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THE BUSINESS UNIT OF THE FUTURE

**CEO PUBLICATION
G 92-3 (206)**

JAY R. GALBRAITH
University of Southern California

April 1992

**Center for Effective Organizations - Marshall School of Business
University of Southern California - Los Angeles, CA 90089-0806
TEL (213) 740-9814 FAX (213) 740-4354
<http://www.marshall.usc.edu/ceo>**

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Jay R. Galbraith
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Revised Version: April 9, 1992

Center for Effective Organizations
School of Business Administration
University of Southern California
Los Angeles, CA 90089-1421
(213) 743-8765

The Business Unit of the Future

The business unit is a basic building block of the corporation's structure. Collections of businesses make up the corporation's portfolio. It is the basic profit and loss center. As such it is a strategy center to which the corporation's limited resources are allocated. This organizational building block has been evolving for some time and in the future is likely to take a number of different forms. This chapter describes these forms and the business forces that are driving their evolution. First, however, some background on the business unit concept is given.

Profit Center Building Block

The study and design of organizations has always been based on some standard building blocks. Up until a few years ago, these units were fairly standard and clear. Individuals were the most basic unit of analysis. They joined teams or work groups as shown in Figure 1. Work groups were clustered together to form functions like sales, marketing, distribution, manufacturing and engineering. There were usually several levels in a function. Sales people collected in branches, which formed districts which were clustered into regions which formed the national sales force.

Through the process of vertical integration these functions were linked together to form a division (Chandler, 1962). The functions which were cost centers were vertically integrated into a division which was a profit center. The divisions which varied in the type and amount of vertical integration were the basic business unit.

As companies diversified, the corporation evolved from a single business, functional organization to a multibusiness, multi-divisional structure. Procter and Gamble had the classic structure. Divisions were product lines like bar soaps, packaged soaps, dentifrice, food, paper and

beverages. Each division consisted of purchasing, product development, manufacturing, advertising, sales, finance, and personnel.

Originally size was the key to manageability. As a division got to be a few hundred million in sales, it was split in two to retain the advantages of a small business with access to the resources of a large corporation. At Procter and Gamble the soap division was split into bar soap and packaged soap (detergents). But as size increased at corporations, the divisional structure soon got out of hand. At General Electric the department became the basic profit center. By 1970 there were over 250 departments collected into some 50-60 divisions which formed about 10 groups who reported to the office of the chairman which consisted of three people. All units were profit centers.

It was in 1970 that GE implemented the strategic business unit (SBU) structure. Size was no longer the determinant of the basic building block. Instead the strategic business unit was to be a logical business or economic entity. A business unit had a unique set of products, customers, and competitors. It was to be fully functional and profit measurable. It was neither a captive supplier nor a captive customer but operated freely between input and output markets. Forty three SBU's of various sizes resulted and were implemented in 1970. The standard organization for a single business was the functional structure (Rumelt, 1973).

- Figure 1 -

Organizational Building Blocks

Corporation

Division

Function

Work Group

Individuals

Today the classic building blocks are becoming questionable. New competitive initiatives like total quality and competing in time along with the new information technology are leading to some fundamental changes in the functional organization. Indeed the functions as power bases are in decline and are likely to continue to decline. Five basic models of a business unit seem to be in existence. These are shown in Table 1 as the classic functional form the use of super functions, the lateral organization, the front end/back end model, the network organization and the functional specialist.

- Table 1 -

Business Unit

- Fully Functional
 - Lateral Organization
 - Front/Back Model
 - Network Integration
 - Functional Specialist
-

Business Unit Types

The fully functional profit center is still very much in existence but increasingly it exists in modified form. The cost reduction pressures of the early 1980's actually brought about a resurgence of the functional form, especially in companies where wages and salaries were a major cost component. The reason is that the functional organization allows work to be performed with the fewest number of people because it pools specialists and time shares them. The early 1980's was a period of consolidation and head count reduction when companies downsized the functional organization was the structure of choice. But as total quality, then customer service and now time based competition replaced productivity as management's top concern, the defects of the functional organization began to appear. Functional careers, performance measures, information systems and rewards created barriers to interfunctional coordination. Large functions force cross functional decisions to be taken too far from the points of action. Quality, customer service, and cycle time reduction all surface numerous cross functional issues for rapid resolution and day-to-day coordination.

Some incremental changes to the functional structure like the reduction of hierarchical levels and fewer functional specialties have helped make it more responsive. Most companies have been eliminating levels in the hierarchy to bring points of decision making closer to the sources of information. Facilitated by information technology, this trend will continue. The trend to reduce specialization will also continue. BMW, for example, used to have functions for manufacturing operations, industrial engineering, process engineering and maintenance. Today the more routine engineering and maintenance activities have been moved into the operations line organization and decentralized to the points of action. Both fewer levels and more self

contained generalists units facilitate faster decision making and/or reduce barriers to cross functional coordination.

The Lateral Organization

The lateral organization consists of the horizontal cross functional processes that cross hierarchical lines. Figure 2 depicts schematically the effects of the lateral processes on the functional organization. Originally information, careers and performance incentives were vertical, functional and hierarchical. Today and in the future, the organization will be flatter, more lateral and less hierarchical. It will consist of cross functional teams dedicated to products, projects or customers.

- Figure 2 -

Hierarchical to Lateral Organization

The lateral processes can be informal, voluntary and spontaneous or formal and explicit. But even the informal can and will be designed and influenced by organization designers. For example functions working on a product or project are increasingly co-located. The aircraft industry co-locates design engineering, process engineering, industrial engineering, purchasing, quality, assembly and production control functions around major sections of the aircraft (wing, tail, forward fuselage, cabin). Careers are increasingly multifunctional and managers more generalists. Reward systems are less functional and more flexible. All these policies are to reduce barriers to cross functional communication and coordination necessitated by quality demands or cycle time reduction.

