For further information, see *Valuing the IS Contribution to the Business*, CSC's Research & Advisory Services, February 1999.

**Figure 1. Core IT services and functions viewed from business demand and IT supply perspectives**

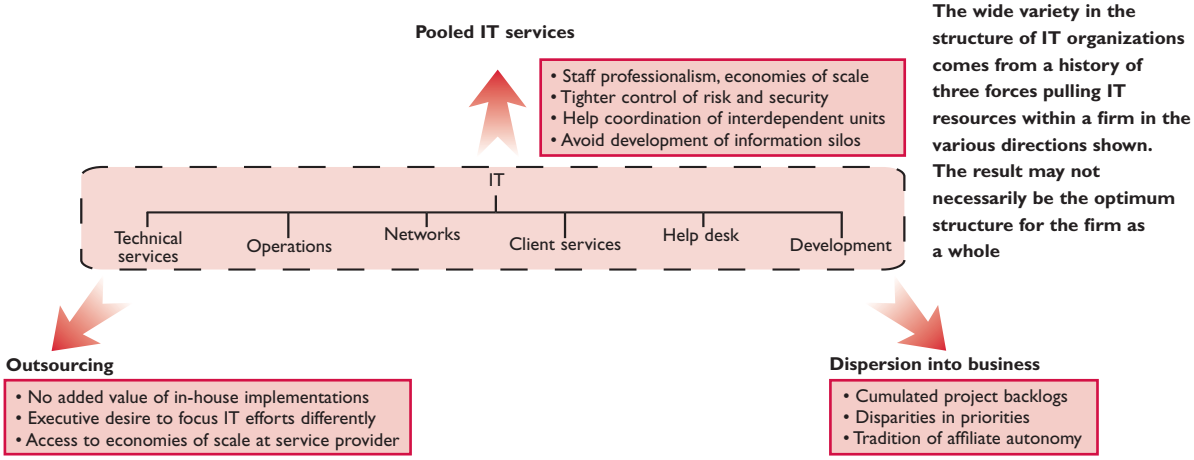
**The lower portion of the figure shows a traditional supply-side picture of an IT organization. This is an important view of IT, but the businesses served by IT are likely to have a higher-level, demand-side perspective as shown in the top half the figure**






Step 2 is to understand the generic forces that act on every IT department, whatever the size of the business served. There is always a force pushing to pool IT resources to improve IT efficiency and professionalism. This force was often the main driver behind the creation of an IT function in the first place. Opposing it is a fragmentary force pulling IT resources into the business functions. This is usually driven by the business units' desire to direct IT projects or services themselves. A third force, at a tangent to both of these, is towards outsourcing – taking IT activities right out of a business and placing them in the hands of a third party. Such decisions are typically driven by an executive view that someone else can do the job better or cheaper than is possible in-house.

**Figure 2. Forces shaping IT organizations**




**The wide variety in the structure of IT organizations comes from a history of three forces pulling IT resources within a firm in the various directions shown. The result may not necessarily be the optimum structure for the firm as a whole**

Step 3 is to appreciate that these generic forces alone are unlikely to create an IT structure that optimally fits your business requirements. Multinational businesses exist on a spectrum from a loose collection of independent national organizations held together by a holding company, to closely integrated global corporations with business processes cutting across national boundaries. How a company is actually run will define the range of IT structures that are likely to be successful. In addition, the relationship between business and IT governance must also be assessed. Where is P&L responsibility, and to what extent are IT investments global in scope? Local and/or national IT investment control has often been the downfall of company-wide IT initiatives that were intended to fine-tune globally consolidated processes but did not add sufficiently tangible local business value.

Step 4 identifies the variables at our disposal when structuring an IT organization. The structure can be oriented by geography, by business function, by business process or by IT expertise. In most global IT organizations, one of these parameters will dominate and dictate the top-level split in the IT organization chart.

Most IT organizations take their cue from the business structure. Within the basic organizational structure, there is then the question of where the bulk of IT resources are accumulated and controlled. This is not just where they appear on the organization chart but where they are physically located, which (as shown by offshore outsourcing[2]) is not always the same thing. Firms with a mainframe history or a large domestic market in their head office country tend to be centralized, while others are more distributed. Additionally, there are many other organizational issues that need to be juggled, including supplemental governance instruments such as steering committees and accounting architectures, as well as pooling approaches such as competence centres, centres of excellence and shared service centres.

While there are other factors that might be relevant, these four steps are sufficient to trace the development of most of the organizational variants we see today in IT, from the completely fragmented to the highly centralized. However, there are also several other specific IT industry trends which are now affecting the structure of global IT organizations:

- **Executives' expectations concerning IT are changing.** CEOs are placing more emphasis on clear and business-oriented IT governance because IT investments that fail to deliver business value are no longer acceptable. Managers with P&L responsibility understandably want to keep IT decision making close to their business decision making.
- **Attitudes to organizational hierarchies are maturing.** While the hierarchy remains paramount in an IT organization chart, two key nuances are emerging. First, if a hierarchy is flattened by cutting out middle management, additional governance mechanisms such as steering committees are often needed to keep the organization effective. Second, because of its pervasive and often multi-purpose nature, IT is usually required to be more flexible across organizational boundaries than is normally implied by a rigid hierarchy.
- **Perception of commodity services is evolving.** The definition of what is recognized as a commodity IT service is moving steadily upward, already including most of the activities involved in running infrastructure and applications. Accompanying and to a certain extent driving this trend is the growth in the market for service provision by third parties[3]. The credibility of global IT service providers is increasing steadily, as is the number of global outsourcing agreements. In parallel, the rapid growth of pools of IT expertise in low-cost locations such as India is leading to cautious acceptance of offshore outsourcing[2].
- **Internal IT organizations are being realigned.** While traditionally organized by area of IT expertise, many IT organizations are now moving towards a structure that is aligned with the services they supply, such as providing a working office environment for new employees. This makes IT organizations more customer focused and enables easier benchmarking with third-party service providers, most of whom adhere to this model.

Companies that are in a steady state are not affected too greatly by these trends because their IT organization can be improved incrementally to address any performance deficiencies. Today, however, such steady-state businesses are more the exception than the rule. More common is a dynamic situation involving mergers and acquisitions[4], global ERP implementations and outsourcing programmes – many of which cannot be managed within the framework of the existing IT organization. Thus, most companies are facing a number of practical challenges:

- **How deep should I take customer orientation?** Do I align my global IT organization with the business, say by having account managers for each major customer segment, while keeping the same old delivery groups by IT expertise underneath, or do I radically restructure everything? Do I take a different approach for commodity services that are similar, but serve different customer segments?

2. For further information, see *Offshore Outsourcing: Cheaper, Faster, Better or a Cheap, Fast Bet?* CSC's Research & Advisory Services, February 2004.
3. For further information, see *The 'Consumerization' of Information Technology*, CSC's Research & Advisory Services, June 2004.
4. For further information, see *Realising the Value – The IT Contribution to Mergers, Acquisitions and Divestments*, CSC's Research & Advisory Services, July 2003.

- **What extra IT governance do I need?** Once I have determined the priorities of the core structure of the IT organization, say by geography, what additional governance is required in the form of committees and control mechanisms?
- **Which structures work well in global ERP projects?** The combined impact of significant business and IT change creates tensions that are at the root of many failures even in local ERP projects. In global projects, the extra degree of complexity greatly exacerbates these challenges.
- **Which structures work well in global outsourcing projects?** For commodity-type activities, IT decision making can be consolidated and largely taken away from local business decision makers. Application development will likely prove to be a much more complex process.

## Case studies reveal three guiding principles

To move beyond the vast literature on these topics and towards a genuinely useful decision model, we looked at case studies of Philips, Nestlé, Novartis, Toyota and UBS. These have been published in the book *Global IT Management: A Practical Approach* (Robert Barton, John Wiley & Sons Ltd, 2003) and cover both the IT organizations and the processes they use to manage strategy, architecture, standards and control. When we looked for a common pattern in the structuring of the IT organizations at these complex firms, the most fruitful point of departure proved to be the 'demand' view shown earlier in Figure 1.

We found that in all these companies, IT resources for the integration of new solutions (business analysis, applications selection, configuration and so on) are assigned to wherever the business decisions about business processes are actually made. If a particular division, region or business unit makes its own decisions on how its processes work, then it invariably has its own 'business-facing' IT unit, which at the very least carries out the integration of new solutions. There appears to be very little departure from this rule. Thus the degree of fragmentation in the approach to new IT solutions reflects the degree of fragmentation in each company's business process decision making.

