

**(1) COMPUTER COMPONENTS CASE STUDY**

Pre-reading assignment for Wednesday morning (Designing Core & Lateral Structures)

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This case illustrates two important aspects of organizational design:

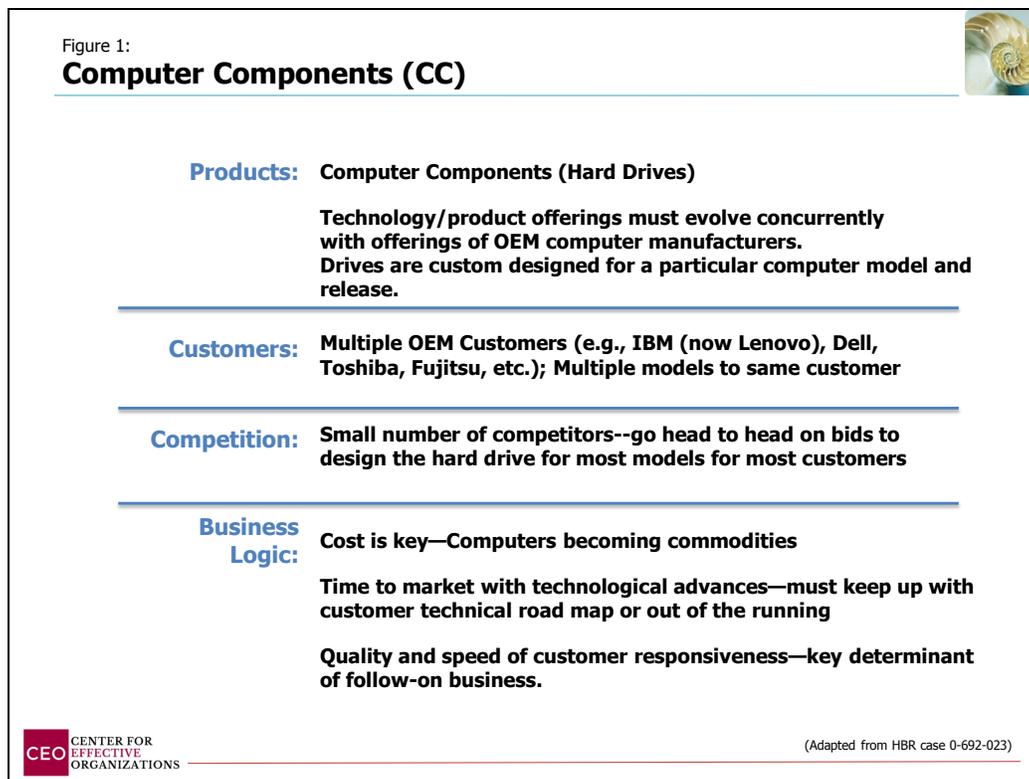
- 1) The transition from a single dimension (functional) organization to a multi-dimensional organization that uses lateral integrating mechanisms to handle the complexity as the organization grows.
- 2) The full self-design model, including a second iteration when diagnosis indicates that some elements of the star need to be redesigned. It demonstrates the ongoing nature of self-design.

The case also offers the opportunity to practice your diagnostic skills.

**BACKGROUND AND PHASE ONE**

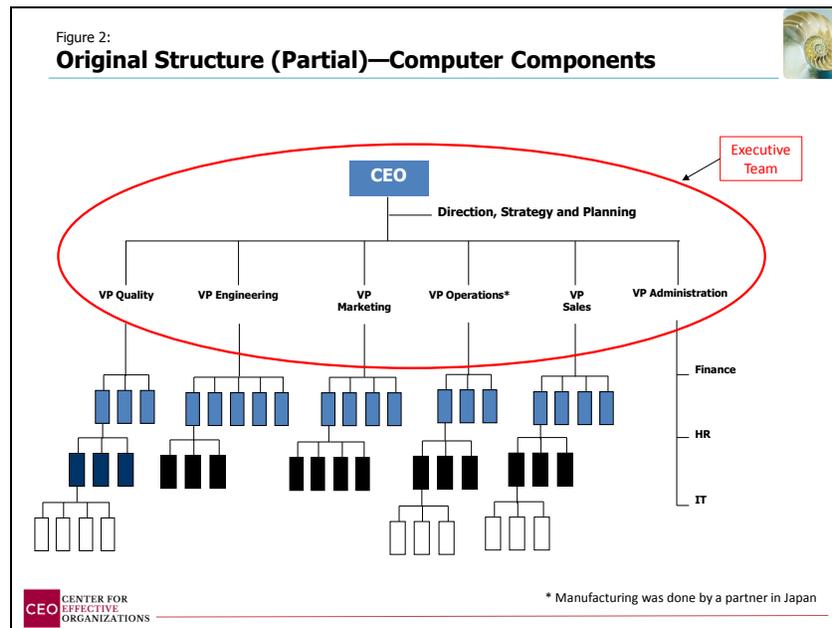
Computer Components is a specialty electronics firm that designs hard drives for the OEM’s (original equipment manufacturers) in the computer industry. It was founded during the early days of the computer industry, and “grew up” extremely rapidly along with that industry.