Structure modifications can also facilitate spontaneous, voluntary cooperation. Usually each function is organized according to its own logic in order to be efficient. A pet food business has the sales function organized by geography and national accounts. Marketing is organized by brands (dog and cat). Manufacturing is organized by products (canned meat, plants and dry packaged plants), engineering is organized by products and manufacturing processes while purchasing is organized by commodity (meat, fish, grain, etc.). A customer service or quality issue will impact all brands, all plants and all commodities. It is impossible for a person in one function to find a counterpart in another function who speaks the same language and has a matching responsibility short of the top team. It is impossible to get teams around products, brands and customers. There is no clear "line of sight" across the functions.

In order to decentralize and work laterally, more companies are creating matching, mirror-image structures across as many functions as possible. The structure shown in Figure 3 below illustrates the design at an aircraft manufacturer. By major section of the aircraft, there is a clear "line of sight" across all functions. An engineer making a design change can ask a counterpart in purchasing about delivery implications on a continuous basis. Spontaneous informal contacts are facilitated by this mirror-image structure.

- Figure 3 -

Mirror-Image Structure

The mirror-image structure is not efficient however. The quality function may find that there is not enough work on the wing alone to support a full time specialist in nondestructive testing. The structural solution is like the one described above for BMW. Most of the function is

placed in mirror-image groups of generalists (or with limited specialization). They work laterally with their mirrorimage counterparts in the other functions. The rest of the function remains very specialized and is shared across mirror-image groups when expertise is needed.

In the future, there will be greater use of this generalists/specialist split in the functions. Greater numbers of people will be moving to the generalists category. First, the cross functional coordination pressures of competing in time will tilt the trade-off toward the mirrorimage alternative. Second, information technology will provide some more efficient alternatives for delivering expertise. As companies accumulate their expertise in data bases this knowledge can be accessed by generalists groups anywhere in the corporation. When the expertise is combined with an interactive capability and artificial intelligence, the knowledge can be accessed by problem solving groups everywhere. And finally, video capability will permit live demonstrations of difficult repairs and designs. Already such "video manuals" are available to customer service representatives in a couple of company trials. Service repair people can call up text, voice, still or moving pictures to receive the expertise needed. The company expert data base will increasingly replace the central staff expert. Expertise to update the data base will be bought outside or obtained from centers of expertise distributed around the company.

The real facilitator of spontaneous cross functional contacts is the new information technology. Already E-mail and computer conferencing on PC's, fax and video conferencing can connect every person in a company with every other person. Fiber optic networks and next generation PC's will permit video calls from anyone to everyone. The technology removes some barriers by providing connection between people. Whether connection leads to communication and then to coordination depends on the organization design. An example can illustrate the point.

The newly emerging Volvo organization in Sweden is an attempt to provide superior customer service through a customer driven organization. Figure 4 shows a schematic of the communication flow between dealers and the factories. Dealer organizations are being redesigned and facilities rebuilt to support customer service. The dealer functional organizations are being replaced with self-managing teams of mechanics who are dedicated to a group of frequent customers. The customer always gets the same team which is located in a bay into which the customer drives directly. There is no reception. The reception function is rotated among the group members. The purpose is to create a long term relationship between customers, their cars and the mechanics.

Next dealers are being assigned to factories. As flexible manufacturing is adopted, factories can produce all models going to a dealer. The dedication facilitates a long term relationship and communication between links dealers and factories. The greatest degree of dedication takes place at the new factory at Uddevalla. The assembly of cars is performed by self managing work teams of 10 people who assemble a whole car, four at a time. To the extent that work loads can be balanced, a team or contiguous teams are dedicated to dealers. Relationships can be established between assemblers and mechanics. These groups are directly connected with E-mail, phones and PC's now. In the future, video contacts will be possible.

Each car will contain the photos and signatures of the assemblers. The name plate on the car will contain their phone number and E-mail address. They can be directly accessed by the mechanics and customers with questions about the car. A data base is continuously updated with information about the car as it is designed and assembled as well as throughout its lifetime. The total cost of the car can be accumulated. The groups can become responsible for total quality and total cost through warranty experiences.

- Figure 4 -

Customer Driven Organization

Information about the customer and the car can be accumulated as well. Every time the customer makes a purchase or a repair, the history can be updated. The Volvo credit card can record gasoline and accessories purchases. The teams can have access to customer data and suggest the sales of parts or accessories. The customer can be contacted by the mechanics or the assemblers. The dedicated relationship and the data base facilitate communication and coordination across the self-managing teams and customers. Informal gatherings of assemblers and mechanics, contests, gain sharing systems can all cement the cross unit relationship and facilitate integration around total quality and customer service.

The role of management is significantly altered under this model. The customer becomes the "boss" who drives activity. The manager is to support work teams in serving the customer, see that teams are trained, facilitate communication and so on. This concept is often called internal network organization or upside-down structures. It does provide a good example of what is possible when using self managing work teams, flexible manufacturing and new information technology in the service of a customer. In the next ten years there will be more of these lateral, cross functional processes.

At higher levels of the hierarchy there is increased use of formal teams. Managers are dedicated to a product team to cut time to market or to a customer team to improve service. More people are spending more time in product, project, customer, quality, or vendor teams. It is a relatively easy transition to make the mirror-image units shown in Figure 3 into formal wing, tail

and so on teams. The team can prepare a plan for quality and cost improvement which would be the basis for gainsharing and team rewards. None of these organization design issues are new (Galbraith, 1973 Chapter 6). What is new is the facilitation provided by information technology as illustrated above. Increasingly teams will be "location free" giving companies the ability to connect members of teams of the most appropriate people independently of where in the world they live and work. Again, the technology provides the connection. The communication and coordination will come from team building, team work, and team incentives.

