3-01-30 Redesigning the IT Organization for the Information Age

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Payoff

Organizational design is a critical facilitator of strategic information age initiatives. Yet traditional IT structures are misaligned with the information age because they cannot cope with continual change and the rapid horizontal introduction and utilization of gregarious information technologies. An organizational structure that combines the ideas of minibusinesses and the internal marketplace can provide a dynamic balance between stability and productivity and flexibility and innovation, replace a history of episodic and misguided restructuring with continuous restructuring, and position the IT organization to fulfill its strategic potential.

Introduction

To most employees, strategy is equal to organizational structure, or more precisely, the changing of organizational structure. Although employees are most often not privy to the grand strategy of the business or are presented with only isolated and disjointed pieces of it, they personally observe and feel the impact of reorganizations. For most people, the announcement of another reorganization signifies business strategy going into motion. Organizing and reorganizing to align and realign is the most common and visible sign of strategy to the organizational rank and file.

Astute strategists recognize that organizational structure is critical to facilitating strategy. The organizational design defines the structural distribution of resources that need to be mobilized to execute a strategy. At the same time, it is important to emphasize that structure follows strategy but the facilitation of strategy. In general, organizational restructuring is the last issue to be addressed when developing a strategic plan. Management first focuses on what is to be achieved and the required actions to accomplish ends and then, and only then, addresses how to organize to facilitate those ends. Setting an organizational structure in place before the process of strategic thinking is completed unnecessarily constrains the degrees of freedom.

Although organizational design is the first result of strategy, not the aim of it, people often believe that the reorganization that they are going through for the nth time is literally the business strategy. If they are right, the IT manager is probably in a great deal of trouble.

Objectives of the Information Age Design

It is virtually impossible for an IT executive or manager to execute a strategy if the IT organization's structure stands in direct opposition to it. To a large degree, strategy is not a problem of managing a large group but a problem of orchestrating advantageous coordination across groups. It is not surprising, therefore, that organizational design is a strategic configuration of power. To allow the business to engage in IT-enabled strategic initiatives, IT organizational design for today's information age should achieve the following pressing objectives:

- **Heightened collaboration** The design should help the various organizational units work harmoniously together toward shared competitive aims.
- **Speed in everything** The design should enable the business to execute all actions with swiftness.

- **Responsiveness** The design should permit the business to promptly react to changing times and circumstances.

- **Flexibility** The design should permit the organization to be adaptive.

- **Innovation** The design should leave room for people to be innovative in solving customer problems.

- **Permeability** The design should enable new ideas to enter and disperse throughout the organization. In other words, it should enable the business to learn.

- **Leverage.** The design should permit the business to achieve economies of scale and reuse where appropriate.

- **Execution** The design should facilitate doing by lubricating action and eliminating the exhausting resistance of friction.

- **Spontaneity** The design should permit the organization to dynamically evolve to stay in harmony with the changing environment. This is called spontaneous self-reorganization.

- **Accountability** The design should delineate who is responsible for what.

- **Authority** The design should make it clear who has the authority to make decisions and allocate resources.

- **Control** The design should balance spontaneity with the need for control.

Organizational design remains an art. It is usually necessary to select a strategic dimension that is most relevant to the current times and circumstances (e.g., geography, function, process, or market) as dictated by a strategy. The selected dimension is set as the anchor of the design and the remaining design choices are made by revolving them about this primary factor.

In addition to speed and flexibility, it is important to underscore the need to eliminate friction. In most organizations today, if nothing was done but eliminate the massive organizational drag on action, most organizations would experience tremendous increases in productivity. The retarding resistance of organizational friction to doing slows any and all actions except the boldest, those characterized by indirection, or surprise maneuvers. So what must often be overcome in redesigning IT organizations to permit graceful maneuverability is to remove the ingrained structures that promote friction.

The history of IT organizational design is the history of a structure in place; the whistle blows, a game of musical chairs ensues, a new structure is created, and the game continues until the next whistle. As organizations strive to balance stability and productivity against flexibility and innovation, they periodically restructure in mass to respond to the environmental stimuli. An IT organizational structure that combines the ideas of minibusinesses and the internal marketplace can provide a dynamic balance, replace
episodic restructuring with continuous restructuring, and position the IT organization in the desired state of potentiality.

**Basic and Alternative Organizational Designs**

Designing an information age structure for the IT organization poses challenges at two levels: the macro and the micro. The macro design problem addresses the number of IT organizations and their roles and responsibilities, placement relative to the business units they serve, and governance relationship to other IT entities within the business. The micro design problem addresses the question of how a specific IT organization should organize itself internally to efficiently and effectively deliver its products and services to its customers.

