
Title: Reengineering the Technical Enterprise

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Abstract: A case study of Xtronics with the Core Product of DSU/TSU

# Reengineering the Technical Enterprise

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# *REENGINEERING*

## *THE TECHNICAL ENTERPRISE*

*EMGT 563/663*

*SUMMER 1998*

*DR. DRAGAN MILOSEVIC*

*TEAM(FTU) CASE REPORT*

*TEAM:-*

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## *Business History*

Xtronics has been in the communication business for 40 years. It has earned the respect of their customers and competition for the core product DSU/TSU. The core product, tough marketable has been the only available products that offers the communication connectivity of internet protocol. Just like the development of the DSU/TSU's. Xtronix found themselves in an opportunity to develop a new technology call ATM –Asysychronous Transfer Mode. This would allow data, voice, and video transmission over one vitural T1 lines. The key was to offer a flexible services, a more effieient process, and lower cost product to customers. This would allow customer to exercise E-commerce, therefore conduct all business over the Internet line. The project is to open new horizons for Xtronics. It was predicted that if product is delivered in twelve months the potential market value is $71 Billion. The concepts have been established but it is impossible to deliver products with the existing product development process. The DSU/TSU line took five years to complete. The only saving grace was the company's well controlled patents. But the true cost is wasted fighting court battles to keep the competition from stealing market share. Today, it is a different ball game the telecommunication market is more open due to the Clinton's Deregulation laws and the mergers of global competition. Potential customers are Sprint, MCI, Bell Atlantic, General Signal, and Fore Systems.
Xtronics' competition are bigger in size and will stop at nothing to get market share. Companies such Cisco, Lucent , Northern Telecommunications, Baynetworks, and Yurie.
The goal would be to develop all new products to support the ATM market. Xtronics and their talented staff has develop the ATM Technology and would be the first company to initiate development. Xtronics has confirmed that the competition have caught on with the ATM products. This may be a deadly race, first to market will be the leaders in this technology.

## *Game Plan*

Mr. Lovechange (CEO) accessed the position of the company and called a meeting with his staff. His functional staff unaware of the issue waited patiently as the new process which will affect the way they conduct business unfold. Mr. Lovechange starts by saying "Business as usual would not do." "The business environment is changing and if we are to be competitive we must change too." "The chair you sit in today is not the chair you'll sit in tomorrow and this is the same for of your people." The CEO then introduced the FTU team as the facilitators for this reengineering effort. The FTU's Initiatives were to develop a process that will save time on product development and maintain the company's culture.
The FTU group designed the first over view of the process and the CEO presented it to the officers.

## *Team Building*

Mr. Lovechange spelledout the new matrix structure (Appendix B1) that will show how the teams are to communicate. Team 1 consist of officers (VP's) is called the Steering Committee. The responsibility of this team is to mentor the New Product Development Teams, supporting the teams with the tools and resources required to achieve the product development cycle time goals. The project managers will be selected from the managers in Marketing, Manufacturing, and Engineering. The Product team members will be selected from various departments around the company. The teams will be relocated in their groups where communication is easier.

# Situation Analysis

## Product Development Process

Company Xtronics was one of the local companies that was dealing with telecommunications equipment. However, it had many problems in the product development process because it took too long to develop a certain product and too many hands-off in the process itself. The old process was developed based on the concept of Adam Smith, which was to do each step individually. Mr. Lovechange(CEO) knew that the product development process was a problem and decided to change the whole process.

Initially, the marketing department initiated the fist step in product development process. The initial duty of marketing department was to develop relationship between the company and customers. This department was supposed to determine the product features that customers required. After this was done, the marketing department would summarize all the requirements of the products before getting the approval from the marketing management. The approval would then go to the marketing department for final review again before it was transmitted to the next major step, designing process.

The next major step was called the design step. After getting the requirement and information of the products from the marketing department, the design engineers would design this specific product. The final output for this process would be the specification of the product that the company was going to develop. When the design team finished with the design, they would then again contact the high level management of the designing department to get the approval of the design products. After the approval, the design team would review the products for final correction before being passed to the manufacturing department.

The final department that in involved in this process was the manufacturing department. Its duty was to develop manufacturing plans for mass production of the selected products. After planning and designing the process, the manufacturing still had to get the approval from its upper management before the final mass production steps started.

The product development process is shown in the Appendix A1. It started from the customer and ends up in the mass production. The process was categorized as a linear process each step depended on the previous process. This resulted in departments working in vacuums. Project value added work is not identified until the each link is satisfied. The project will be too far along before an issue is identified.

## Problems and Causes

Where is the ref to App. A-2

Time is an important market in the High Technology industry. The overall process of the product development in the Xtronics took approximately three years with an average one-year in each department. This process was taking too much time in delivering the product to the market. The workflow in the product development process is shown in the Appendix A3. This process was called the monochromic process. Each task was done one after another. Consequently, they might not be able to cope with the competitors. If the competitors were ahead of Xtronics, the

market available for the Xtronics to catch was becoming smaller. Further problem might occur when the competitors were able to produce better quality of products than Xtronics. With faster and shorter development time conducted by the competitors, their products would be much better quality than Xtronics's because they could use these advantages to survey and perhaps improve their quality. If Xtronics did not change the product development process, the whole company would not lose only market share but they could also lose the existing customers.