Decision making in teams is increasingly required as competition becomes time based. Decision making is facilitated by the establishment of project or product managers to whom considerable autonomy is delegated. Fewer operating decisions will be made by functional managers and more by project teams and project managers. The design issues of these roles are also well known (Galbraith 1973, Chapter 7). In summary, the communication patterns, decision processes, careers, and reward systems will be increasingly horizontal. The functional organization will still exist to balance variable work loads, transfer best practices, serve as "home rooms", house true specialists, plan human resource policies and acquire many of the capability building human resource functions. The lateral organization will take on more of the day to day coordination and decision making.

Modified Functional Structures

Super Functions

The functional structure has also been modified to reflect the business forces that are shaping organizations. Multiple functions are being consolidated below the general manager

level. One type forms super functions. The structure remains largely functional. The second type forms a new business structure called the front/back model.

In recent years a number of super functions or combinations of functions have appeared. In some cases the mirror-image structure and the formal teams mentioned above have evolved into structure changes of a more permanent nature. The new units are often collections of functions around management processes. There is usually a performance measure which acts as a superordinate goal for the unit and assists in cross functional trade-off decisions. The purpose is to achieve better integration across a set functions. Structural integration makes the coordination easier and more permanent. Again the coordination demands of total quality, customer service and/or cycle time reduction are the main driving forces.

An example is the Product Supply System at Procter and Gamble. It is a combination of the previously independent functions of Purchasing, Engineering, Manufacturing and Distribution. Experts in logistics have long advocated such a function called Materials Management. Initially, the corporate staff functions were brought under a single Senior Vice President. After policy integration, a Product Supply Manager was created for each Division (or currently Category) Manager. The four functions report to the Product Supply Manager rather than the Division Manager. Working against a "Total Delivered Cost" metric the unit is reducing flow times, reducing inventories, increasing on time delivery and quality.

Hewlett-Packard has started a similar change called the Product Generation Process. At Corporate staff it has combined R&D, Manufacturing and Purchasing under a single corporate staff Vice President. With representatives from marketing and finance, they are busy integrating the systems (like engineering changes) and information infra structure (like CAD/CAM). The corporate staff is experimenting with team incentives themselves before recommending changes

for the divisions. They are working to develop a metric of break even time (BET) to measure product generation teams. The company has a goal to cut in half the break even time on new products.

Other functions are being clustered around customers in order to improve customer service. One company has formed 5 customer service units for each of its five largest customers. The team consists of sales people from different product lines, some distribution, manufacturing, information systems and accounting people. All are committed for several years to help coordinate the ordering, delivery and billing processes for these customers so as to reduce everyone's inventory, speed of product flow, reduce stockouts, speed payments and eliminate the need for long term forecasts. The units report to the vice president of sales.

In aerospace, Northrop has organized its Advanced Tactical Fighter Program around the twin processes of Product Definition and Product Delivery. Each are multifunctional units even though Product Definition is engineering design intensive and Product Delivery is manufacturing intensive. Each process is judged to be relatively self contained, yet sequential. Tighter integration across functions is desired during each phase. The objectives are to design for manufacturing in order to attain "built in" quality, low cost manufacturing and faster time to market.

In all of the illustrations above, multiple functions are being grouped in order to integrate them at a level below the general manager with profit responsibility. The grouping is given a name for identity purposes and a metric to measure trade-off decisions. The unit is not just another level or a span breaking role. Very often these super function groupings are around products and customer segments.

As product and customer segments they lend themselves to profit measurement below the general manager. The creation of these quasi profit centers and more decentralization is the next step of organizational evolution. The result is a bifurcated organization which is described in the next section as the front end/back end model.

The Front/Back Model

The front end/back end model is an organization structure whose front end is organized around customer and/or geographic categories and the back end around products and technologies. The functions of sales, customer service, application software, customer education and customer information are collected into the front end. Engineering, manufacturing, purchasing, components and quality are combined around products in the back end. Both front and back are measurable on a profit and loss basis. They become quasi profit and loss centers. The structure is the result of a set of forces causing companies to organize by customer groupings. However not all functions can be aligned in to customer groups. Customers buy common products, for example. It is more efficient to organize engineering design and manufacturing by products to minimize cycle times.

The customer organized front end is the result of 4 key forces. The first is *buyer power*. As power shifts to the customer and the customer learns how to use the buying power, many companies are responding by organizing around customers or market segments. The creation of market dedicated organizational units is one of the most powerful trends in new organizational forms. Buyer power is often combined with the trend to *sourcing* as the driving forces for customer based organization. Many firms are using fewer, closer, longer term relationships to replace transactions with multiple vendors. Nearly every manufacturing firm is going from a few

thousand to a few hundred vendors. Those two forces are driving a number of companies to create units dedicated to customer groupings.

In addition, *systems integration* trends create pressure to focus on customers. As we imbed micro processors in everything, the need to have these processors communicate, to create software for applications and to tap data bases, will cause companies to sell solutions to customers' problems rather than stand alone products. In order to sell solutions rather than products, the company needs to coordinate across product lines for the customer and to use customer specific knowledge in the design of a system of products. And finally, more *value added* in the sales to a customer is moving to *application software and services* and less in hardware products. The software products tend to be customer or customer group specific. As a result the company needs a more dedicated focus on customer groups.