IT infrastructure appears to be managed quite differently. In all five cases, IT infrastructure provision tends to take a more territorial or regional approach, regardless of the business structure. UBS has merged the infrastructure service provision groups of each of its four divisions into a single cross-divisional infrastructure organization. Overall, there appears to be a clear pattern of organizations decoupling the provision of IT infrastructure from their fine-grained business structures.

We also observed that the ongoing running of business applications (their hosting, maintenance, support and continued development) can fall into either the business unit or cross-company infrastructure camp. Some firms clearly regard their ERP systems as part of the infrastructure and treat them as such, while others leave the running of such applications to division-specific IT units. There appears to be no desire to create a third branch of the IT organization at a global level dedicated to simply running applications.

These real-world observations are consistent with basic logic. Think about why companies developed new solutions: the benefit is clearly the business value generated by improving a specific process. A logical prerequisite for delivering the right solution is the proximity of the IT group to the relevant business issues. That proximity is ensured by assigning IT resources to where business decisions about the processes are made. While this might fragment the IT organization, any lost IT efficiencies should be more than offset by the business value generated.

However, the same is not true for IT infrastructure. First, the business value of infrastructure is usually the same irrespective of the business branch, so the argument in favour of mirroring business structure with the structure of the infrastructure organization is not as strong. And second, because infrastructure is basically a commodity, there are significant economies (and risk reductions) to be made by pooling infrastructure organizations.

In sum, our analysis of these five IT organizations led us to three principles. They form the foundation of the decision framework which we have developed and tested for structuring IT in any given business, whether it is centralized, decentralized or hybrid:

| | |
|---|---|
| Principle A: | For business-specific value, allocate IT resources driving the integration of new solutions to the points within the business where decisions about how processes work are actually made |
| Principle B: | For IT efficiency, allocate IT resources for infrastructure service provision along territorial or regional lines |
| Principle C: | From a practical point of view, any model for moving forward needs to take into account the current IT organization |

## A decision framework for structuring IT in complex businesses

The proposed model for structuring IT in global businesses is split into two complementary work streams. The first stream develops a vision of the IT organization that would be ideal for serving a particular business. The end result is essentially a goal of where you want to be. The second is more tactical, laying down the steps needed to achieve this goal, using the current IT organization as the point of departure and taking into account the practical realities of organizational change. Both work streams are presented in the form of relatively simple exercises to be carried out directly by executive IT management. The exercises are intended to yield results within just a few meetings. Our focus on a few basic decision-making principles might initially seem to be simplistic, but too often we see companies using complexity as an excuse to avoid making hard, but ultimately beneficial, choices.

### Work stream 1: Derive an 'ideal' IT structure directly from the business environment

There are three distinct phases in this work stream. The first pinpoints the particular characteristics of the business environment with which the IT structure must align. The second looks at the part of IT that integrates new solutions – the development function – and fits this into the business environment. The final phase identifies options for the provision of the rest of IT services. Beyond having good knowledge of how your company works, all you will really need is your current business organization chart and a world map. What you must avoid is running through these exercises in a mechanistic way and bending the interim results at each stage to fit the structure you have now.

#### *Phase 1: Pinpoint the specific characteristics in the IT function's customer base with which you need to align*

Start at the top of your business organization chart and go down through it, noting where decisions are made about how individual core processes work – not who carries a process out, but who decides what the process is and how it is changed. These process decision 'poles' may be at any level in the chart. For example, at Nestlé, following a major global process harmonization initiative, there is now a tight catalogue of 'ways of doing business' and the bulk of process decisions are made centrally for the entire company. By contrast, in many firms, process decisions are made at a country level with limited head office intervention. In between these two approaches are many hybrid situations such as that at Novartis, where drug development and supply-chain processes are set by corresponding global functions while other processes are set at a country level.

Wherever these process decision poles lie, qualify them by the proportion of activity actually set there. For example, if a process decision pole has been identified within a global finance function, find out whether it determines exactly how local finance processes must work, or if it simply specifies the interfaces that need to be supported between local finance and the head office. The former is much more significant.

Next, go again down the business organization chart, this time flagging the key points where decisions are made about IT investments. Where is it really determined how and when resources are allocated to projects? Take a close look at country managers, for example, and think about how their performance is managed. If their performance metrics collide with those proposed by IT projects launched from a process decision pole further up the tree, who usually 'wins'? If the country manager is able to delay or block deployment, then demote the higher-level process decision pole. The distribution of the power to direct and control resources in a firm is an important factor to take into account when structuring IT. Qualify each investment control point with a measure of its relative importance.

Now look at a world map, identifying the locations, sizes and importance of your company's user populations, regardless of their specific business units. There is no need to distinguish, for example, between groups of users from different divisions within the company if they work in the same building.

These process decision poles, investment control points and the geographic distribution of user populations are the three characteristics within the served customer base to which we will anchor the IT structure.

#### *Phase 2: Anchor the development part of your IT organization to the process decision-making poles*

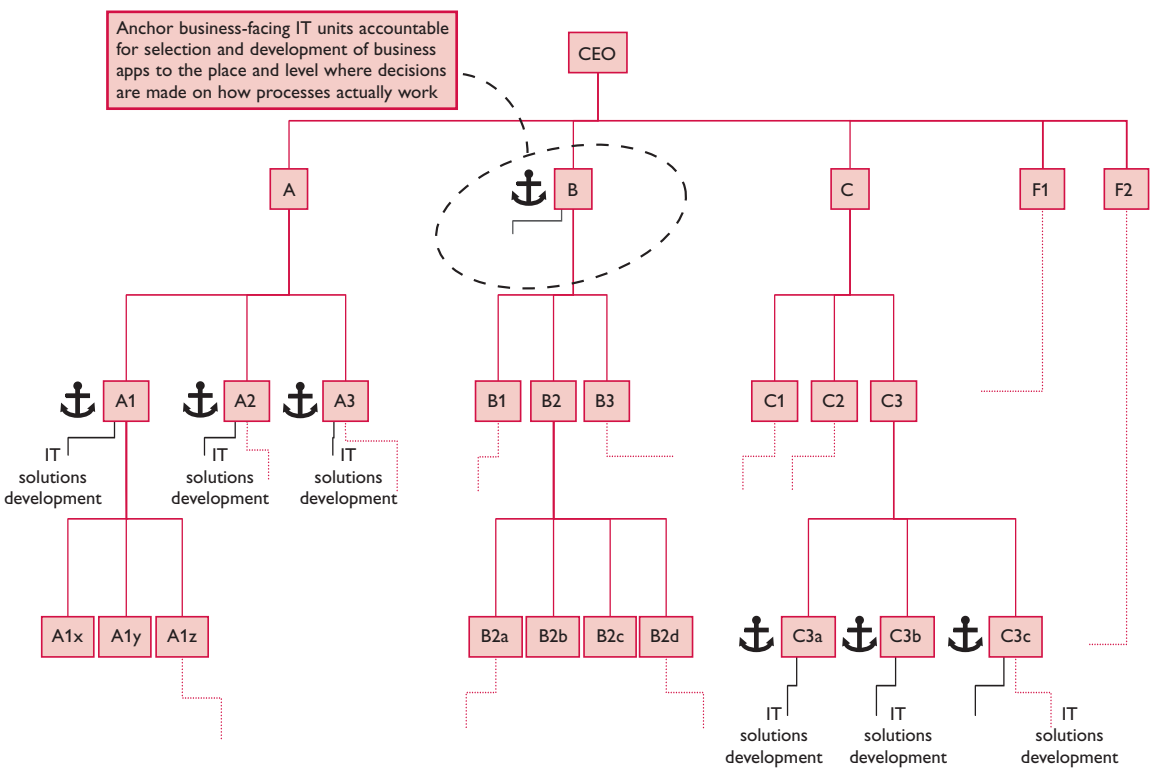
This phase sets the top priority in structuring IT. First, assign business analysis and applications development, configuration and resources to the process decision poles identified above, and locate them in the same premises or at least nearby. These groups should report directly to the business units they serve. The reason is to ensure that at the business applications level, the business drive behind the selection and ongoing adaptation of technology is immediately

apparent in the IT organization chart – and it is aligned with the way decisions are made about how processes work.