There was no direct communication link between each department in the process development. After one department finished its individual task. It would pass over the next step to the next department. Basically, the previous department did not have any communication with the next department. Chaos occurred when each one of the department discovered a problem along the way as it took a long time to communicate with each department. Difficulties might occur in detecting the origin(root cause) of the problem in each department.

The structure organization in the process development was still following the traditional structure, the vertical structure. The whole structure was divided into its function. The product development management controlled the whole product development process. The department management of each process; marketing, design engineering and manufacturing engineering controlled the next levels. Each department is then further divided according to the product that they were developing. The hierarchical structure in this organization is shown in Appendix A4.

The structure did not allow many activities that were required in the robust environment. There was no interaction between each department in the same level. It also did not allow the communication between department of each level. The only communication link in this structure was the communication between the lower and upper management. The whole structure would cause problems and time when a problem is detected in the process. This structure also caused each department to close the door at each other. Each department did not have an access to understand the process of the other department. Once they discovered a problem made in the specific department, they could only throw back the problem to the previous department

The other problem in this organization was the lack of relationship between customers and the company. The only department that had an access to the customer was the marketing department. The rest of the departments only understood what the customers wanted limited to the information given by the marketing department. There was no communication between customer and other department. The whole product development process was not a customer-oriented process.

Appendix A2 shows the decision flow chart of the process. The management of each department was the only levels that make go-no-go decision. The lower management was not delegated authorities for making decision. This process took many times and efforts that would only increase the process length and reduce the efficiency of the overall project.

Finally, the major problem was the process in the hand-off responsibility in the each department. They believed that after the each department finished with their duty, they just need to give it to the next department. When the next department did the next job, the responsibility was brought forward to that particular department.

## *Vision, Values, and Goals*

The management's ad hoc committee, including Mr. Lovechange (CEO) and VP of each departments, monitoring the company situation had urged the reengineering team (FTU team) to create a new "value-added" vision, and to take the role of "middle-man" between company (money) and customers (quality) in restructuring new values and goals. In lieu of creating a long-detailed vision without meanings, FTU thought that the only way to grasp the attention of employees to the company strategy was to daily feed them with the vision.

> ***"To become a top-notch company in electronics production business, Xtronics will achievement in 100% of our customer satisfaction, within 12-months process of designing, manufacturing, and delivery after receiving orders. One(1)-year target of reengineering efforts through teamwork and sound communication with our customers and associates alike. WE will never forget a continuous improvement after OUR success".***

The vision was meaningful only if it improved a business in ways that were consistent with its strategy and people. "Visionary tools" were raised by one of the team. In addition to an explicit-written statement of the business vision, "Vision T-shirt"(appendix C1) should be provided to all workers, "Vision Key Chains" should be pumped up for individual use, and a new big company cutout with our vision should be hanged at the top of the company building. This was not always the case with the company that made quality of product, but a way of communicating our vision to our employees.

After this vision had been propagated throughout the company, departments affected by the reengineering efforts were allow to set their own values and goals in order that they could create a set of values to support the company vision without the limitation of management insight. The old vision, values and goals were all discarded and they radically reestablished a new set of values. To eliminate further overlap works and redundant information, each department shared ideas and interchanged information. In so doing, the common ground rules and guidelines on how to work together in reengineering environment by the management ad hoc committee were provided and discussed throughout the company.

## *Structure Block of Success (Organization, Process, and Technology)*

First, FTU were looking for a team with cross-functional skills in single work units, which facilitated functional interfaces and parallel design activities. A broad set of skills and perspectives increased the likelihood that output would meet multifunctional requirements. Therefore, a new product development team was formed as called "New Product Team". Under the supervision of the steering committee as "a sponsor" and FTU team as "a cooperating team", the New Product Team included representatives from all functions involved in the current product development process. In other words, some of team members included those currently working in the existing project and some who didn't know much about the project, but had diverse skills of the telecommunication market. Even teams composed of a number of employees from the same function were likely to have a broader range of skills than any individual. FTU realized that the wealth of information created through overlapping roles and memberships on teams as a key source of innovation in product development.

Problems in designing new products had gradually cropped up at Xtronics. The existing process produced a redundant information. Since the number of tasks in the process required, the old process became complicated and more people needed for completing the process. Radical changes to the process was enviable, more cross functional communication was needed, quicker decisions were required(Appendix B2), faster feedback was needed and better project management was required. The new process in figure 1 showed all members of the team involved with every phase of the project development process and at the same time they are accountable for their functional action items. The team meets weekly to review project status and monthly with the steering committee to share progress and request additional resources.