**Figure 1** provides the key elements of the business model for the company (and, indeed, for the components industry in general).



Computer Components began as a very small start up with a founding CEO and a number of trusted colleagues who helped design and market the company’s first products. This team was the nucleus of the executives of the company, and each took responsibility for certain functional tasks. Each team quickly hired people to carry out the functions they managed as the company very quickly achieved success and grew rapidly.

**Figure 2** shows the original structure, in which each of the members of the management team managed a function. Together, the executive team did the planning and coordination and integration of the activities of marketing and sales, technical development, and managing operations and field distribution and support.



The company made the decision to contract manufacturing out to a Japanese company. It signed a long-term, exclusive contract stipulating that:

- all manufacturing would be done by this partner
- the partner would in turn continually retool and upgrade its manufacturing capabilities as Computer Components grew.

This did not mean that Computer Components staff would be unconcerned with operations. Indeed, they built a staff of experienced manufacturing engineers, quality assurance, process optimization and distribution folk to plan the movement of the hard drives into the contracted factory and to manage its introduction into the field.

The key processes of the organization were:

- 1) **Sales** (working with appropriate technical support) respond to RFP's (Request for Proposal's) from the OEM's with a bid to provide a customized hard drive defined by specifications provided by the OEM for its new computer model. If Computer Components wins the work, the president signs off on the contract.
- 2) **Engineering** set up a small team to design the drive to fit the technical specifications and to meet quality and cost targets.
- 3) **Manufacturing** shepherds the drive through contract manufacturing and manage its release to the OEM to be incorporated into the computer.
- 4) **Field Support** manages the field issues that arise.
- 5) **Working with the OEM**, Engineering redesigns the drive for a second (follow on) release of the computer that would be characterized by enhanced processing capabilities, and manage it through its life-cycle.

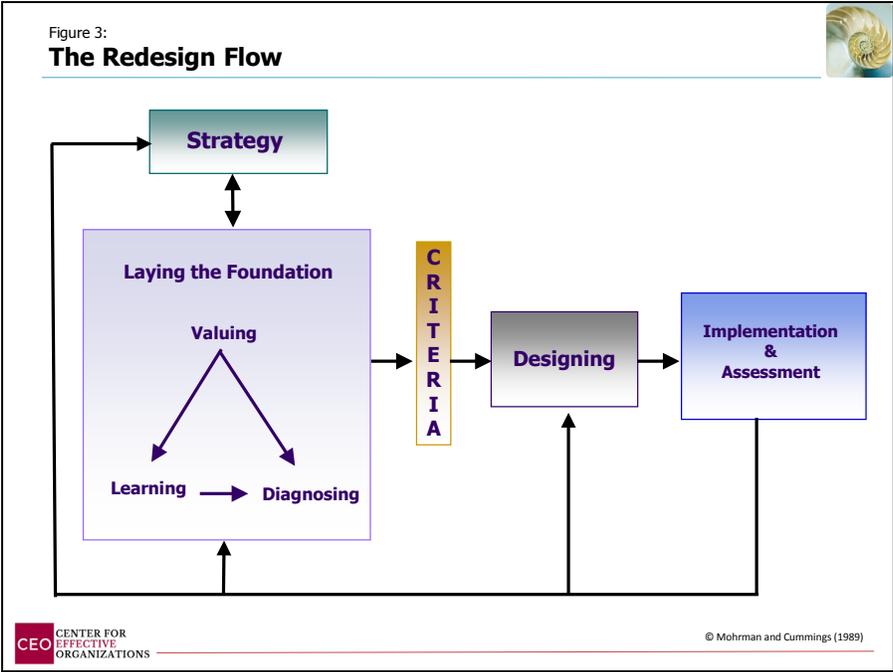
Computer technology was growing extremely quickly with new models being continually released that embodied technology advances, new capabilities and enhanced designs. The life cycle for a hard drive (once a contract was signed with the OEM) was about 6-8 months for development, first-run production, and field distribution and service. Even including the second release (follow-on) product, the entire life cycle for the model was generally about 12-16 months.