While company organizations will take many forms, for any individual company following this approach there is likely to be just *one* ideal structure for IT development. One not uncommon case demonstrates this. What approach to IT development is appropriate when a business such as Nestlé decides centrally on a portfolio of off-the-shelf 'ways of doing business' from which an affiliate can select to suit its local market conditions? The answer is that IT business application development reports solely to the central business unit controlling process definitions. However, more flexibility is justified when the need for development resources is intermittent or when the volume of work is insufficient to justify a dedicated group. In these cases, resources such as programming or technical configuration can be moved out to a pool, but ownership and control of applications selection and evolution must still lie with the part of the business served.

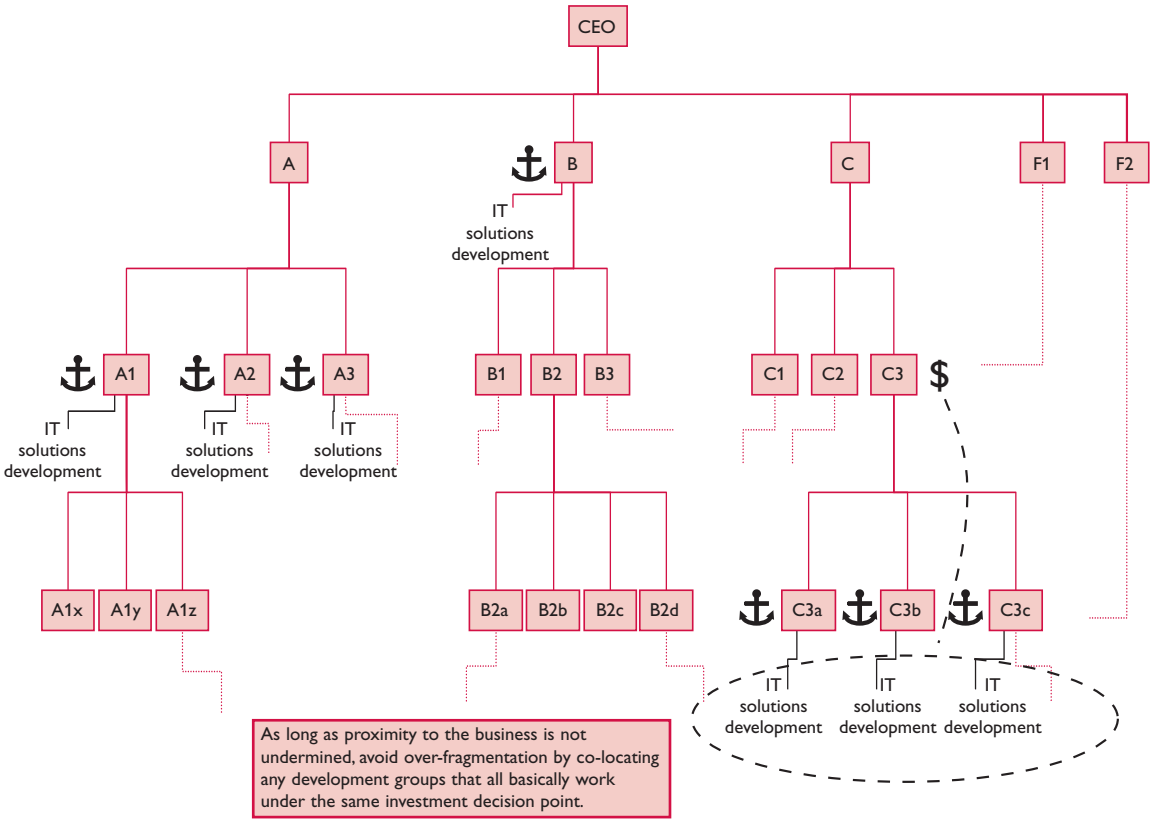
The above steps will often lead to the fragmentation of the IT organization and therefore will add some complexity to the applications development process. In general, this is the price of alignment within a fragmented business structure. However, if strict adherence to these rules has led to several IT development units sitting below a common investment control point, consider co-locating these units – unless this would undermine their proximity to the relevant business decision poles – but in the interests of maintaining clear alignment, resist merging them. This configuration usually arises within a strong country organization which delegates process decision making to individual functions within each country.

**Figure 3. Anchoring development to process decision-making poles**




**The anchors depict those key points within the business where decisions are made on business processes. Ensure that business needs drive the evolution of the applications landscape by aligning the IT resources responsible for selection and development of business applications with those business anchors**

**Figure 4. Co-locating distinct development groups**




**Avoid unnecessary fragmentation by co-locating closely related development groups provided that proximity to the served businesses is not undermined**

So far, no other reporting lines have been put on the table and therefore you may not have a sufficiently coherent IT organization. You should consider if secondary alignment is needed between any of these units. For example, supply chain and finance are commonly interdependent and the selection of supporting business applications needs coordination. In many cases, the required alignment will already be assured by the business structure and there is no need to replicate it between IT units. If not, architectural steering committees across development units may be sufficient to ensure alignment. Otherwise you must create additional formal reporting between the development units. Overall, however, in the interests of maintaining clear business alignment, resist the temptation to add reporting lines.

This phase aligns IT resources dedicated to the development and integration of new solutions squarely with the business units served. These groups can be compared to competence centres, but with a couple of important differences. First, these are not central pools of resources that have been drawn together to serve wherever needs arise. They are located with and report directly to the business unit where the need has been defined. Second, the development units retain ongoing ownership and control of their respective business applications. While commodity technical activities such as hosting may shift to other parts of the organization, the overall control of evolution remains with the business-facing development group.

### *Phase 3: Identify options for the provision of the remaining bulk of IT services*

This phase considers the IT structure for everything other than development and integration of new business solutions, and takes a completely different approach. It treats IT infrastructure service provision as fundamentally independent of business issues. The main consideration is the physical distribution of the user population and the practicalities of efficiently distributing an IT infrastructure to serve them. To begin the process of structuring the IT infrastructure organization, return to the world map used in Phase 1.

IT infrastructure groups should be organized by country or region and by the scale of the user populations served. Adjust the granularity of these groups to the service in question. For example, on-site support services should be organized by country, but hosting services can be run regionally. Weigh the potential scale economies against genuinely differing

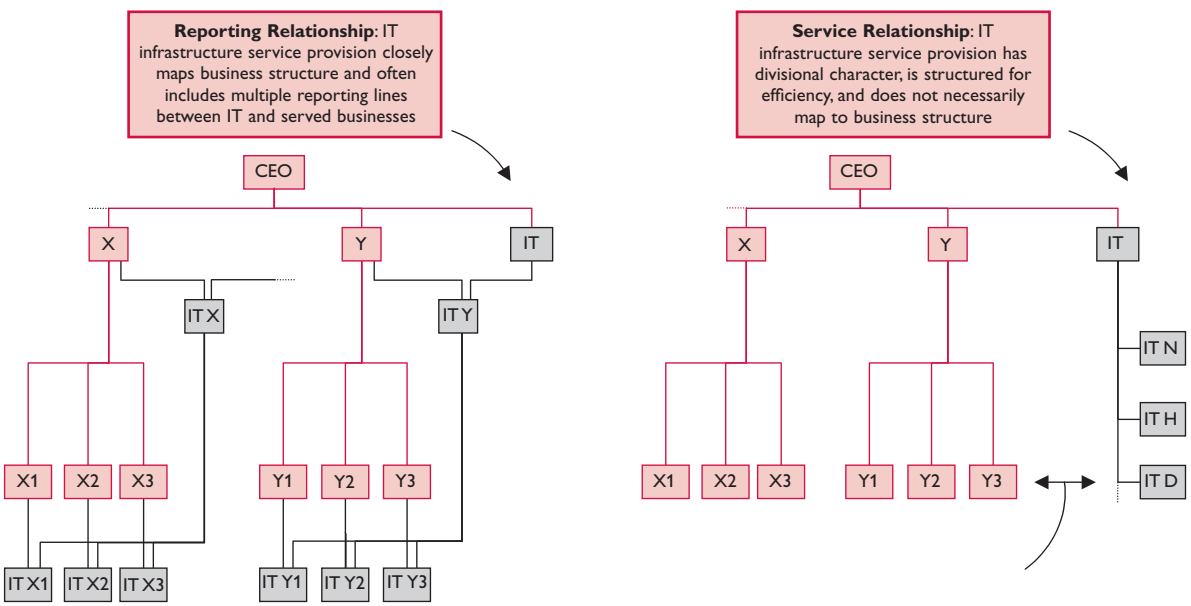
local service requirements and how important it is to keep services physically and culturally close to the user population. An argument for outsourcing is that for certain services this proximity is now largely irrelevant, so you can safely transfer those services to a third party, possibly offshore.