***New Process Approach***

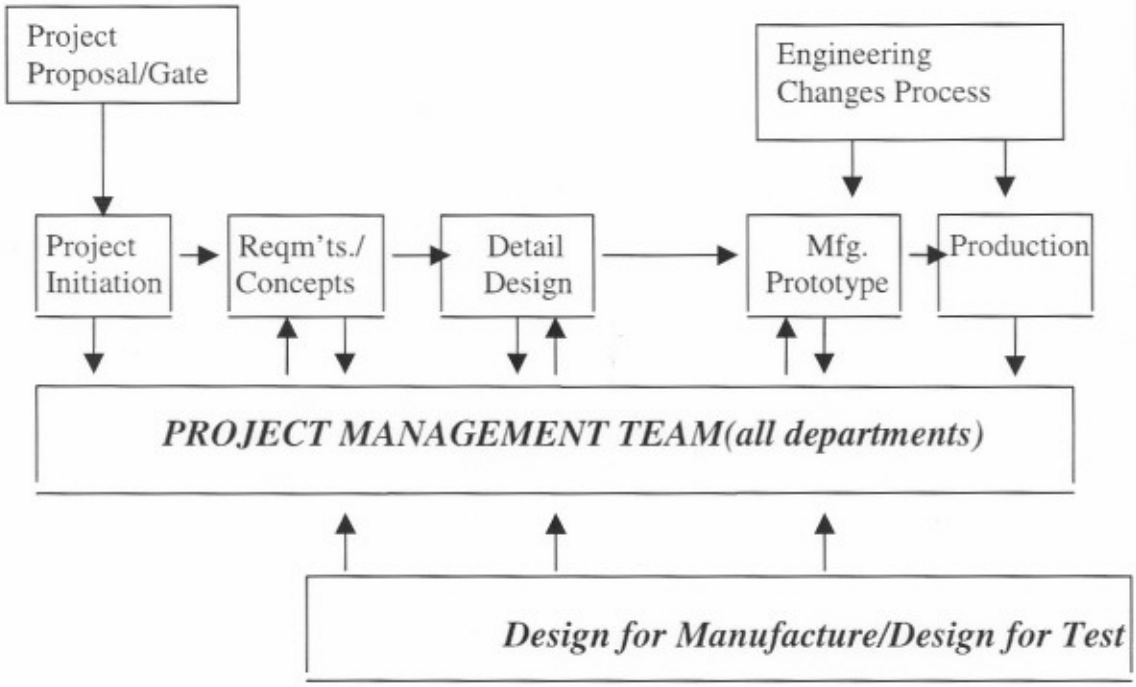



**Figure 1**

Once the process had been identified, the boundaries between those processes need to be managed. The regular meeting was one type of information sharing resource, but to the successful redesign and implementation of an already-designed process, these team-oriented activities were not enough. To be more effective in implementing process innovation, the right information had to be provided at the right time. The cross-functional team needed fresh information which were always sent back and forth all the time, therefore, the FTU team offered the new mastery of IT-based tools called a Master Resource Planning (MRP) and a Electronic Data Interchange (EDI) (Appendix C2). These tools were designed and used as time-sharing tools –a center of information in the company. Like the Internet, these tools allowed employees to access into the system to get data needed not only in office but also from remote units. Finally, Mr. Lovechange agreed on this idea and passed the go-ahead to the FTU team. After these systems were installed, employees could reduce the communicating time approximately 60 percents.

### *Culture Block of Success (Organizational Culture, Individual, and Power)*

Mr. Lovechange conceived that employees were a fundamental key of the Xtronics's success at the first glance, not products and processes. To make any parts of the business changed, Xtronics had to change the way of dealing with employees first. The traditional culture that Xtronics had long faith in must to be changed in the direction of greater empowerment and participation in decision making and more open, less hierarchical communications.

To do so, many suggestions of clacking down the hierarchical gap and building the consensus of organizational commitment were brought into the main topic at the next meeting between the management ad hoc committee and FTU team. As result in a meeting minute, three actions would be effectively used in Xtronics for the following month. First, a monthly meeting between management, the FTU team, and the New Product team were held at a restaurant near the company as announced. Second, at least fifteen training courses would be quarterly provided from the HR department to every section. To this, every employee would be assigned to attend at most three courses, and one of which based on individual preferences. Third, upper management agreed to eliminate all private executive areas such as elevators, toilets and dining rooms.

In building the climate at work and eliminating the power distance, these offside meetings made all team members feel comfortable to have "face-to-face" talk with their sponsors, to solidify consensus, and to refine vision with one another. In flourishing employees' initiative, these training provided new insight of new breakthrough technology information, supplied employees with information that enabled them to make their own process decision, and dictated them how to perform each process step. Finally, to work as a team Xtronics did not want to build up the barrier between different job levels.