**The Macro Problem of IT Organizational Structure**

The basic organizing unit of the modern enterprise is the strategic business unit (SBU). As the foundational building block of a global enterprise structure, a strategic business unit has the following characteristics:

- It is a collection of related business.
- It has a distinct mission.
- It serves well-defined markets.
- It has a distinct set of competitors.
- It has the resources and opportunity to deliver value to its market.
- It has a distinct management team.
- It has profit and loss responsibility.

The distinct business units may cooperate extensively with each other or be quite independent in their actions. The degree of collaboration is referred to as a strategic position along a continuum between a pure union or a pure multistate strategy. In a union strategy, the business units collaborate extensively in terms of sharing and leveraging processes, competencies, product development, and marketing initiatives. In a multistate strategy, each business addresses its marketplace unilaterally. The design point for the union/multistate decision is strongly influenced by the following factors:

- **Market position** To what extent do market segments across SBUs and product lines overlap? To what extent will the business share brand names, advertising, customer image, and other marketing elements across products/markets?

- **Product/service position** To what extent is there synergy between SBU product lines?

- **Competitive moves** To what extent is advantage accrued by linking competitive moves across SBUs?
• **Cost position** To what extent does cross-SBU collaboration lead to cost advantage (i.e., reuse, leverage, economies of scale)?

After analysis, a business takes a considered position somewhere along the continuum between the extremes of a pure multistate or a pure union.

Against the background of this macroorganizational structure of the business, a corresponding IT organizational structure must be designed. An IT organization provides two broad sets of products and services to its customers—life cycle applications development and support services and production operations. For each of these, there are three basic structures (with endless mutations) to choose from:

• **Centralized** A single and centralized IT organization provides these services to the SBUs.

• **Dispersed** Independent IT organizations provide these services to designated SBUs.

• **Integrated** Independent but coordinated IT organizations provide these services to designated SBUs.

For each considered alternative macro design—centralized, dispersed, integrated, or mixed—it is necessary to consider the following four basic questions:

• How many IT organizations will the corporation have? Will each SBU have its own or will they share IT service providers?

• What will be the roles and responsibilities of each IT organization? Exhibit 1 shows a simple taxonomy of information systems. Which cells is each IT entity responsible for, and are they responsible for development and/or operations? A similar mapping must be done in terms of allocation of data bases.

• Will the IT entities be separate from the SBUs they serve or will they be entities within the business units? If they are apart, what will be the economic rules for exchanging goods and services?

• How will multiple IT entities be governed? For issues of common concern such as architecture, corporate communications networks, and human resource policies, what governance mechanisms will be deployed to maintain synergy?

**Taxonomy of Information Systems for Determining Roles and Responsibilities**
In this way, a macro IT organizational structure, whether centralized, dispersed, integrated, or mutated, is designed for both development and operations that aligns itself with the macro SBU structure and union/multistate strategy of the business.

**The Micro Problem of IT Organizational Structure**

The micro problem of IT organizational design starts where the macro problem ends. Each IT entity that will exist needs an internal structure that lets it deliver operations and development in a fast, flexible, and friction-free manner. If the internal structure does not become a strategic configuration of power, then all efforts to make IT maneuverable will fail because it will not be possible to mobilize IT resources effectively and efficiently.

Although there are endless mutations and variations, there are six basic micro design structures to choose from:

- **Functional structure** Employees are grouped strictly vertically based on functional skills and expertise.

- **Matrix structure** Employees are grouped in a gridlike structure with multiple chains of authority. These reporting arrangements are defined to integrate vertical function with horizontal processes.

- **Product structure** Employees are grouped into self-contained product-driven structures with end-to-end responsibility for a given family of products.

- **Geography structure** Employees are grouped into self-contained structures that deliver all products and services to a geographical region.

- **Front-end/back-end structure** Employees are grouped into customer-facing functions that serve customers and use products and services developed and supported by back-end functions.

- **Process structure** Employees are grouped into horizontal teams that deliver products and services by process.

*Exhibit 2* summarizes the generic advantages and challenges of each structure.
Advantages and Challenges of Micro Organizational Design
<table>
<thead>
<tr>
<th>Organizational Structure</th>
<th>Advantages</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional</td>
<td>Efficiency, Centers of excellence, Focus, Ease, Centers of excellence</td>
<td>Efficient decision making, End-to-end accountability, Functional loyalty, Lack of flexibility</td>
</tr>
<tr>
<td>Matrix</td>
<td>Provides attention to multiple dimensions of organization design, Coordination, Considered allocation of resources, Horizontal communications</td>
<td>Difficult to implement and manage, Power battles, Delineation of authority, Costs of communication</td>
</tr>
<tr>
<td>Product</td>
<td>Product/customer focused, Accountability High, product-level coordination, Decision making at product level</td>
<td>Cost inefficiencies, Horizontal product coordination, Responsiveness to local needs</td>
</tr>
<tr>
<td>Geographic</td>
<td>Market sensitivity, Decision making and authority at market level</td>
<td>Cost inefficiencies, Cross-geographic Local loyalties</td>
</tr>
<tr>
<td>Front End/ Back End</td>
<td>Single customer interface, Customer responsive, Promotes many-to-many relationships</td>
<td>Linking front ends to back end sufficiently and effectively, Cost allocations, Decision making</td>
</tr>
<tr>
<td>Process</td>
<td>Efficiency, Customer focus, Productivity</td>
<td>Process leadership, Cross-process coordination, Functional expertise, Process fiefdoms</td>
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The problem for the information age IT organization is to define a structure that balances conflicting needs. Although stability and formality are needed for short-term efficiencies, flexibility and spontaneity are needed to cope with the surrounding turbulence characterizing today's businesses. IT organizations need to be organic rather than bureaucratic.