Each new model that the company bid on and won built on its rapidly developing technology, but also required the development of new designs and technical approaches. The company quickly grew, was quite profitable, and found itself handling 5-6 hard drives at one time.

**PHASE TWO: INTRODUCING PRODUCT TEAMS**

Although happy with the success of the company, its President realized that it could not continue to grow and be successful as it was currently designed. It was not effectively coordinating the complexity that came with rapid growth, and was having trouble keeping up with demand. It had experienced several delays and quality incidents, including one major field warranty problem due to hard drive failures. The executives continued to be highly involved in ongoing operational issues, and the President was concerned that they did not have time to attend to the strategic decisions required in the rapidly developing computer industry. He also felt that the executive team had become a bottleneck and was slowing down product decision-making. Decision-making needed to be moved lower in the organization.

By chance, the head of HR was quite knowledgeable in the areas of organizational change and development, and was familiar with the Self-Design Strategy (Mohrman and Cummings—see Figure 3). She convinced the executive team to go through a systematic process to redesign the company to handle its growth and the increased complexity it was facing.



The executive team recommitted to its basic strategy of rapidly advancing the technology through aggressively bidding on and delivering hard drives to computers that required increasing operating speed, flawless quality, and continual new functionalities. Their redesign was guided by the following problem definition:

- The company was growing quickly along with the industry
- Top management could no longer oversee and provide integration for the development and introduction of all of the new products
- Speed was critical: activities had to be integrated below the executive team level

The executive team served as the design team. Its first task was to formulate the design criteria. It followed these steps:

- Based on the diagnosis and strategic intent, the design team formulated criteria for the redesign.
- Each member made a list of criteria and shared them with the team.
- Common criteria made the list. Others were debated and the team determined whether they made the list.
- The list was prioritized by individuals and the priorities debated by the team.

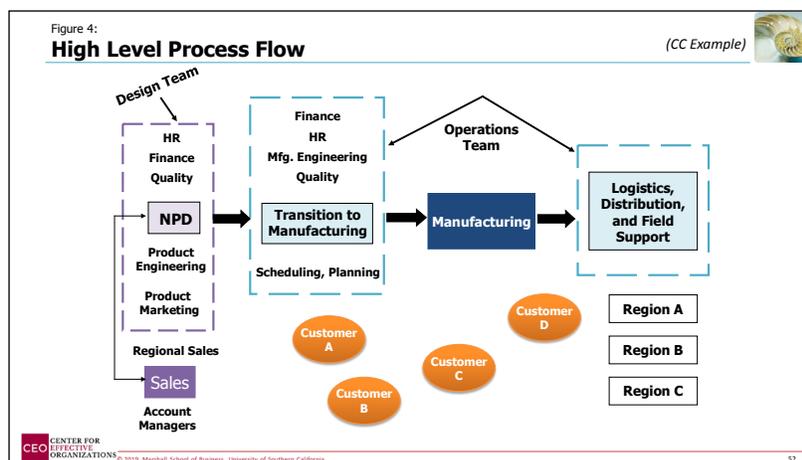
Table 1 shows the criteria that they generated.