### *System Block of Success (Management, Measurement and Rewards)*

Management committee realized that the radical change could make a "fear" among employees. To change the process and structure of the company and employees, Xtronics also need to change the way to manage people. To change any tiny process could drastically affect the company as a whole. The organizational and process change was the most difficult aspect of process redesign, an effort had to be made to communicate throughout the company about the change and to build commitment to the new organizational structure and processes. In the beginning of the reengineering effort, trust and honesty were some of Xtronics's goals which management and reengineering teams committed to standing on.

Based on the company vision, goals and commitment, new process design came from the top down, but implementation of these changes were handled by every team members. Biweekly meeting between the FTU team and the New Product team was scheduled for reporting the progress and discussing problems. Unlike any meetings with management, the monthly meeting with management committee was regularly held at a restaurant near the company. While the new process was designing, extensive trainings were provided to all employees on topics including teamwork, group dynamics, and technical practices.

After the vision was established, the goals in each step of the process were then set. The performance measures were born accordingly. Xtronics switched from the traditional measure to the customer-oriented measure; "Switching from Producer time to Customer time" was a measuring goal for all departments. The New Product team measured each step of the process based on their ability to meet required orders and delivery date requested by customers very early in the order/delivery cycle. To make performance measurement in a visible picture, a Dashboard was installed. A one-page "Dashboard" (Appendix B3) graphical measurement tool is much more meaningful than several pages of reports and spreadsheets. To this equipment, team members could monitor their team progress by using a specific measuring tool, representing a car's dashboard, in lieu of more simple measures such as spreadsheets. The dashboard format provided information regarding current performance level and probable, and possible, future assignment in the organization.

Not only did Xtronics give an important in measuring the process, but it also focused on measuring the employees' performance. One of the management ad hoc committee executed that giving a bonus to individuals did not effectively make the loyalty and commitment among team members. Standard monetary bonuses could be effective only if their job performances were the same. As an agreement, in addition to the individual bonus, a team bonus and incentive trips would be used in Xtronics for celebrating their employees' success.

## *Conclusion*

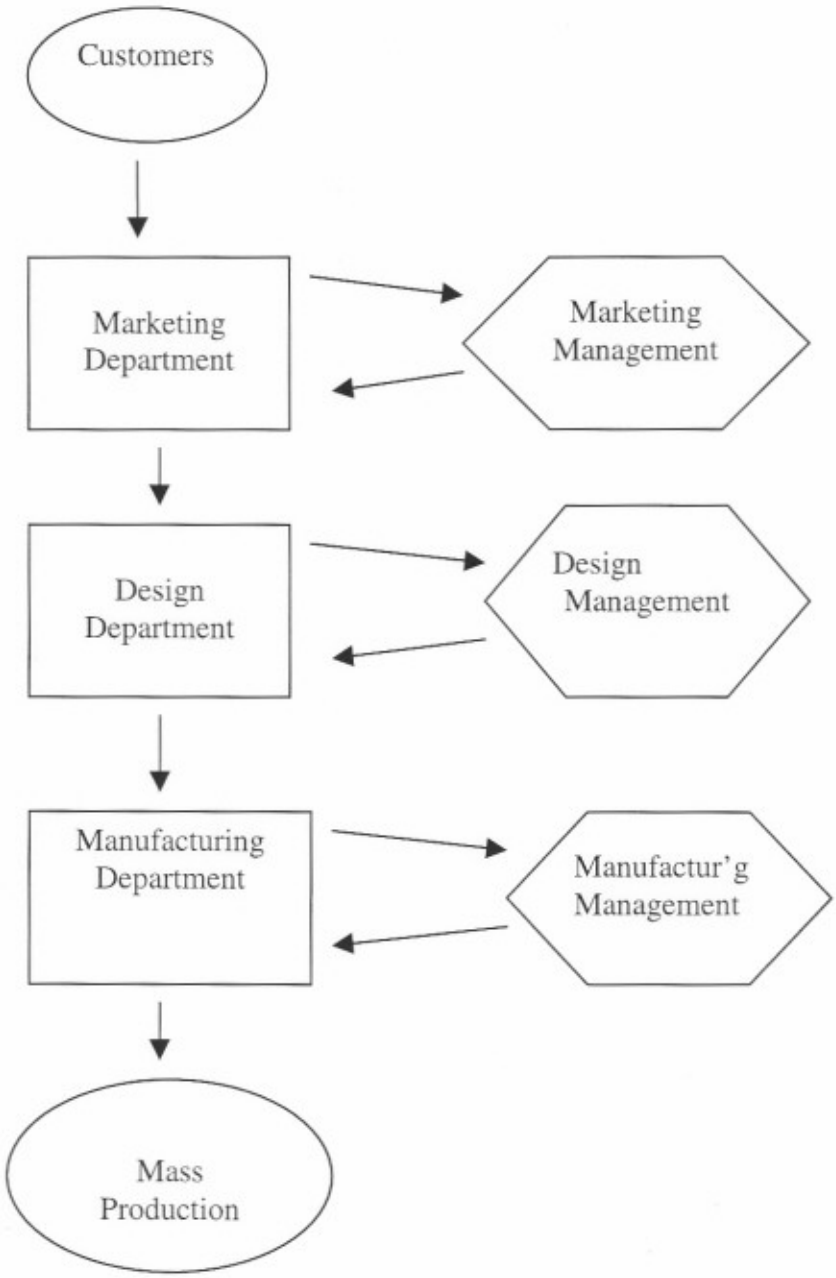
In Conclusion the word reengineering is always never mentioned in the process of implementing the new process. The success was credited to the following key elements:- 1) senior management commitment to implementing the process, 2) the steering management team commitment on support to the project teams 3) the involvement of the employees, 4) the teamwork values, 5) the Improvement of cross functional communication, and 5) the drive to stay in the communication business as the leader. This was the objective shared not only by senior management but all employees alike.