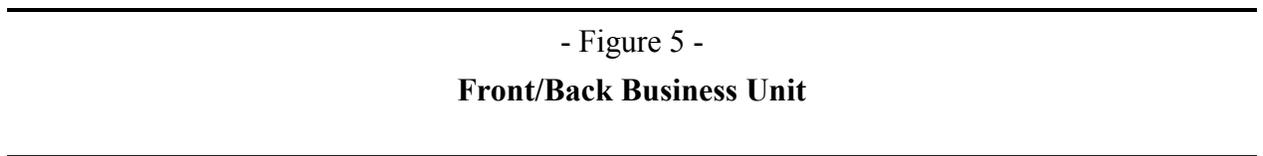
The result of these pressures is increasing customer penetration into the vendor organization. Above it was mentioned that companies were forming customer teams to work on service and quality issues. Xerox has added a bonus based on customer surveys. More variable compensation is being determined by customer satisfaction. Finally groups of functions are being aligned specifically for customer groups. In the past the government was the only customer large enough and different enough to merit dedicated units. Now with sourcing, buyer power, systems integration and value added in software and service, more customer groups can be economically served with dedicated organizational units.

The front/back model is also emerging in service businesses. A recent announcement of a reorganization at Olgivy Mather Advertising Agency created a customer specific front end and product specific back end. Olgivy is selling advertising, media buying and direct marketing products to customers. Each product unit has its own back end. The front end cross sells the

products to customer groups. The service examples also illustrate the limitations of the cross selling strategy and the front/back organization.

In the 1980's financial service and consulting companies acquired firms in order to become super markets for customers. Financial service companies were going to provide brokerage, banking, insurance, real estate, and credit card products to customer segments. Often the customer was not interested in one stop shopping and/or the sales agent was unable or uninterested in selling the entire basket of products. So the front/back model is not for all companies. When buyers are many and small, the opportunity to cross sell is small, and the products are best sold stand alone rather than as a system, a functional organization is still preferable.

An example of front/back model is shown in Figure 5:



The key to success of this form of organization is the quality of the lateral integrating processes such as the new product development process. These lateral processes are to tie the front and back together. A critical process is the planning and budgeting process to manage the joint profit and loss negotiations. A prior requirement is an information system that permits the assignment of costs, revenues, market share and so on to products and markets. The matrix in Figure 6 shows that there is a box for each product-market.

- Figure 6 -

The Product-Market Matrix

The planning process is a negotiation process where the front end market manager (A) and the back end product manager (I) jointly decide on revenues, market share, profits, and growth rates for their respective cell in the matrix. Meeting these targets becomes the joint responsibility of both the front and back end managers. The targets become the basis of performance measurement and rewards. At present not many companies have the accounting systems and skill sets to manage this process. It is however critical to linking the front and back on a profit and loss basis.

The time period underlying the matrix in Figure 6 is being compressed and more event driven. As competing in time becomes the strategic issue, companies are finding that their planning and budgeting processes are in need of redesign. Today, the product/market (Figure 6) matrix is negotiated after several months of effort and the next iteration takes place twelve months in the future. The budget badly lags reality. It either hinders or distorts actions or is ignored and useless. The trend is to keep budgets fresher by redoing portions of them as circumstances change rather than waiting for a fixed period of calendar time to elapse. Decisions will become more event driven and less calendar driven.

In summary, functions are being collected into organizational units to better serve customers on the front end and bring products to market in less time on the back end. Both of these customer and product units are profit measurable and treated as quasi profit and loss centers. The key to

successful implementation is the creation and management of lateral processes that link the front and the back together.

There is enormous potential for conflict in this organization form. Inevitably the issue of supplying customers with products not produced by the company's back end arises. As customers prefer sourcing arrangements and system solutions, the front end will seek to supply a full and complete line of products to the customer. Often the back end cannot produce all of the products well. The front end may want to buy products from the back end of competitors on a private label basis. Alternatively the back end may want to sell outside, the products that it does make well. Heavy investment in R&D creates the need for volume to cover fixed costs. However, the customers for the product volume may be competitors to the front end. If not managed well, this potential conflict can destroy the cooperation needed between the front and back on new product development.

A business development type of function is emerging to mediate the debate described above. This function has the charter to examine the best way to profit from a technology created by the back end and from a customer franchise created by the front end. Staffing the business development function is the crucial organization design decision. Generalists are needed to balance products, technologies and markets. Some people are permanent in the function while others rotate on two year assignments. Usually these people are marketing types who work in customer marketing on the front end and in product marketing on the back end. These marketing nomads are part of the glue which holds the front and back together.

The debate about selling only what the company makes and making only what it sells leads to issues about self-sufficiency. What will the company perform itself and what will it rely on

others to do? In the future, more and more businesses will not be self-sufficient. These business units are adopting the network form of organization.

Network Organization

In the past, companies preferred to have business units which were self-sufficient and fully functional. They believed that they would get better service from a function that they controlled and which was staffed with their own people. Today and more so in the future, companies are discovering that they cannot do everything well. They are also discovering that in the buyer's market they cannot afford not to do everything well. As a result, firms are doing only those functions that they do best and arranging for other functions to be supplied by other companies doing what they do best. The resulting collection of independent single (or a few) function companies is referred to as a network organization (Miles and Snow, 1988). Organization implies that the companies coordinate their activities.

The network of separate functional companies is to be contrasted with the fully functional hierarchical firm. The fully functional firm is held together by common ownership of all functions and coordinated through a hierarchy of authority. The network consists of functions which are separate companies, profit measurable and coordinated through mutual interest or by a focal company which plays the role of integrator of the network. Network integrators create governed networks as contrasted with loosely coupled, informal networks. The governed networked is designed and maintained by the integrator. It is the model of interest in this paper.