**Problems with Traditional IT Organizational Designs**

Most traditional IT organizations are a structural combination of functional and product design structures. MVS people supported the mainframe environment, and UNIX people supported the UNIX environment. Operations people supported specific technological smokestacks. Developers were organized by product teams to serve specific customers.

This structure made reasonably good sense during the industrial age of IT. Because the IT technology platforms were vertically segregated, functional centers of excellence to achieve stability and efficiency were a good choice. Each functional unit could strive to
optimize its individual environment for the welfare of the customer and the corporation. There was little need for cross-environment collaboration, coordination, and information flow.

Two things have gone wrong with this model. First, the technology organizations wish to deploy (i.e., interactive multimedia across distributed and heterogeneous computing environments) is horizontal in nature. Making this technology work requires extensive horizontal collaboration and coordination across functional specialties. The traditional IT hierarchical smokestack structure is not only inappropriate for this collaboration, it also actively works against it because employees are loyal to their specific vertical technological environment rather than cross-environment needs.

Second, the traditional smokestack IT organization was designed for stability and predictability. Its structure was designed to preserve rather than change. During the mainframe era of the industrial age, change was slow and predictable. The smokestack structure took on a mechanistic and bureaucratic flavor as it ponderously introduced or experimented with new technologies. Change was routinely viewed as a threat rather than an opportunity.

The problems with the traditional IT structure do not therefore require elaborate or extensive debate. Its shortcomings are dual:

- It was designed to optimize, through economies of scale, the delivery of vertical IT products and services.
- It was designed not to change but to preserve.

The result of this is obvious to everyone in the IT field. IT organizations are viewed as slow, inflexible, and a business obstacle to be overcome. They are not strategic configurations of power, because their inherent micro organizational structure is misaligned with the horizontal technological needs of the information age. They are misaligned because they create tremendous friction to change for the business. They cannot cope with continual change and the rapid horizontal introduction and utilization of gregarious information technologies.

The Proposed Solution

The proposed solution to this problem is to design a new micro IT organizational structure built on three interrelated ideas:

- **Centers of competency** This concept groups employees into logically related sets of skills.
- **Process** In this approach, all work gets done through processes.
- **Internal marketplace** An internal marketplace is established in which centers of competency buy and sell products and services to each other.

The following sections discuss how the three ideas combine to form the proposed micro organizational design structure.
Centers of Competency

A center of competency is a group of employees with a logically related set of skills. It is often also referred to as a center of excellence or a knowledge center. The center of competency provides an administrative home for employees, a place to learn skills and receive specialty mentoring, and a facility to investigate and develop best practices.

A center of competency is a minibusiness, or a boutique service provider. As shown in Exhibit 3, it provides a group of services to other IT centers of competency. Its manager or coach is the business manager responsible for developing the center of competency so that its employees can find work. The coach/manager, like any other business person, owns capabilities and must find utilization opportunities for them. So a center of competency is a minibusiness, not unlike an SBU: it has products to sell, a marketplace, the need to earn revenue, and the need to continually upgrade its products and services to maintain its customer base.

Centers of Competency

Process

In this view, all work is the result of executing processes. Process owners hire individuals from centers of competency and form teams to develop processes. Product managers, marketing/sales managers, and senior management hire members of the centers of competency to execute processes. Exhibit 4 shows how a team is formed. The buyer hires individuals with the necessary skills from each center of competency.

Team Formation

Internal Marketplace

In this idea, shown in Exhibit 5, the IT organization runs on the model of an internal marketplace. The marketplace works as follows:

- Senior management negotiates budgets with product managers, marketing/sales, and process owners.

- Centers of competency are minibusinesses that need to earn revenue. They do not receive a budget, and they have a cost and earning projection.

- The four centers (i.e., product managers, marketing/sales, process owners, and senior management) run the economy with budgeted money, buying products and services from the centers of competency. This generally involves the hiring of a project manager who, in turn, shops for desired services in the internal marketplace. Centers of competency, in turn, also buy products and services from other centers of competency.