## *Bibliographies*


1. Christopher Meyer, **"How the Right Measures Help Teams Excel",** Harvard Business Review, May-June 1994.
2. Davenport Thomas, "**Process Innovation: Reengineering Work through Information Technology**", Ernst & Young, Harvard Business School Press, 1993.
3. Giuseppe Calabrese, "**Communication and Co-operation in Product Development**", R&D Management, July 1997, Vol 27, No 3, pp.239-253.
4. Hammer Michael, Champy James, "**Reengineering the Corporation: A Manifesto for Business Revolution"**, Harper Business, 1993.
5. Hammer Michael, Stanton Steven, "**The Reengineering Revolution**", Harper Business, 1995.
6. Harris Douglas, **"Organizational Linkages: Understanding the Productivity Paradox**", National Academy Press, 1994.
7. Kimberly Darling, **"How to effectively reward employees"**, Industrial Management, July-August 1997, Vol 39, No 4, pp.1-3.
8. V.L. Khazanet, "**Improving the Product Development Process**", Industrial Management, March/April 1997.
9. Zigon Jack, "**Team Performance Measurement: a Process for Creating Team Performance Standards"**, Compensation and Benefits Review, Jan-Feb 1997, Vol 29, No 1, pp.38-48.

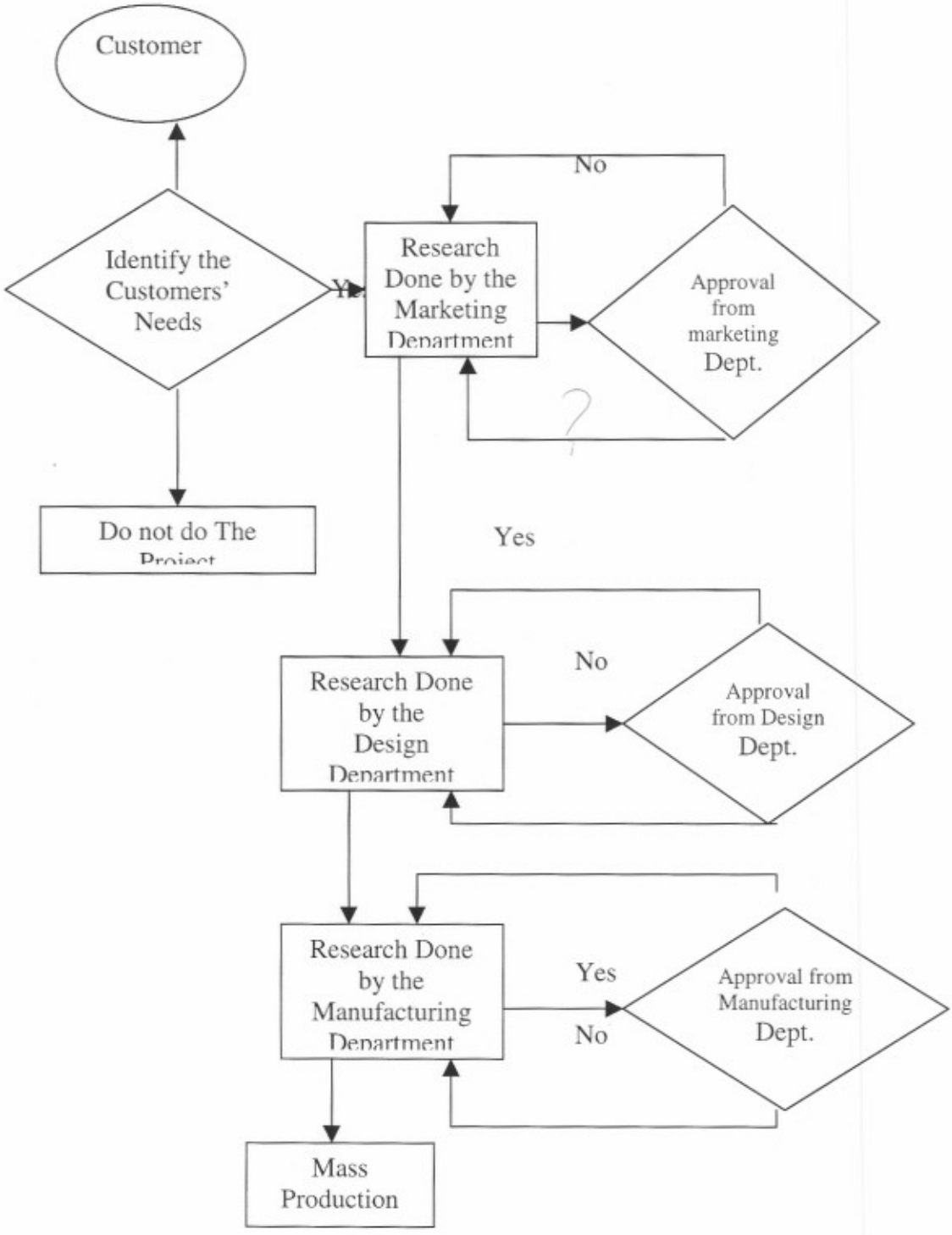
## *Appendix A1*

### *Product Development Process*



## *Appendix A2*

## *Decision Flow Chart*

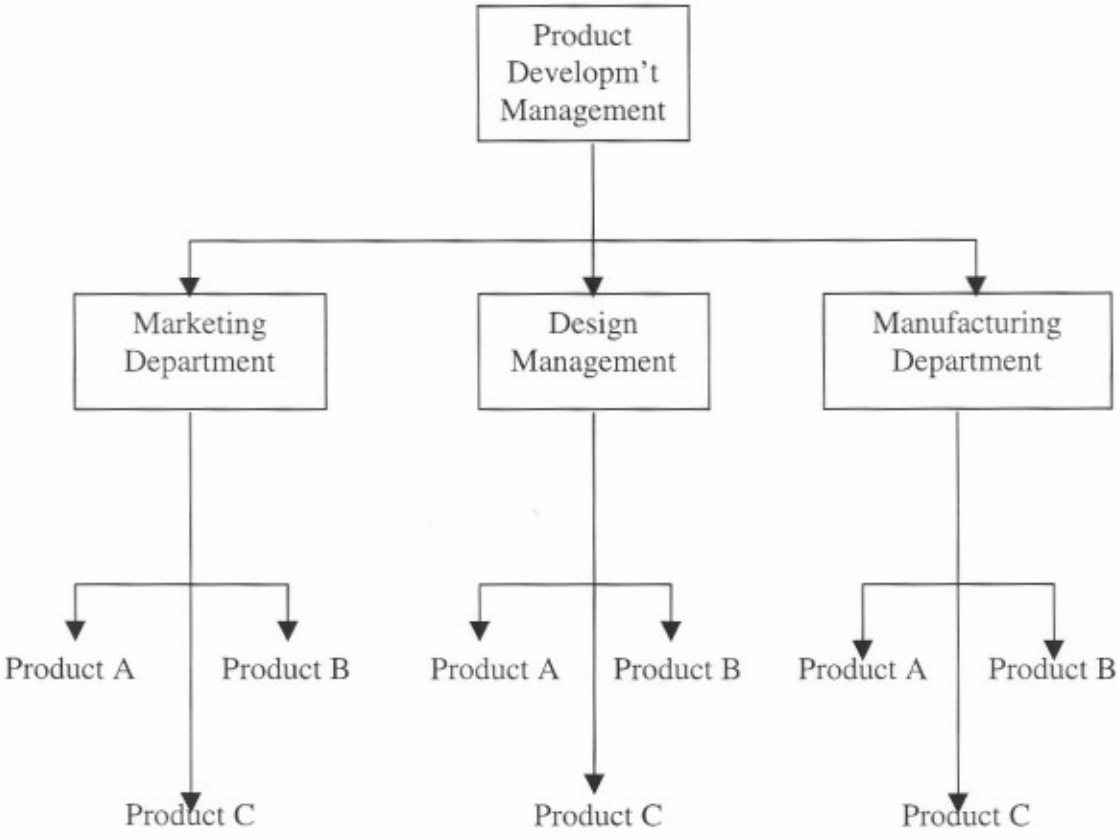


## *Appendix A3.*

## *Work Flow Diagram*

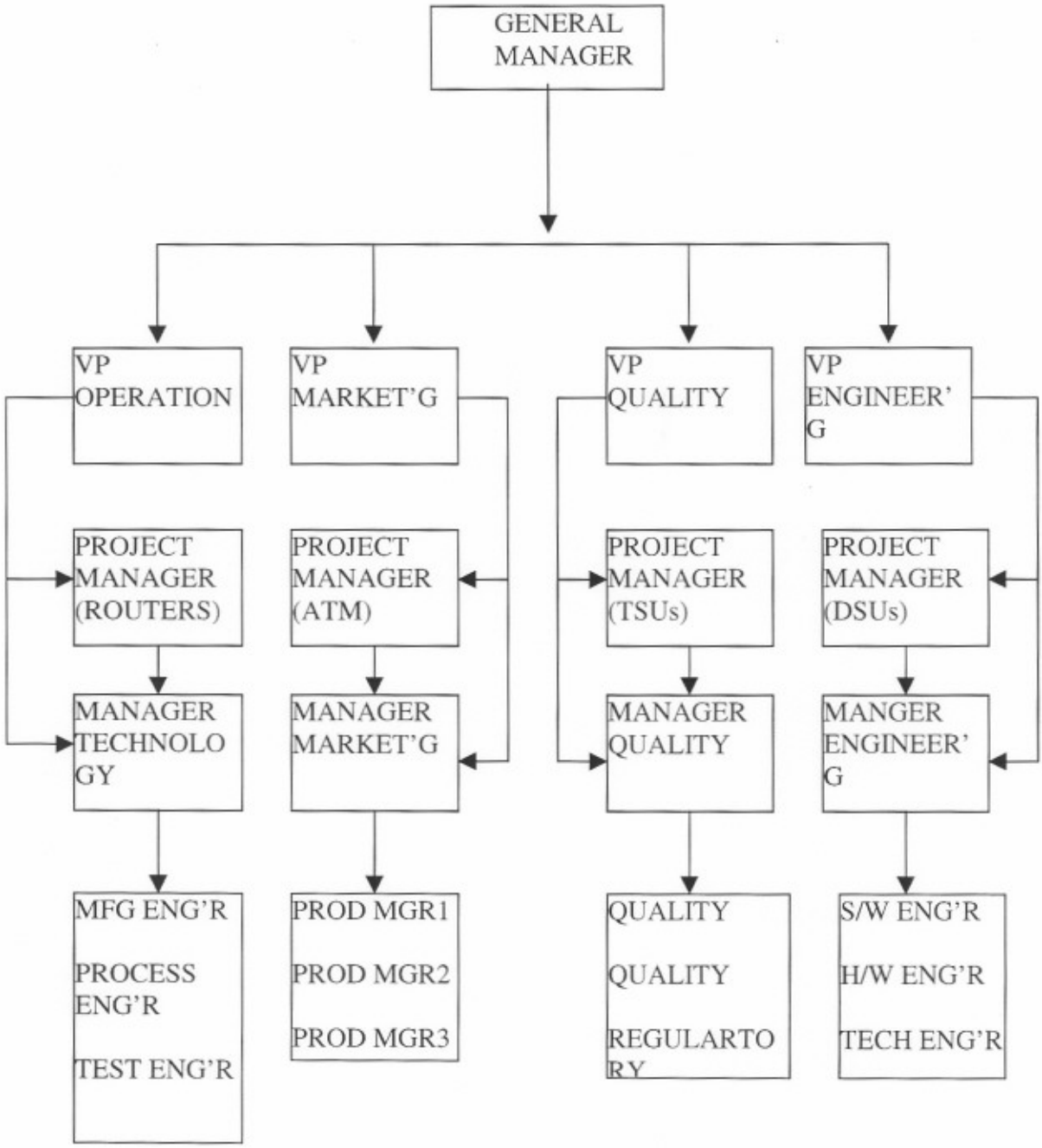
## *Appendix A4.*

### *Product Development Structure*



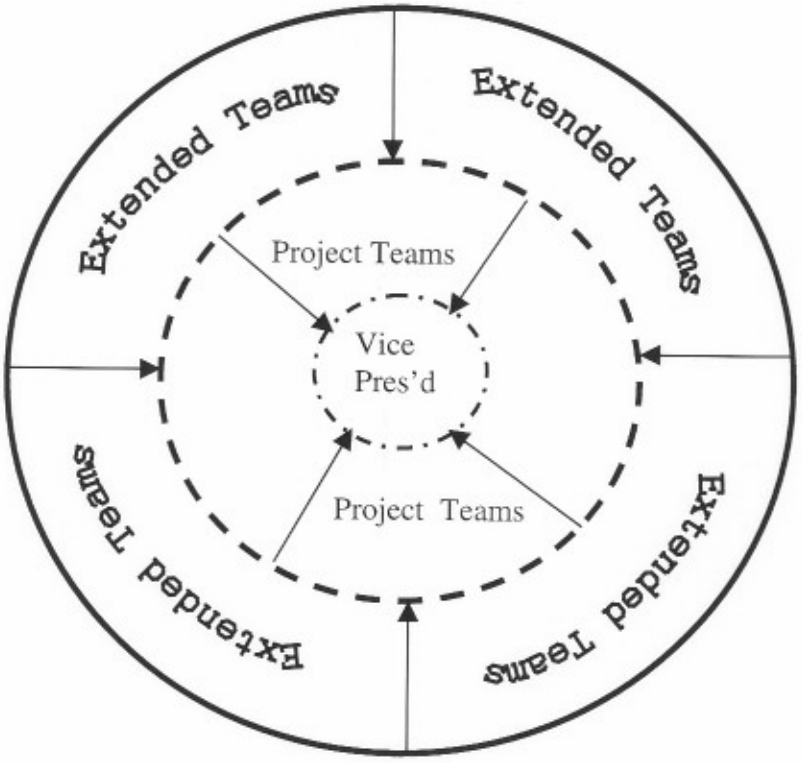