In practice, you must look beyond potential IT efficiency and think about whom these groups should report to. The key investment control points identified in Phase 1 are 'sticky' when it comes to IT resources – that is, the decision makers with control over IT resources will only relinquish this control if the service provided is clearly well managed. Since such well managed service levels are exactly what you want, your IT infrastructure groups should report to the highest feasible investment control point, knowing that any investment control points that are lower in the organization chart will complain if they don't believe their service levels are sufficient.

The range of possibilities is vast. On the one hand there are organizations with extensive local autonomy, where local IT infrastructure groups report to their country managers. In contrast, there are companies such as UBS where a separate, division-like infrastructure organization is created with a service-style relationship to their served businesses. In such cases, where several investment control points or diverse user populations are served by the same infrastructure group, consider assigning account managers with dual reporting to each user population, but do not let individual account managers accumulate significant resources. They are merely mediators between the business units and infrastructure service providers.

Once the core structure for infrastructure provision has emerged, return to the location of the process decision poles in the business organization chart. Do any process decision poles higher in the tree dictate the need for harmonization in infrastructure across geographies? If so, build up the requisite secondary reporting and establish standards setting at the appropriate level. For example, if a supply-chain process straddles several regional infrastructure units, either establish an effective global infrastructure committee or add formal reporting of regional IT units to a common point such as a Chief Technology Officer (CTO). Either way, IT infrastructure service provision must be able to serve as a platform on which new, business-specific solutions can be rolled out.

**Figure 5. Reporting relationship versus service relationship**




Reporting-style relationship between IT infrastructure organization and served businesses

Service-style relationship between IT infrastructure organization and served businesses

**In a reporting relationship, distinct groups of IT resources are controlled by the branches of the business that they serve. In a service relationship, the IT organization achieves a certain independence from individual branches and therefore can be consolidated**

So far, we have identified two complementary IT structures: one business-facing structure focusing on new, business-specific solutions; and one generic structure focusing on infrastructure services. While making this distinction is in general quite easy, systems such as SAP can be an important exception, with some companies viewing ERP as a business application while others see it as an essential part of their underlying corporate infrastructure. Each company has to make such choices for itself.

Once development and infrastructure have been properly organized, the key remaining question is in which part the ongoing running of applications falls. Our model does not provide a specific recommendation beyond noting that you must decide how to divide the hosting and support of business applications between your development and infrastructure organizations. Ownership should be kept with the former but, in general, no geographic proximity to the business is required. Thus hosting (for example) can be co-located in data centres with other units, though the benefits will be limited if the technologies employed differ. The key point is that the overall structure of the IT organization chart will not be impacted much by this decision.

The final step in deriving an 'ideal' global IT structure directly from the business environment is to consider if there are implicit requirements placed on the IT organization that go beyond explicit operational business requirements. One of the most common is that top management wants to have globally consolidated reporting or a single face at the executive level for IT dialogue. If there are additional requirements like these, you may have to add management layers (for example, by introducing a CIO) and further reporting lines beyond those already present. However, companies should think twice before adding further formal reporting lines. The ideal structure described above enables clear business alignment, and further additions will invariably obscure this clarity.

With this final step completed, you will have derived an ideal structure for IT from your basic observations on the business environment. To verify this approach, we tested the model against companies with successful IT organizations. Later we will use these examples to show how the structure generated by our model corresponds closely to the structure of current real-world organizations – or at least where these organizations would like to be.

We said in the introduction that aligning an IT organization with the business could well affect key IT leadership positions. In general, we would expect the following:

- CTO-style positions – that is, those responsible for IT infrastructure service provision at regional and global level – are strengthened. Decoupling the IT infrastructure from the business structure places more resources under the CTO's control, but carries with it the responsibility for improving IT operational performance. However, once infrastructure services are bundled into a single organization, the outsourcing of such services becomes simpler and therefore more feasible, especially as the available public infrastructure becomes ever more robust.

- IT heads of units serving specific branches of the business (often termed divisional or business-unit CIOs) should both gain and lose. They gain in being able to focus on the selection and development of new business solutions. They lose resources because they are no longer responsible for the operational delivery of IT infrastructure services.

- The IT heads of individual in-country groups will generally see their influence eroded. In most companies they will play a reduced role in managing infrastructure. Their role will also be reduced in those companies that have a strong set of centrally defined global business processes. Only in companies with strong country-specific operations will this role remain essential.

- At this stage of our discussion, global CIOs appear on balance to be slightly weakened. On the one hand, they are normally the top CTO, which from an infrastructure management perspective is positive. They will also play a role in providing a single point of contact for the CEO. However, the model emphasises the need for business-facing IT units to report first to the businesses they serve, implicitly weakening their relation to any global CIO. But this is not the end of the story and we will return to this important topic after presenting the second work stream.

### Work stream 2: Derive IT structural changes from the shortcomings of your current way of working

Work stream 1 should have confirmed or challenged your overall alignment with an ideal IT organization for your company. Work stream 2 is more tactical and finds practical ways of changing the organization of existing IT resources by looking at what the current structure does *not* achieve. This exercise is also broken down into three phases. The first phase pinpoints the most relevant characteristics or 'anchors' in the current IT organization. The second identifies any structural changes required to address unmet business requirements. The final phase validates these changes in view of the current IT organization's main anchors.

#### *Phase 1: Pinpoint the relevant anchors in the current IT organization*

First, think about the recent history of your firm and identify what basic principles determined the current distribution of IT resources and reporting relations. Perhaps it was a sequence of mergers, acquisitions and spin-offs[5] that caused a highly fragmented approach to IT. Or it might have been a particular form of alignment. For example, at Toyota, the business is highly regional with essentially separate production and commercial organizations within each region, and the IT structure simply maps onto that business structure.

Next, run down the current IT organization chart and mark any teams, formal or informal, that have been working together on a regular basis for some time. A good starting point is teams that are co-located. Define the teams by their scope of activity across IT development, application operations and infrastructure. The purpose is to develop a sense of where operational allegiances lie.

Last, run down the current IT organization chart again, this time flagging groups that are maintaining legacy environments – business applications that, however useful, are based on largely outdated technology.

Retain these three anchors – the historical drivers, the team structure and the existing legacy environments – for the validation phase of this exercise.

#### *Phase 2: Identify changes to the IT structure that address unmet business requirements*

This phase considers IT structure in the light of what has gone wrong and what is likely to go wrong. First, examine recent sensitive projects or operational failures and check if their problems can be traced back to flaws in the IT organizational structure. Identify specific current or emerging business requirements that might not be met if these faulty structures remain, and flag the changes to correct them as urgent. But remember that inappropriate organizational structures are only one of many reasons why major IT projects can fail. Just as common are mismatches between skills and ambition, or the failure to take account of changes in business strategy – problems that have little to do with the overall IT structure.

Next, imagine the IT landscape likely to emerge if the current IT organization is retained. Ask yourself if the business advantages will outweigh the disadvantages and, if not, also flag changes to these aspects of the IT organization as urgent. For example, consider how end-to-end processes in your firm are evolving and what that implies for IT support. For example, Toyota is becoming increasingly customer-oriented, with customers and dealers determining both the car specification and the actual initiation of production. This requires the integration of business processes across both their commercial and production organizations. The previous splits in Toyota's IT organization were a clear obstacle to supporting this environment, so the IT organizations had to be merged.