The network business unit is less than fully functional and plays the integrator role. It is most apparent among new young companies like Nike, Reebok and Apple. The older companies like P&G and IBM are not vertically disaggregating their fully functional business units. However, on

new business development ventures such as application software, IBM is using the model by forming alliances and taking minority ownership positions in key software developers. As more companies shift their priorities from downsizing to growth and development, the model will be more frequently adopted in the future.

The organization design issues for the integrator are (1) which function or functions does it own and perform itself and which ones does it acquire from other firms? (2) How does the integrator influence the decisions of separate companies so as to coordinate the business of the network? First, the integrator usually performs the dominant functions in the value added chain of the business. For example in consumer products, the integrator performs the marketing function. Indeed a Reebok or a Benetton is virtually a product management house. The product managers manage the product line positioning, new product development, advertising, price and promotion and the brand. In short they do the strategic management for the network. For technology driven industrial products, the integrator does the R&D and product engineering. If there is no dominant function, the model may not be viable.

Second, the integrator does the buying of key items for the network. The central buying allows the network to be large when it is good to be large (buying) and yet be small when it is good to be small (informal research teams). Benetton is the world's largest buyer of wool thread. It buys on behalf of the 250 independent textile companies that perform its weaving, cutting, knitting and sewing functions. Similarly it acquires the computers and textile machinery used by the independents. When buying and selling in a market, it is usually good to be big and exercise market power for price benefits.

The integrator also manages the logistics function and designs the information system to support it. When competing in time, logistics and information must be managed on behalf of the

network. Other firms like Federal Express may perform the delivery and warehouse functions. Many companies use General Electric's telecom network to tie together retail sales, inventories and manufacturing. But the management and policy setting for product flow throughout the network is performed by the integrator.

The integrator also does the difficult and proprietary tasks. Often the designer of the product will design the manufacturing process and equipment simultaneously. Small, low overhead manufacturing shops operate the equipment. They have no expertise in designing equipment. The integrator may use outside designers but if the process is proprietary, it may use its own designer. The integrator develops and defends intellectual property of the network which the other companies could not afford to do. Benetton developed an artificial intelligence program to minimize fabric waste during cutting clothes to sizes. It is to run on PC's which are leased to all its suppliers. These suppliers may never have heard of artificial intelligence let alone developed a program based on it.

Thus, the integrator takes on functions where size is an advantage, manages workflow and information throughout the network, manages the brand, product design and development, does what is difficult and proprietary and assumes responsibility for the effectiveness of the network as a whole. The integrator does not squeeze pennies out of suppliers. Instead the integrator wants them to make money. The network as a whole competes with other networks. The integrator's interest is in building and maintaining a healthy collection of suppliers and distributors. Even though the integrator does not own the firms in the network, it behaves as if it does.

The second issue is how does the integrator influence the independent companies in the network. In general, the integrator builds a power base but works from the mutual interest of the collection. The integrator builds trust and relationships among the members. There are still

conflicts of dividing margins among the members. Even in single companies conflicts over cross selling and transfer prices weaken cooperation among functions. In the network organization all these issues must be negotiated but negotiated in the context of the overall goal of network effectiveness.

The power base from which the integrator operates comes from several sources. Often the integrator is the largest unit in the network. The integrator has buying and selling power within the network. The integrator usually performs the dominant function in the business. By performing the marketing function, Reebok dominates its network the way brand managers dominate at Procter and Gamble. The performance of design engineering work allows Apple to dominate the same way Hewlett-Packard is dominated by its engineers. To the extent that the integrator can solve the difficult issues, value is delivered to the other companies. The faster information and payments move through the network, the lower is everyone's working capital. The more value the integrator can create, the more powerful a negotiator it is.

The integrator also performs the banking function for the network. Through credit, leasing, factoring and other financial service subsidiaries, the integrator holds the network together. The credit subsidiaries make money but they also perform network maintenance roles. Why should a manufacturer invest in a machine that can only make sweaters for Benetton? To overcome reluctance, Benetton's leasing subsidiary buys the machine and leases it to the manufacturer. With deregulation occurring in financial markets, the credit function is increasingly performed by credit subsidiaries of companies. These subsidiaries are to be profitable but they are also to help build and maintain a competitive network of firms around the integrator. The integrator in some senses has moved from the owner of the network units to the banker of the network.

And finally the integrator often creates and maintains the information network of the organizational network. From point of sale cash registers to warehouses to the various stages of manufacturing the fashion houses connect all units electronically. They speed the flow of information from one end of the logistics chain to the others. Often the integrator has its own network that all units plug into for transactions. When combined with financial services, the integrator runs the payment systems for the network to minimize total working capital and speeding cashflow.

The integrator plays the role of systems integrator for the network. Each unit is a separate company doing what it does best. Some units are low cost, low overhead units while others are professional units with a culture, salaries, benefits, policies, sabbaticals, and an organization specifically designed for professionals. Each unit is owned by its managers giving it ownership motivation. The cost of this form of organization is the constant communication and negotiation among the units.

Functional Specialist

The last type of business unit is the functional specialist. The specialist concentrates on a single or few functions and networks with other firms to complete the business. However it does not perform the network integration roles described above. Instead the specialist invests in expertise and scale in the function. The specialist participates in networks that are often less managed.

A number of specialists exist in the high technology area. The biotechnology firms like Genentech and Cetus and semi-conductor firms like Chips and Technologies are research boutiques and product design houses. SCI has concentrated on printed circuit board design and

manufacturing. Beginning with the contract for printed circuit boards for the IBM personal computer SCI has kept that volume and acquired the manufacturing from firms like Chips and Technologies who concentrate only on product design.