The Internal Marketplace Model
In this way, the traditional hierarchical, mechanistic, and bureaucratic IT organization is transformed into a vibrant and dynamic economic entity with buyers, sellers, and a sustainable strong motivation to cooperate and continually improve products and services.

An internal marketplace built on boutique centers of competency is a desirable structure for the information age IT organization for the following reasons:

- **The IT organization is no longer shielded from marketplace realities** It also experiences the day-to-day pressures to continually upgrade its products and services. If a center of competency wants to stay in business, it must continually improve its products and services to other centers of competency.

- **The core structure for execution is a horizontal team** This team is formed using marketplace mechanisms.

- **The normal marketplace mechanism of how money is spent is used to foster alignment** As management, product managers, marketing, and process owners shift their spending patterns, the centers of competency must respond or they will lose revenue.

- **The structure lends itself to spontaneous reorganization** As spending patterns shift or centers of competency develop new products or services, the structure naturally adjusts to the new realities. Reorganization in the internal marketplace is occurring dynamically as some products and services win and others lose.

- **The structure is highly scalable** Successful centers of competency can be grown, shrunk, or replicated as needed.

- **There is a marketplace and everyone has a customer** Centers of competency will thrive only if they can find buyers for their services. Product managers and marketing will thrive only if they employ processes to deliver products and services that SBU customers want.

- **Customers can evaluate, measure, and negotiate terms and conditions of purchase** Suppliers need to continually refine their offerings to maintain satisfied customers. Members of a center of competency work for their customer, not their vertical boss.

- **The structure lends itself to virtual structures or, if desired, outsourcing** In both cases, the decision is made as to which service offerings are better performed by noninternal providers, but those services must be designed into the overall internal economy.

- **Centers of competency are extremely motivated to cooperate with each other** Only through horizontal collaboration on customer-focused teams are they able to accrue revenue.

- **Centers of competency improve value for buyers by integrating products and services across centers** Buyers can buy basic products and services or more finished goods.
The traditional IT organizational structure suffers from a gross inconsistency. External customer-facing business units have to cope with the marketplace every day and be adaptive and fast. The mechanisms that cause concern for speed, flexibility, service, value, and quality are the marketplace mechanisms of choice and selection. Traditional IT organization units have functioned bureaucratically in the comfort of entitlement. They delivered products and services but did not have to win the business. The boutique structure of centers of competency integrated with the notion of an internal marketplace addresses this shortcoming.

Conclusion

Designing an information age structure for the IT organization is a challenge of coordination. The micro IT organization should be designed so that horizontal products and services can be delivered rapidly, flexibly, and without friction. The best mechanism for doing so is an internal marketplace based on center of competency boutiques that are subject to marketplace mechanisms. Speed and agility in the IT organization depend on submitting the organization to marketplace pressures.

Specifically, the proposed design addresses the stated objectives in the following way:

- **Heightened collaboration.** The unit of delivered work is the team. Centers of competency remain effective only if they can work together on successful teams.
- **Speed in everything.** The internal marketplace rewards efficiency and speed. Centers of competency are motivated to continually improve their offerings with speed being a prime buying factor of purchases.
- **Responsiveness.** Centers of competency earn their living. As with any supplier in a marketplace, urgency in meeting customer needs is critical.
- **Flexibility.** Centers of competency adapt to meet the current needs and emerging needs that buyers will pay for. The problem for the center of competency is not what it wants to provide but what a customer will pay for.
- **Innovation.** Centers of competency are rewarded for constantly upgrading and innovating by the growth of their center.
- **Permeability.** There is little advantage to maintaining the status quo. Centers of competency search for new ideas and ways to remain prosperous.
- **Leverage.** Centers of competency mentor and teach their preferred skills to others. Processes are reused and tuned to promote efficiency in execution.
- **Execution.** Execution is accomplished through the unit of the team. Noncooperation is rewarded by replacement.
- **Spontaneity.** The design lends itself to spontaneous self-reorganization. As money and opportunities are made available, entrepreneurial centers of competency hustle to the new opportunity.
- **Accountability.** Buyers are accountable for what they buy.
- **Authority.** Buyers make informed purchase decisions.

- **Control.** Management can expand, contract, or reposition the internal economy, at will, based on how it changes its spending patterns.

  The internal marketplace structure is superior to the other six structures discussed in this article because it is fast and flexible and removes friction. It repositions the IT organizational structure as a strategic configuration of power.

**Author Biographies**

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Bernard H. Boar is an information business strategist for NCR. This article is based on a chapter from his book, Strategic Thinking for Information Technology (New York: John Wiley, 1997). His other books include The Art of Strategic Information Technology, Practical Steps for Aligning Information Technology with Business Strategies, and Cost-Effective Strategies for Client/Server Systems, all available from Wiley.