By following this process, you will have identified the key features of the IT structure which have caused or are causing problems. You can now draft a combination of changes in reporting structure, location of resources, and actual activity to address them. For example, reporting lines can be added or removed:

a) Between IT groups and the businesses they serve

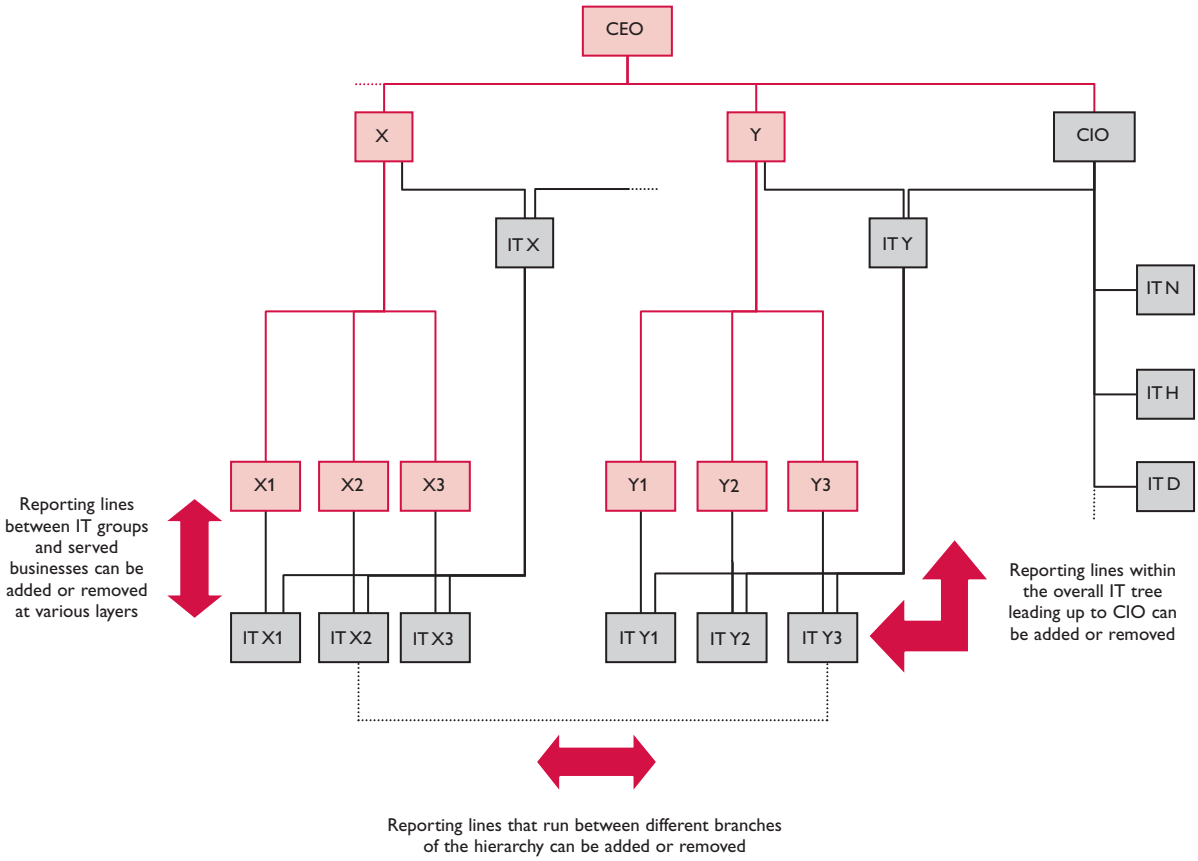
b) Within the overall IT tree leading up to the CIO

c) Between branches of the tree – for example, directly linking elements from different hierarchies

Figure 6 overleaf sketches the variants. It is important to be conservative with reporting lines and to add lines only if you can clearly define the associated accountability. In our experience, only in very smoothly running organizations can anyone have three or more reporting lines and remain effective, and any overall business structure which cannot be explained clearly and immediately is unlikely to be viable in the long term.

5. For further information, see *Realising the Value – The IT Contribution to Mergers, Acquisitions and Divestments*, CSC's Research & Advisory Services, July 2003.

**Figure 6. Possible variants for adjusting reporting relationships**




**The three variants focus on adjusting respectively the IT tree itself, links between IT and the business, and lastly links across otherwise unrelated parts of the IT organization**

You must also take into account the knock-on effects of the required changes. Once set in motion, these types of changes open up new ways of looking at downstream operations and infrastructure. It is important to distinguish between those changes required to meet clear business needs and those that merely offer the possibility of improved efficiency.

### *Phase 3: Validate changes in the light of the main anchors in the current IT organization*

The previous phase identified the required changes in IT structure based purely on past and likely future problems. This phase looks at the feasibility and validity of these proposed changes in the light of the main anchors in the current IT organization identified in Phase 1.

First, consider how difficult it will be to depart from the current structure. Assess the cultural stretch required to move from the current to the proposed IT organization. How much do the changes go against the principles that have driven evolution to date? To what extent will legacy environments pose an obstacle? How many of the proposed changes will divide teams that work well together today? Note, though, that breaking up an excellent team does not have to be a negative. If the environment is right, members of an effective team that is split up can implant best practices in the teams they join.

Next, assess the workability of the new teams in the proposed organization, especially in geographically distributed teams. How much investment is required for them to work together effectively? Will the new reporting structures be sufficient to achieve the planned cooperation? How much will relocations cost, in money and effort? International moves in particular can be very expensive.

Finally, return to the changes you identified in Phase 2. Weigh up the benefits of the new organization against the combined weight of stretch, workability and the actual cost of change. Recognize that even with a good business case, substantial transformations often still need a significant event to trigger them. Is there an externally-driven compelling event or sense of urgency strong enough

to impel the proposed changes? One of the following case studies describes how a large global media company, before reaching its current mature state, underwent more than one aborted attempt to put an effective IT structure in place. But without a suitable business change to underpin it, as soon as IT management changed, implemented programmes and changes fell apart.

What might this decision framework mean for a CIO, and in particular a global CIO? As we said earlier, the visionary work stream does not appear to strengthen the position of a global CIO in an ideal IT organization – and neither does the tactical work stream just presented. So have we just shot ourselves in the foot? The answer is no, though you need to take a step back from the decision framework to see why. The framework generates visionary and tactical pictures of where your firm needs to be. But getting there is not a paper exercise and it takes genuine IT leadership to do it. As we shall see, the types of changes identified using this framework can only be implemented by a CIO who is a convincing business leader.

## Validation of the decision framework

We developed this decision framework for structuring IT from a combination of basic logic and our research into the IT structure at a number of global firms. As soon as the framework was completed we wanted to see if it only applied to these companies, or whether it could be usefully applied to *any* company. First, we sought the opinion of Kishore Sengupta, Associate Professor of Information Systems at INSEAD, the top European business school. Sengupta endorsed the framework, saying:

"In the many international companies with which I have worked, one of the main hurdles to structuring IT is the apparent complexity of issues and conflicting factors that need to be taken into account. The proposed decision framework cuts through this complexity by providing the right questions to ask in the context of a specific business – without forcing you into a one-size-fits-all approach. And the results correspond closely to the best practices I have seen at many corporations."

Next, we conducted personal interviews with IT executives at four large multinationals with IT organizations that are generally recognized to be models of 'good practice' or better. These interviews validated the decision framework. In each case, stepping through the work stream to derive an 'ideal' global IT structure directly from the business environment produced a model which closely matched either the company's current structure or where it aspired to be. And in each case, the work stream to derive recommended IT changes directly from the weaknesses of the current structure corresponded to the tactics being employed to move forward. Each company has kindly permitted us to publish the details of its experience.

## CASE STUDY A – A LARGE GLOBAL MEDIA COMPANY

**Summary of an interview with the VP and Head of EMEA IT Shared Services**

**How has your business and IT evolved in the last few years?**

In the early 1990s, we decided to develop our international business and rapidly launched affiliates for each division and line of business in the main markets outside the US. Each business initially had its own IT operation, and the first efforts to create a common organization for IT infrastructure serving two of the divisions failed due to lack of local and divisional support. The door to bringing global IT under control only opened when the company added a country manager organization to focus on cross-selling synergies across the divisions in a geographical territory. Initially, we created a single, comprehensive IT organization to serve all businesses outside North America, but while regional infrastructure groups within the new organization progressed, global pooling of application development across all businesses fell apart because of tensions with the lines of business. New IT leadership then brought in a more iterative approach, assigning accountability for development of business-specific applications to the respective divisions and lines of business, while improving infrastructure service provision on a regional basis.