The companies benefit, like the network integrator, from having an organization specifically designed for the competitive advantage they possess. SCI is designed to be absolutely low cost. They locate in low wage areas, have minimal overheads, emphasize scale and automation and is run by experienced manufacturing executives. The design houses have compensation and benefit packages designed explicitly for professionals. In addition the high technology units benefit from patents, licenses and intellectual property which can be sold worldwide. They are also experimenting with pricing schemes which allow them to secure more profit without vertically integrating further down the value added chain to the customer. Cetus has invented a process which can be useful in creating some new pharmaceutical. It has formed a joint venture with Perkin-Elmer to manufacture instruments which pharmaceutical houses can use to invent new compounds. The instrument is reasonably priced so as to encourage widespread use. But Cetus wants 10% of the royalties from all drugs commercialized from the use of the instrument. In this way, they can profit from their intellectual property without vertically integrating into other functions.

Many of these single function businesses are start-ups and stand alone companies. However, as corporations downsize, consolidate and restructure, they are seeking outside revenue for some of the functions which are scale intensive. The outside revenue converts the functions from a cost center to a profit center. At some point, usually when outside revenue exceeds inside, they become a business unit whose task is to earn a profit. Banks have always used their computer departments to do data processing for other financial institutions. Semi-conductor firms try to keep their silicon

fabrication units fully loaded by becoming foundries to custom chip designers. The competitive pressures of the nineties are forcing firms to profit from what they do best. These computer departments and foundries will become full fledged business units rather than sources of a little outside income. They will be profit measurable and responsible not just captive internal suppliers or customers.

The functional subcontractor role has always existed. In aerospace there were second and third tier subcontractors who supplied the systems integrator like Boeing and McDonnell Douglas. Often second tier meant second rate. In the future the functional specialist will be first rate. They will make themselves an attractive buy alternative in the make/buy decision. They will concentrate on functions where expertise and scale are important. They will be low cost and flexible to do business with. They will be independent businesses not internal monopolies.

The competitive pressures are forcing all companies to search internally and externally for lowest cost and best value suppliers. The trends toward sourcing and network integrator provide many advantages of vertical integration without the ownership costs and risks. Ownership also results in the extension of an ill-fitting business culture to a functional specialist. The increase in the number of small firms seeking scale intensive partners is increasing. Warehouse developers now create giant, automated warehouses in key commercial centers. Many small companies get access to these giants and are billed monthly for as much space as they use that month. Also as mentioned above the functional specialist is learning to use pricing schemes like licenses to profit from their expertise. Rather than just a fee for service, distributor specialists now share in the benefits of providing superior service and inventory levels. They participate in the profits of the industry without vertically integrating. The internal or external functional specialist is also a partial

offset to the decline of functions within product or market business units. All of these factors are causing companies to choose more often to source from a functional specialist.

Summary

In summary, the business unit, the basic profit center building block of corporation and industry structures, is evolving from a fully functional division to five different forms. The evolution is being driven first by the strategic initiatives of total quality, total customer service and in the 1990's time based competition. These initiatives make evident the weaknesses in the functional organization since they require many multi-functional responses and trade-offs. Increasingly the new information technology will allow greater cross-functional communication and integration permitting the evolution to continue. And finally the trends toward systems integration, buyer power, sourcing, and deregulation of financial services will drive new business unit forms to appear.

Four general types were identified here in addition to the *fully functional model*. The first was the *lateral functional* form. It was made flatter, more lateral and more general. Often team overlays and mirror image departments were combined to form super functions. These were combinations of functions below the general manager which had a name and a metric for combining the functions. When the metric became profit and the business unit experienced buyer power, systems integration demands and opportunities for cross-selling, the *front end/back end model* emerged. As companies buy more functional activities to get the best value, functions themselves are becoming increasingly profit measurable. Two types of business units that are less than fully functional are increasingly being used.

The first less than full functional unit is the *network integrator*. Firms like Nike, Reebok, the Limited and Benetton perform the marketing function for a network of independent firms. However, they design the information and logistics systems for the entire network's benefit as well

as their own. Often they provide banking and financial services to other members. They provide the strategic management of the network.

Finally, the *functional specialist* is emerging as a desirable business unit form. Rather than a second rate player waiting to vertically integrate and become a major player, specialists are staying expert in their specialty, becoming world class professionals and growing globally. Many specialists are new firms like bio-technology companies. But many firms facing consolidation in Europe and elsewhere are choosing to keep functions in which they are superior and making them into business units.

Throughout the paper it was suggested that the functional organizations in the fully functional models will decline in influence. In part, the current business forces favor integration vs. specialization in the trade-off choice. In addition information technology and functional specialists present alternatives which permit integration and specialization. But in all cases there will be a major transition problem when moving from current dominant functional form to the new forms. The new forms are most likely in start-up operations creating new business inside and outside of the current corporations.