Table 1:  
**CC Design Criteria**

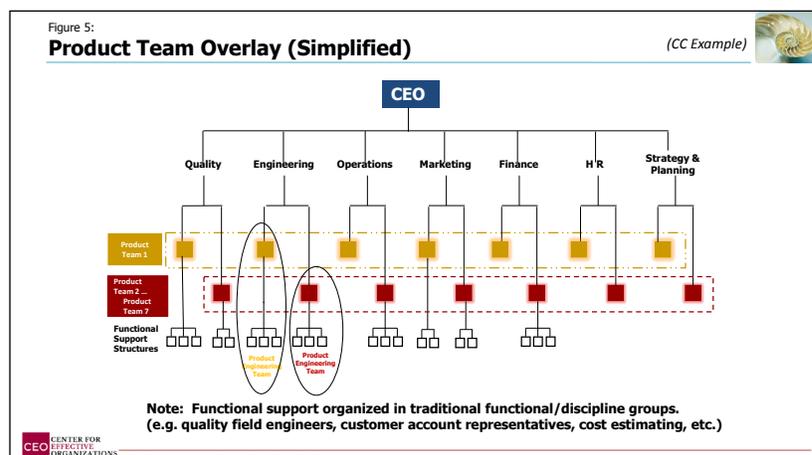
- Cross functional integration and decision-making about new products lower in the organization.
- The executive team assumes a strategic role.
- Milestone reviews of projects.
- Avenues for managers to grow and mature.
- Clear shared accountability for product success.
- Able to manage multiple product lines simultaneously.

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**WORK PROCESSES:** To get a visual sense for the flow of activities that needed to be organized, the team systematically depicted the high level flow of activities in the company (see Figure 4).



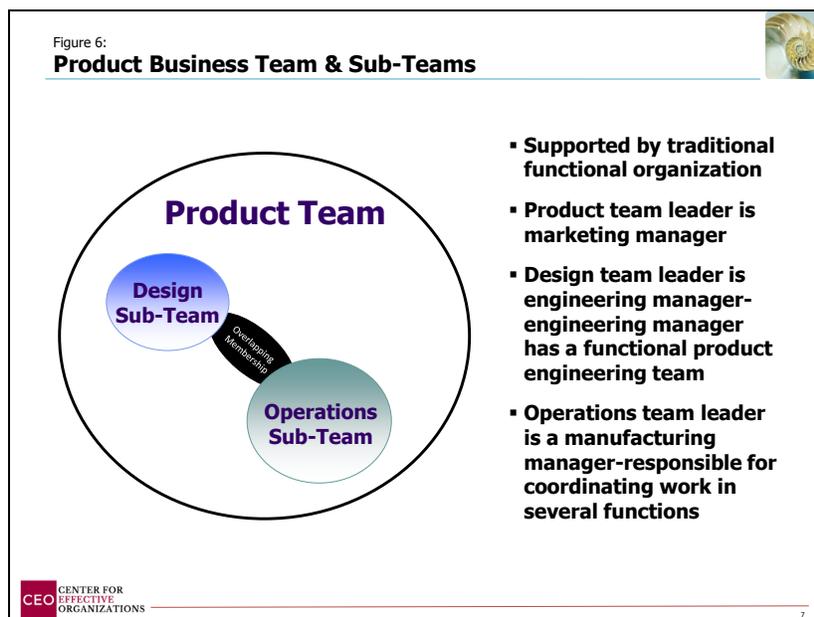
**ADDING A LATERAL STRUCTURE:** The executive team focused on the cross-functional product teams as a lateral structure to coordinate the development of each hard drive. The functional units would still be the core units of the company, and would carry out the functional activities to design. But the management of each hard drive model would be carried out by a product team that would be set up to take over the product as soon as the contract was signed (see Figure 5).



The members of each product team would be functional managers at the director or senior manager level—moving the operational cross-functional coordination and management lower in the organization and freeing up the executive team to concentrate on more strategic issues. The leader of each team would be the Marketing member of the team, but the other members of the team would retain direct reporting to their functional VP's. Each team member would continue to have management responsibilities within their function.

The Engineering Director on the Team would also be the team leader for the dedicated team of engineers assigned to develop the hard drive, and to work through any product design problems encountered during manufacturing and in the field. This individual was the only person with a functional team dedicated to the product.

The first pilot product teams quickly discovered that there were two sets of tasks that the team needed to carry out. One was the actual design of the hard drive, which was largely done by the engineering product team, but with continual input from the Manufacturing Engineering team member in order to ensure that the design could be manufactured by the partner company. The second set of tasks was all the operational and field support: including the various stages of quality testing, factory and field readiness, factory interfacing, and customer interfacing, planning, and cost analysis. Two sub-teams emerged in practice, each coordinating the various functional support needed to carry out the tasks. The full product team met weekly, and as needed, to assure that the product was on track and to identify issues that needed to be addressed to get the product to market according to plan (see Figure 6).