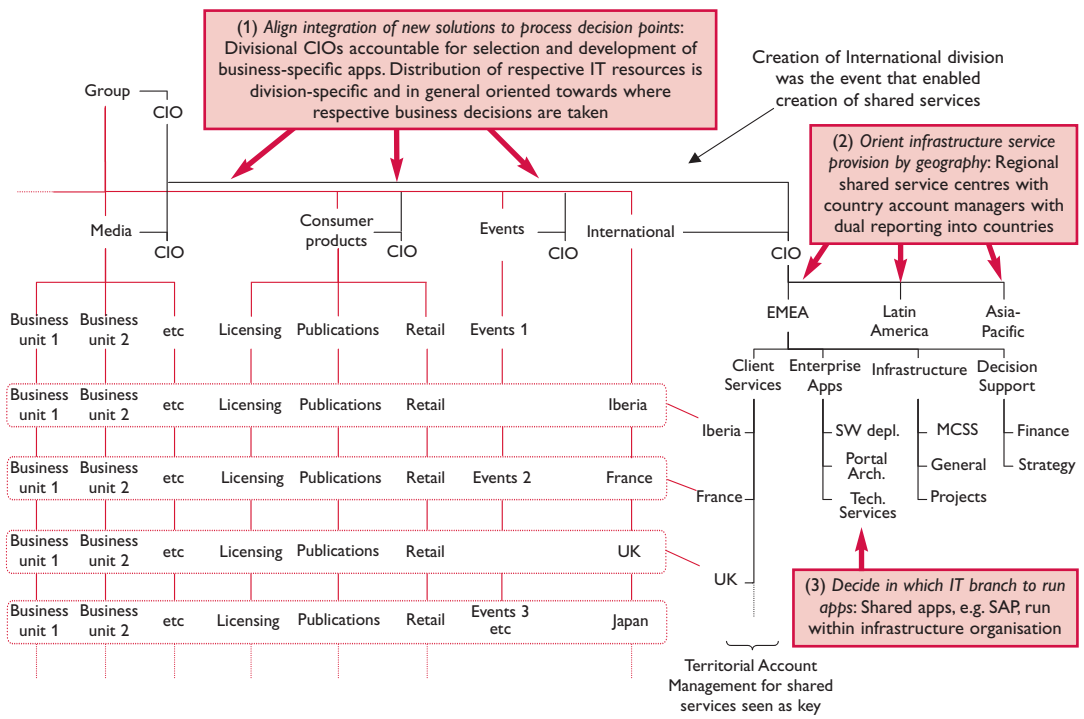
**To what extent do the key features of IT tie in with the decision framework?**

Each of our divisions has a CIO reporting to an overall CIO for the corporation. Divisional CIOs are responsible for the selection and development of business-specific applications. The divisional IT substructure depends on the division concerned, some having centralized business process decision making, others organized by region – but the rule of anchoring IT development groups directly to where process decisions are made holds up well. The company CIO is accountable for core infrastructure service provision (including SAP), which is broken down into three regional IT shared service organizations as the best way to meet delivery performance requirements such as benchmarking. This geographic orientation also ties in well with the framework. Using country-specific account managers to mediate between regionally provided shared services and country organizations has proven very effective.

**In a nutshell?**

"If we'd been able to apply the 'visionary' work stream three years ago, it would have clearly identified global pooling of development as a mistake for us and avoided two years of misplaced effort. Today, we feel that we have a good core structure and it is the second 'tactical' work stream that is of most potential use."

**Figure 7. IT organization at a large global media company**



## CASE STUDY B – A LARGE CONSUMER PRODUCTS COMPANY

**Summary of an interview with the company CIO**

**How has your business and IT evolved in the last few years?**

Our company was formed by a major merger in the 1990s and thus was originally a conglomerate of differing lines of business. However, new executive leadership has focused on a few key markets and disposed of other businesses. This focus enabled the transition from a highly federated to a hybrid approach, with local control of 'route to market' and central control of supply-chain management, finance and administration processes through shared service centres. A key business driver today is the need to manage corporate reputation, as the globalization of regulatory and legal environments allows, for example, legal cases in one country to be treated as a precedent for action in the US.

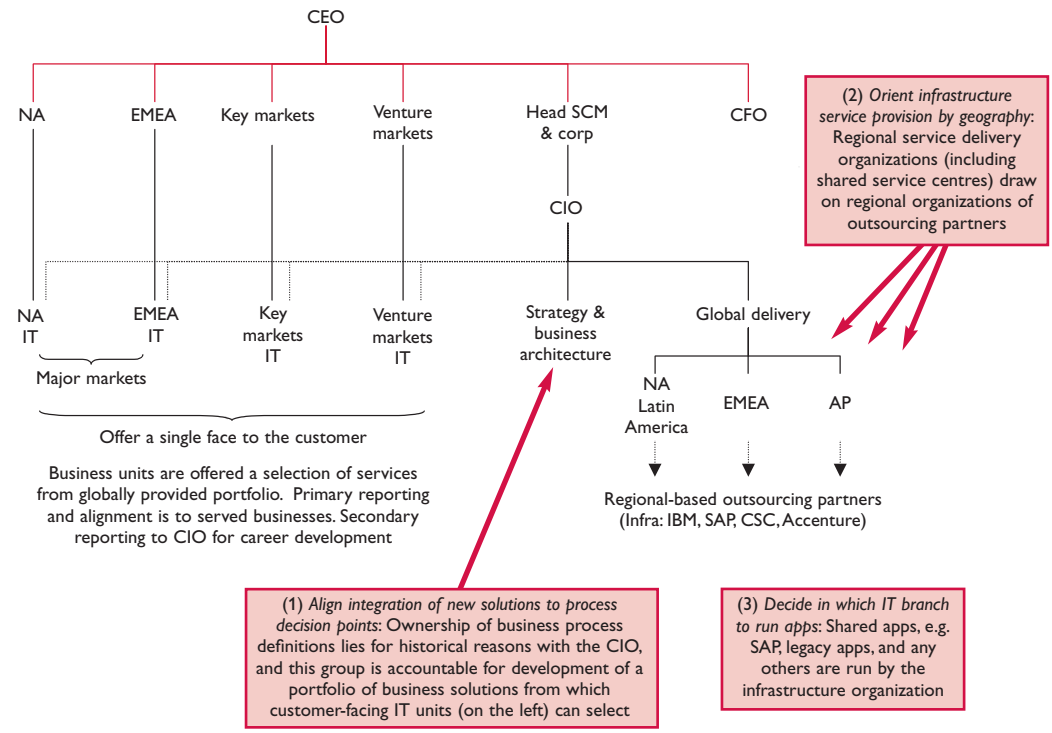
**To what extent do the key features of IT tie in with the decision framework?**

There is a 'shop' flavour to our IT structure. IT units dedicated to the business units and tuned in to their respective needs go to the IT shop and select the products on offer that meet their requirements. Regional delivery units put the products in the shop and keep them maintained. And a central strategy and business architecture group sets what items appear in the shop and how they evolve. This corresponds well to the decision framework. On the one hand, the IT group responsible for development and control of IT support reports directly to the process owner, while service delivery is organized by geography, irrespective of market type. Note that while the customer-facing IT units are not responsible for process definitions, they are responsible for service selection and bridging the gap between regional delivery units and market-oriented structure.

**In a nutshell?**

"While the second work stream in the framework appears somewhat mundane, the first work stream asks exactly the right questions. I'd take it one step further and fight for IT development reporting in to where process decisions *should* be made, not where they *are* made."

**Figure 8. IT Organization at a large consumer products company**



## CASE STUDY C – A LARGE GLOBAL PHARMACEUTICAL COMPANY

**Summary of an interview with Head of Research, IS Strategy and Architecture**

**How has your business and IT evolved in the last few years?**

After a large merger a few years ago, our initial driver was enabling integration and the short-term cost savings promised by the merger. Since then, the business model has remained stable with essentially incremental improvements to the IT organization. Overall, our country organizations retain a high level of commercial autonomy, but there is a strong culture of global teamwork. Recent reductions in international travel have been compensated by growing acceptance of telephone and video conferences. The IT organization has two main sections. The first is a matrix-style set of business service groups mapping to a similar structure within the business. The second is a centrally organized shared services group focusing on infrastructure, strategy and architecture. Though in line with the company's history of country autonomy, many countries have comprehensive IT organizations of their own on which the central shared service organization draws for resources.