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Figure 1

Organizational Building Blocks

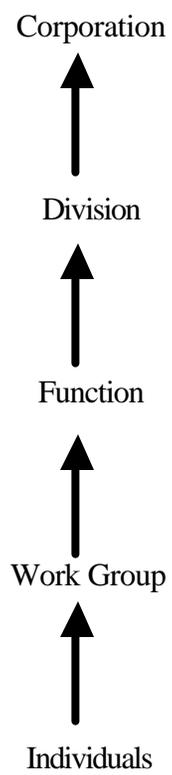


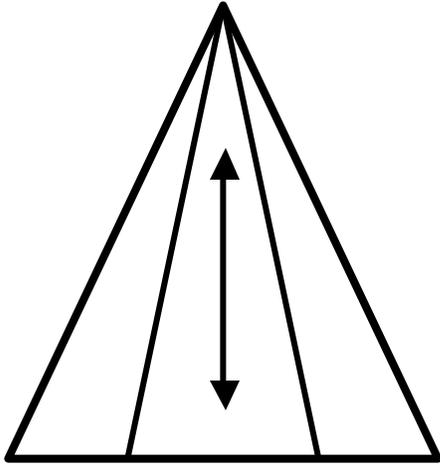
Table 1

Business Unit

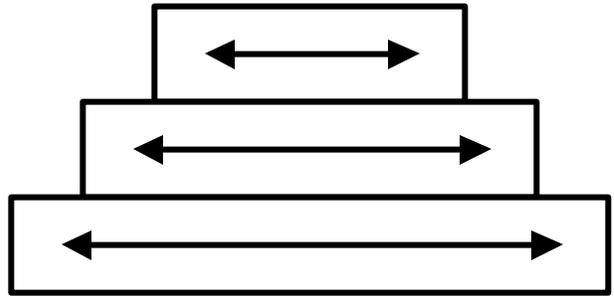
- Fully Functional
- Lateral Organization
- Front/Back Model
- Network Integration
- Functional Specialist