## MANAGEMENT PROCESSES

The product team would be empowered to make all decisions relating to developing and bringing this product into the field—and it would be incented to bring the product to market on time, within cost, and achieving high quality and customer satisfaction.

Each product team was given clearly defined milestones that were derived from the contract, and had targets for cost, quality, and profitability.

The goals of the functions were to carry out the tasks required to support the product teams and to design, develop, ship and service each hard drive. Each function was divided into discipline groups that carried out specialty tasks. For example, the Quality function had a group that specialized in design quality, prototype testing, and manufacturing quality specifications and monitoring (the latter working closely with the contract manufacturing facility).

The responsibilities of the Product Teams and the Functional Responsibilities are recounted in **Table 2**.

Table 2:  
**Responsibilities**



PRODUCT TEAM MISSION	FUNCTIONAL MISSION
<p><i>To work in a coordinated way to address market needs</i></p> <ul style="list-style-type: none"> <li>• Definition, development and introduction of new products</li> <li>• Revenues and gross margins generated by the products</li> <li>• Inventories required to support the revenues</li> <li>• Fast cycle time, cost and quality objectives</li> </ul>	<p><i>Managing ongoing functional activities and expenses</i></p> <ul style="list-style-type: none"> <li>• Provide career paths and skill development</li> <li>• Executing plans and staffing programs initiated by the teams</li> <li>• Allocating engineering and manufacturing engineering personnel to the teams' development projects</li> <li>• Supporting the teams' projects and providing specialized services</li> </ul>

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The executive team held milestone reviews of each product at four milestones:

- Prototype design completion
- Design completion/release
- Release to customer
- 3-week release to field

## REWARDS

Participation on Product Teams was viewed as overload. Members retained their functional management role. For the Engineering Director this meant they were still the head of the design team. For others, it meant they still managed one of the discipline groups in their function. For this reason, the rewards for product performance were delivered as variable, incentive pay. This was in addition to the incentive program for overall company performance.

- **Product Team Members receive up to 40% of their salary in bonus (total “pot” determined by performance of product – 1 year payout delay)**
  - Role seen as overload – maintain a functional management role simultaneously
  - % determined by peer rating – team members get different % payouts
  - Peer rating depends on:
    - “Did this member wear a GM hat when working on team issues?”
    - “Did this person deliver good functional support to the team?”
- **Functional contributors (not on team) receive up to 25% of salary in bonus – depending on company and functional goals. Product team members were also eligible for this bonus.**

**PHASE THREE: A DESIGN REVIEW**

The product teams had an immediate positive impact, as they assumed much of the cross-functional integration of the product development process and product-level decision-making. Their members were in close contact with the functions, and able to coordinate the tasks needed from each function.

Each new product team received training and team development assistance from the HR member. The executive team was consistently supportive of the transfer of responsibility to the teams, and refused to get involved in operational decisions unless there were company-wide implications.

Yet, after almost two years, the company again sensed that its growth was exceeding the capacity of the organization, and that it needed to review its organization design. It was routinely managing 8-9 models at one time, and anticipating yet another increase. The employee count was now over 500. Although turnover was relatively low, the labor market in the Silicon Valley was quite tight, and the company anticipated increasing difficulty in attracting and retaining qualified managers and staff.

Computer prices were rapidly declining and computers were becoming commodities, which meant that efficiency was a primary concern.

The Executive Team decided to have an outside diagnosis conducted, and contacted The Center for Effective Organizations for this purpose. Thirty-five interviews were conducted with the members of the executive team, product teams, and functional leaders. Archival project records were also examined.

**QUESTIONS TO CONSIDER:**

Put on your diagnostic hat and anticipate what kinds of strains and problems might be surfacing at Computer Components. i.e., what issues do you think surfaced in the diagnosis—both positive and negative?

Using the following format (see Figure 7), what do you think are the advantages and disadvantages of the current overlay product team design? What do you think has been accomplished, and what changes do you think will have to be made in the design, if any?