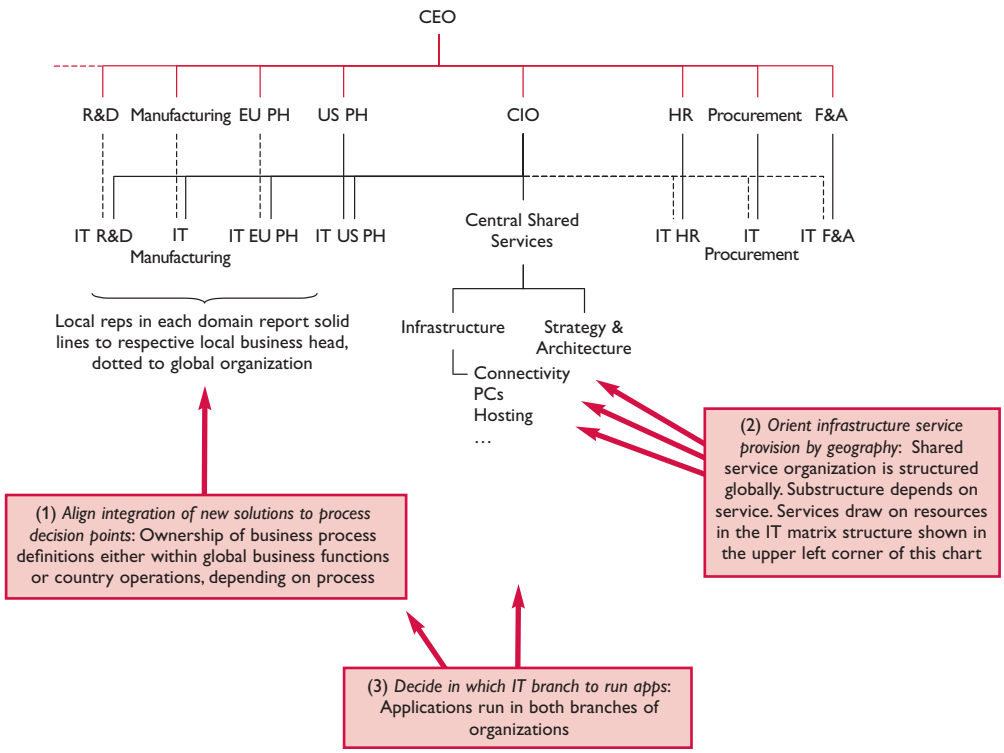
**To what extent do the key features of IT tie in with the decision framework?**

Our company's pattern of decision making on business processes is complex, as reflected in the matrix style of management across territories and globally organized functions. As a whole, the IT structure of the customer-facing part mirrors the structure of the business and fits well with the decision framework. The set of reporting lines between IT and the business does add an extra degree of complexity. In line with the decision framework, the substructure of shared infrastructure services depends on the service concerned, but the services are all global, while service implementation is generally distributed across geographies. Application hosting is fairly spread out across both sections of the IT organization.

**In a nutshell?**

"If we run carefully through the 'visionary' part of the framework, we develop an organization somewhere between where we are now and where we'd like to be. And the second, more tactical work stream corresponds closely to the methodology we use for improving IT."

**Figure 9. IT organization at a large global pharmaceutical company**



## CASE STUDY D – A LARGE GLOBAL ENERGY COMPANY

**Summary of an interview with the VP, IT Planning**

**How has your business and IT evolved in the last few years?**

Our company has undergone several large mergers in recent years. As a result, the operational IT landscape is relatively fragmented. The initial company-wide requirement of IT was to deliver connectivity between businesses, which led to a major push to harmonize desktops and associated infrastructure such as email. However, operational fragmentation remained a major obstacle to operational synergies and responsiveness to common business changes such as the harmonization of the chart of accounts. So the second major push was to structure the IT organization to reflect a clear difference between the accountability in applications selection and development, and in the underlying operational delivery. The company is now in the stage of extracting the benefits from this structure.

**To what extent do the key features of IT tie in with the decision framework?**

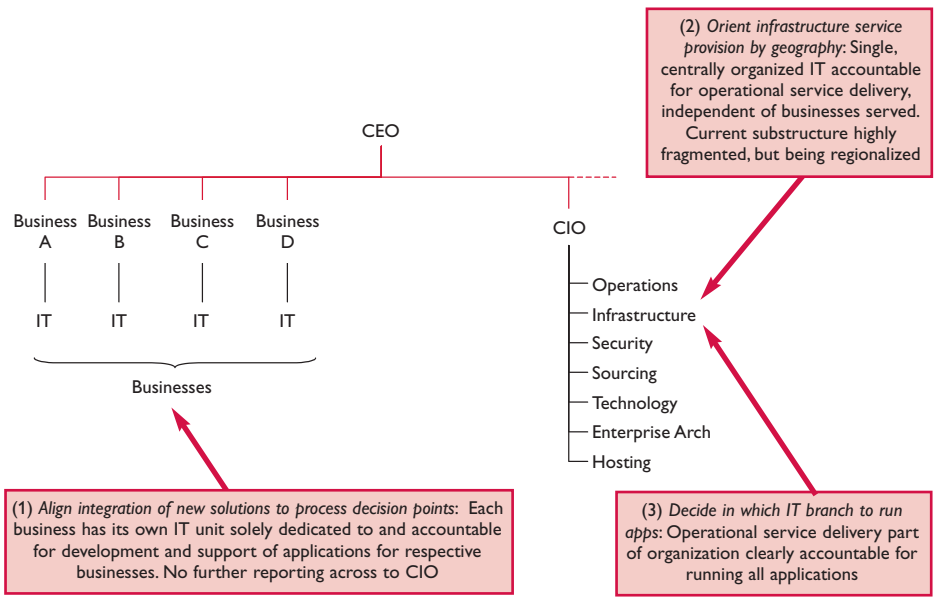
Distinct business units have their own individual IT organizations dedicated to and accountable for the selection and development of applications in their respective businesses. The IT units report directly to executive leadership in the businesses and there is no further complication. This structure ties in well with the decision framework; indeed, it is seen as the key factor in ensuring alignment with business-specific requirements. The substructure of these IT units largely reflects the structure of the served businesses.

In addition, a single, centrally organized IT organization is accountable for operational service delivery (including desktops, networks and hosting) throughout the company. This is headed globally by the CIO with IT functions covering operations, infrastructure, security, HR, sourcing, technology, enterprise architecture and planning. Today, although part of a single IT organization, hosting is spread across hundreds of server centres and a key priority is to regionalize these down to just a few. The separation of operational service delivery from specific business units and their progressive regionalization confirms the line taken by the decision framework.

**In a nutshell?**

"The priorities set by the framework in constructing an ideal IT organization correspond very closely to our priorities. The tactical framework for moving forward also makes good sense – though in practice it is not easy to find out what your current organization needs to achieve but can't."

**Figure 10. IT organization at a large global energy company**



## Applying the decision framework to your company

The tables below summarize the decision framework as a tool that can be applied to any organization, either to confirm the alignment of the current IT organization or to work out what to do if something has clearly gone wrong. Our validation efforts have sufficiently confirmed the framework's underlying logic, but like most methodologies, the framework should not be followed blindly. The aim is to ask the right questions. We strongly recommend that you follow both the visionary and tactical work streams in parallel, to avoid the traps of being either 'visionary but impractical' or 'practical but short-sighted'.

### Work stream 1: Derive an 'ideal' IT structure directly from the business environment

| *Pinpoint the specific characteristics in the IT function's customer base with which you need to align* |
|---|
| Go through the business organization chart, flagging where decisions are made about how core processes work and qualifying the flagged points with the proportion of activity actually set. |
| Go through the business organization chart, flagging where decisions are made about investments, qualifying each with a measure of its relative importance and checking where IT investments impact measures of a manager's performance. If performance management criteria conflict with a process decision point somewhere else, demote the latter. |
| Work across the world map, marking the location and scale of user populations, regardless of branch. |

| *Anchor the development part of your IT organization to the process decision-making poles* |
|---|
| Assign business analysis and applications development, configuration and resources directly to the process decision poles and locate them in the same premises or nearby. |
| Consider co-locating any IT development units below a common investment control point only if proximity to their respective business decision poles is not undermined. Resist merging the organizations. |
| Conservatively construct the required secondary alignment across development units without duplicating the alignment already assured by business structure. Where possible, use architectural steering groups; add formal reporting and additional management levels only where absolutely necessary. |

| *Identify options for the provision of the remaining bulk of IT services* |
|---|
| Return to the world map to structure infrastructure provision, organizing groups by geography (country or region) and the scale of pooled user populations, reporting to highest feasible investment point. If necessary, assign account managers to distinct user segments. Where process decision points higher in the tree dictate the need for harmonization across geographies, build up secondary reporting and establish standards setting at the appropriate level. |
| Decide how hosting and support of business applications are to be divided between the development and infrastructure organizations. Keep ownership with the former, but recognize that geographical proximity to business location is not required. For example, hosting can be co-located in data centres with other units, though the benefits will be limited in those cases where the underlying technologies differ. |
| Extend alignment beyond explicit operational business requirements to include implicit requirements such as consolidated reporting, or a single face at the executive level for IT dialogue. Determine the scope of additional reporting lines and management layers. |