Figure 2

Hierarchical to Lateral Organization



Then



Now

Figure 3

Mirror-Image Structure

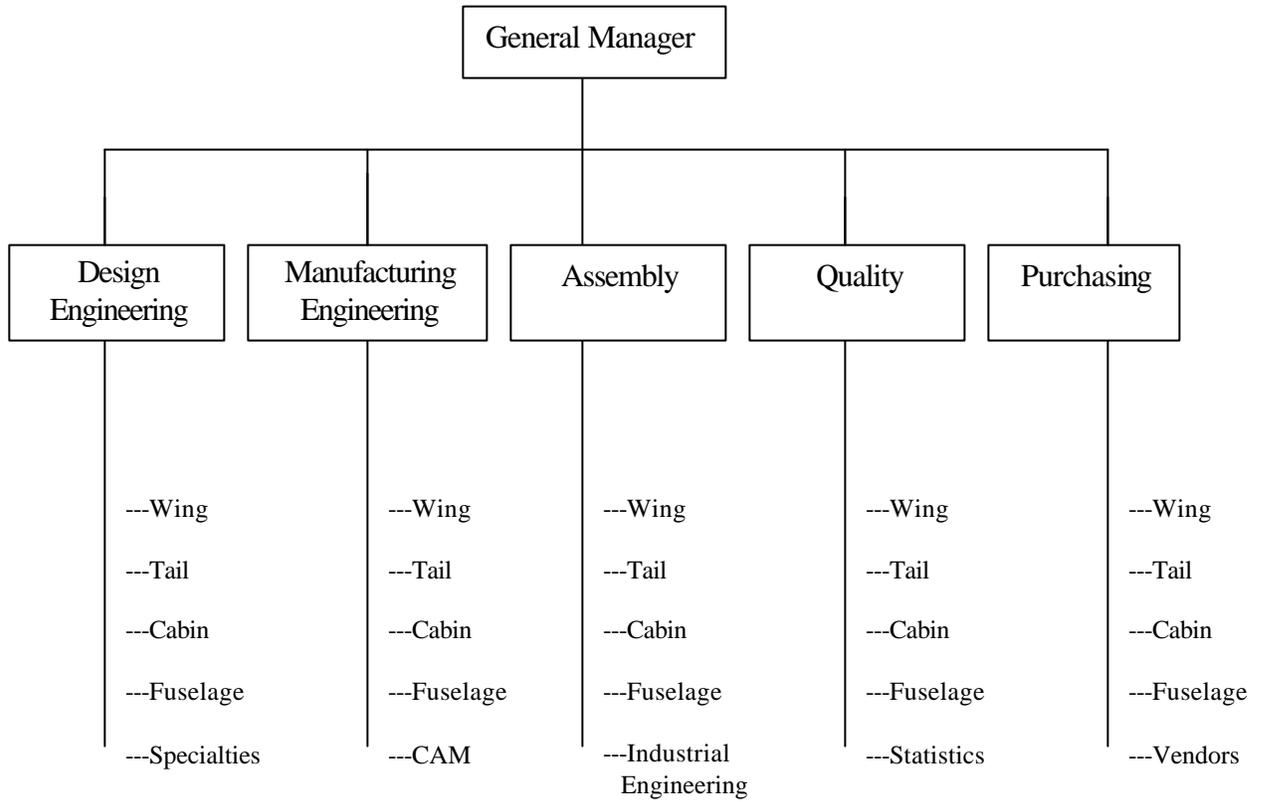


Figure 4

Customer Driven Organization

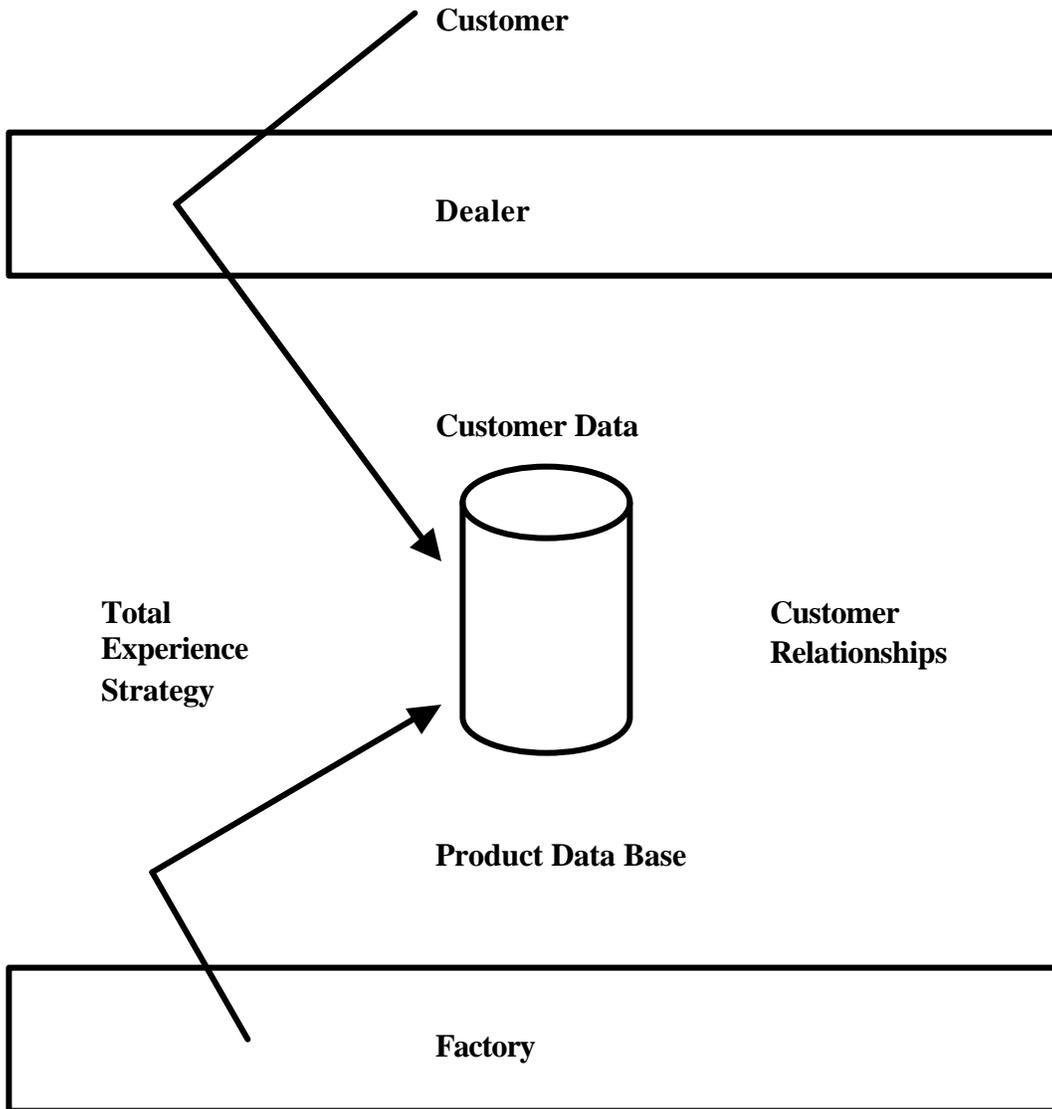
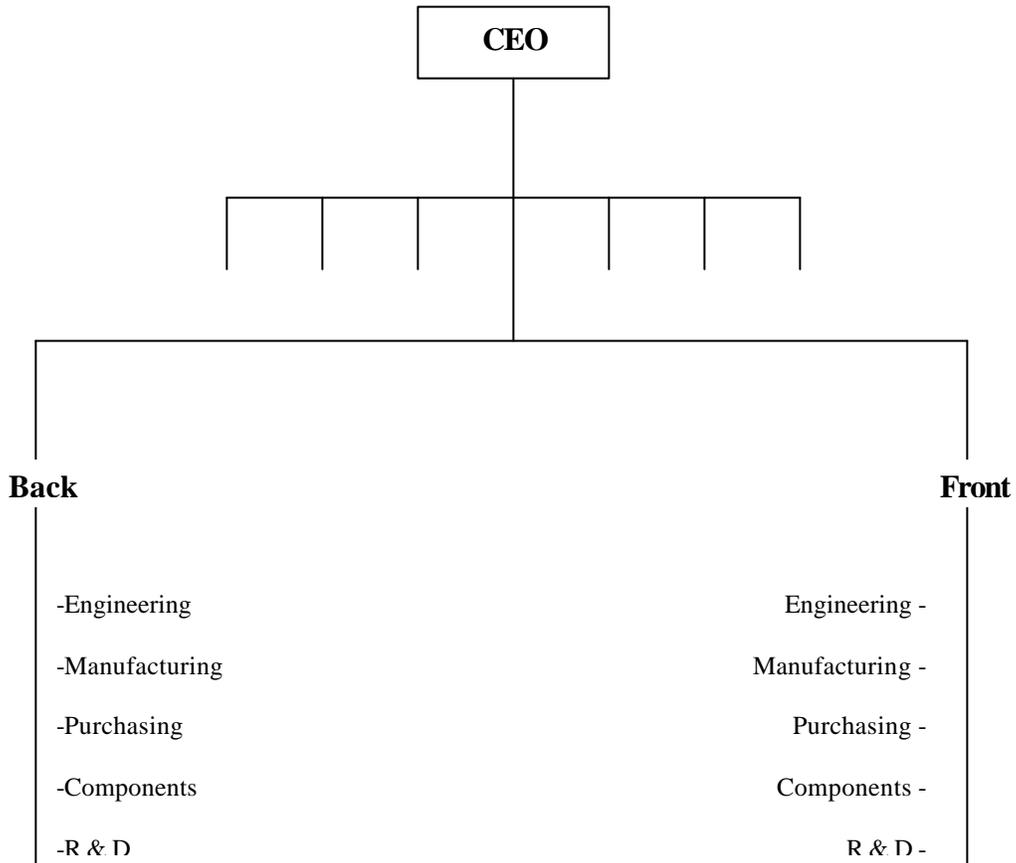


Figure 5

Front/Back Business Unit



Marketing

Management Processes

Figure 6

The Product Market Matrix

Markets

A

B

C

D

Products

1

2

3