## Work stream 2: Derive IT structural changes from the shortcomings of your current way of working

| *Pinpoint the relevant anchors in the current IT organization* |
|---|
| Identify what principles drove the distribution of IT resources and reporting relations to date. This could be an explicit form of alignment or simply the result of a series of M&As. |
| Go down the current IT organization chart and mark the formal or informal teams that have been working together on a regular basis for some time. A good starting point is those teams that are co-located. Qualify teams by the scope of their activity across development, operations and infrastructure. |
| Go again down the current IT organization chart and flag those groups maintaining legacy environments (applications based on outdated technology). |

| *Identify changes to the IT structure that address unmet business requirements* |
|---|
| Examine recent sensitive projects or operational failures and check if they trace back to high-level features of the IT organizational structure. Identify specific current or approaching business requirements that will not be met if these features remain. Flag changes to these aspects of the IT organization as urgent. |
| Imagine the IT landscape likely to be produced in the medium term if the current IT organization is retained. Ask yourself if the business advantages will outweigh the disadvantages and if not, flag changes to these aspects of the IT organization also as urgent. |
| Draft a combination of changes in reporting structure, location of resources and actual activity to address the urgent issues directly. |
| Assess the knock-on effects of the required changes. Options affecting downstream operations and infrastructure may be opened up or ruled out. Distinguish between what is needed to meet clear business requirements and opportunities to improve efficiency. |

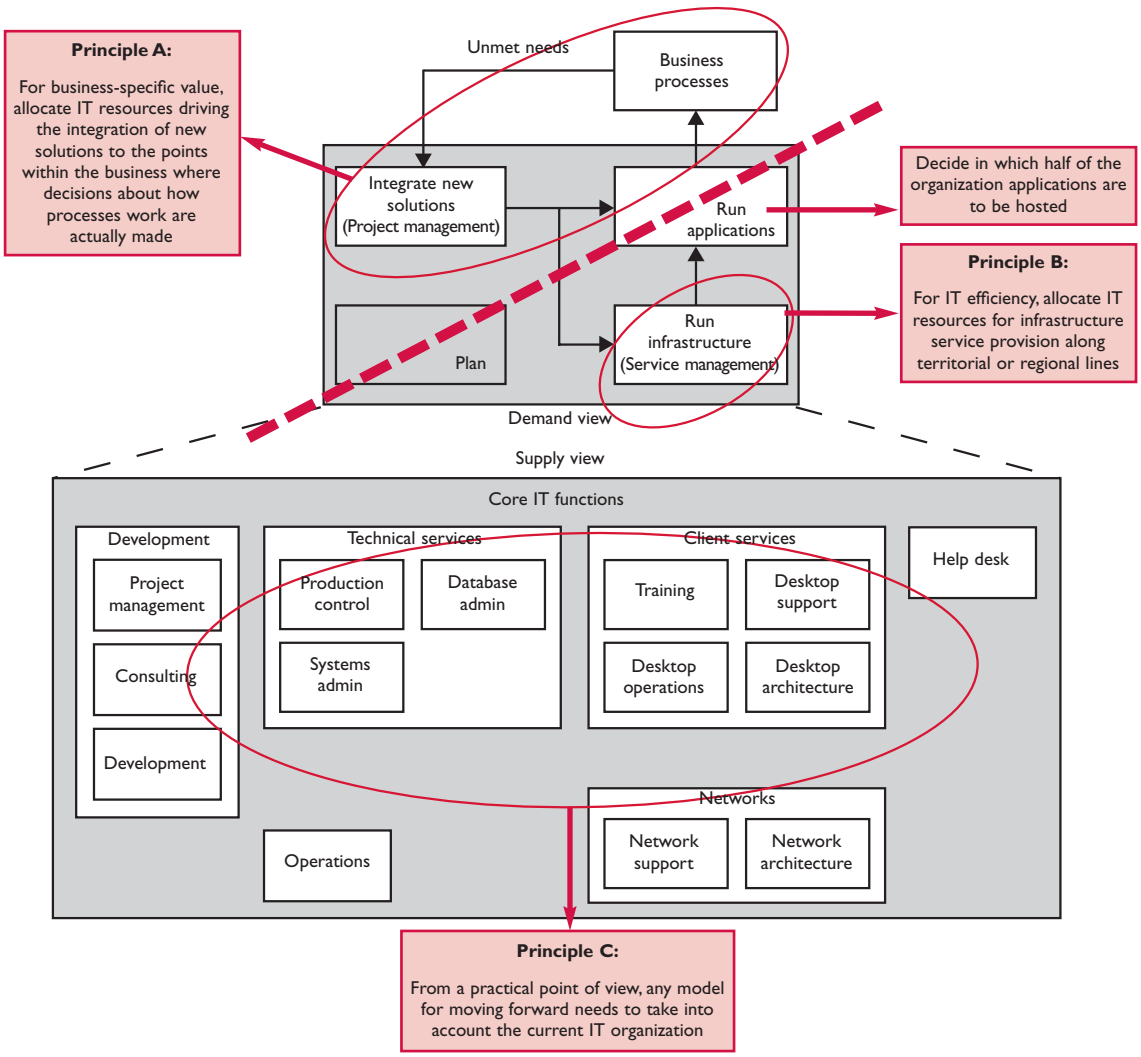
| *Validate changes in the light of the main anchors in the current IT organization* |
|---|
| Assess the amount of cultural stretch needed to move from the current to the proposed IT organization. How much do the changes go against the principles that have driven evolution to date? How many changes divide teams that work well together today and were flagged earlier? |
| Assess the workability of the new teams in the proposed organization. Especially in geographically distributed teams, how much investment is required for them to work effectively? Will the reporting structure be sufficient to achieve the planned cooperation? |
| Assess the cost and effort of any relocations. International moves are especially expensive. |
| Weigh up the benefits of the new organization against the combined weight of stretch, workability and cost of change. Recognize that even with a good business case, substantial transformations often need a significant event to trigger them. Is there an event or sense of urgency strong enough to carry the proposed changes? |

## Conclusions

This paper started by introducing the core IT activities shown in Figure 1 and identifying the many factors that can potentially affect the structuring of an IT organization. If we come back to this representation of IT and think how the decision framework maps onto it, we end up with the result illustrated here in Figure 11. On each side of the dotted dividing line, different drivers determine how the relevant parts of IT are structured. In most of the actual cases we investigated, the divide between the two parts of the IT organization is bridged primarily by a service management interface, not by a reporting line interface.

But, as in many complex business issues, the successful resolution of one challenge simply leads to the next. Establishing an IT structure aligned to the decision framework will often lead to an IT infrastructure service provision organization that is largely independent of business structure and has few reporting lines into the business. While this independence is a key enabler for performance improvements, it is also a key enabler for outsourcing, because as long as the service management interface is maintained, it should not really matter whether the resources are in-house or not.

**Figure 11. Different principles apply to structuring different parts of IT activity**






**The decision framework gives top priority to aligning the IT resources controlling the evolution of the applications landscape to the points within the firm where decisions are made on how business processes work**

This paper does not take a position on whether infrastructure outsourcing is the right thing for most companies; it merely notes that implementing a structure generated by the decision framework may open up the possibility of outsourcing. But it also opens up the possibility of benchmarking with third-party service providers – benchmarking that might well confirm that it makes sense for a company to retain its infrastructure provision in-house. The key message of this paper is that you should not get lost weighing up the various means for delivering downstream infrastructure, but rather give top priority to ensuring that the business value-adding parts of the IT organization are well aligned with the prevailing business structure.

It is only after taking all of these factors into account that we can truly assess the impact of our decision framework upon the global CIO. While the long-term migration of applications into the business units might undermine the structures of many current IT organizations, the reality is that the CIO will likely only exchange one set of responsibilities for another.

For example, even if we take what might initially seem to be the extreme-case scenario where infrastructure is outsourced and applications migrate into individual business units, the CIO would still retain a vast range of responsibilities, including risk/security management, regulatory compliance and governance, change management and innovation, supplier and contract management, enterprise integration and architecture, and executive-level strategy and interaction. As market forces generate wave after wave of business change, IT usage will have to continually evolve, and it is hard to see this occurring effectively without a strong CIO.

Our research suggests that the CIO's authority over all things IT may well diminish over time, but IT's overall importance will surely rise, and CIOs remain well positioned to make sure this happens in an effective and optimal manner.

Robert Barton is a CSC Research Associate and author of the book *Global IT Management: A Practical Approach*, John Wiley & Sons Ltd, 2003. He has been active as a consultant and has held key client-side positions in global IT management.

## Acknowledgements

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