*Appendix B1*

## *NEW ORGANIZATION CHART*



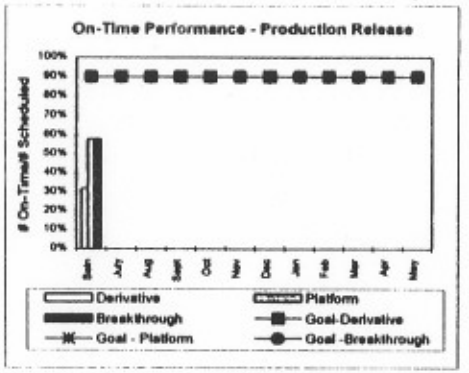
*Appendix B2*

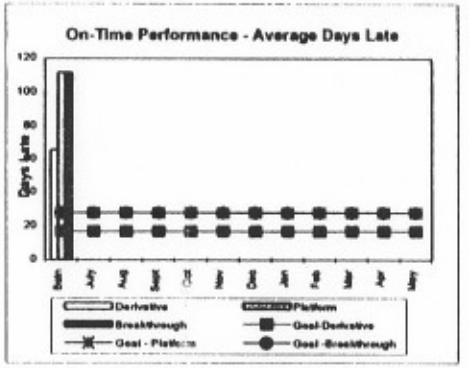
*New Decision Flow Cart*

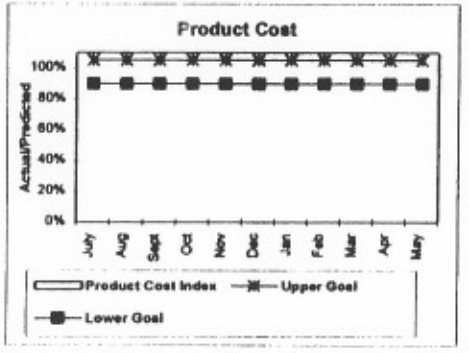


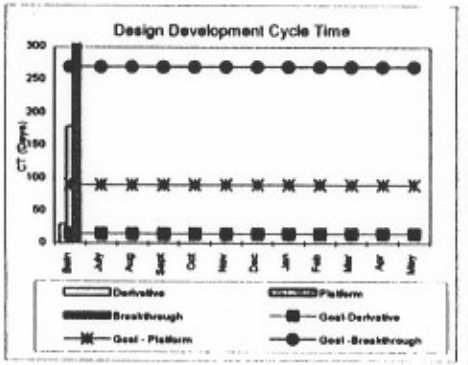
*Appendix B3*

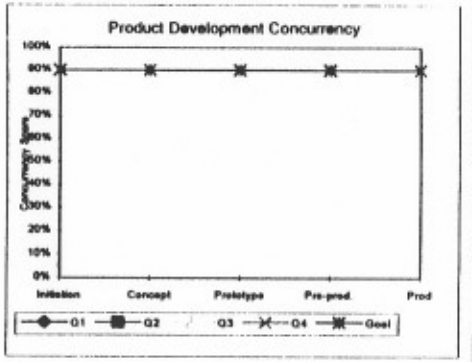
# Product Development Dashboards

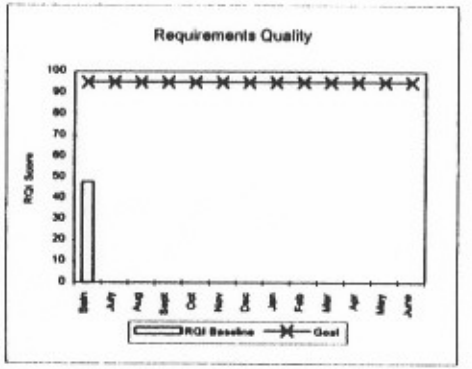


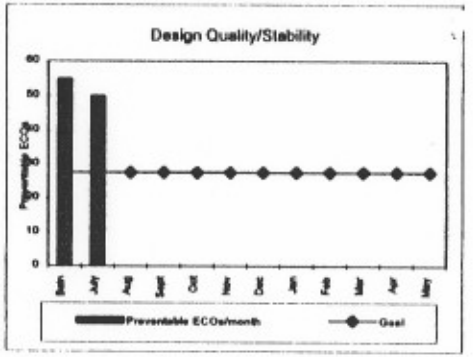



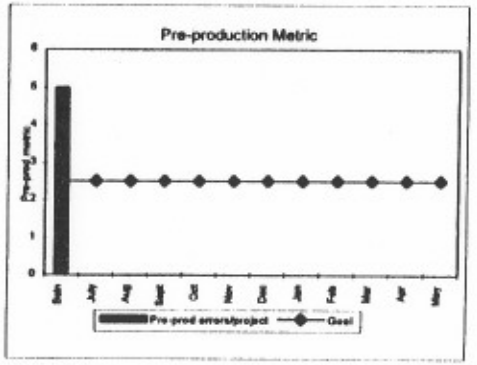



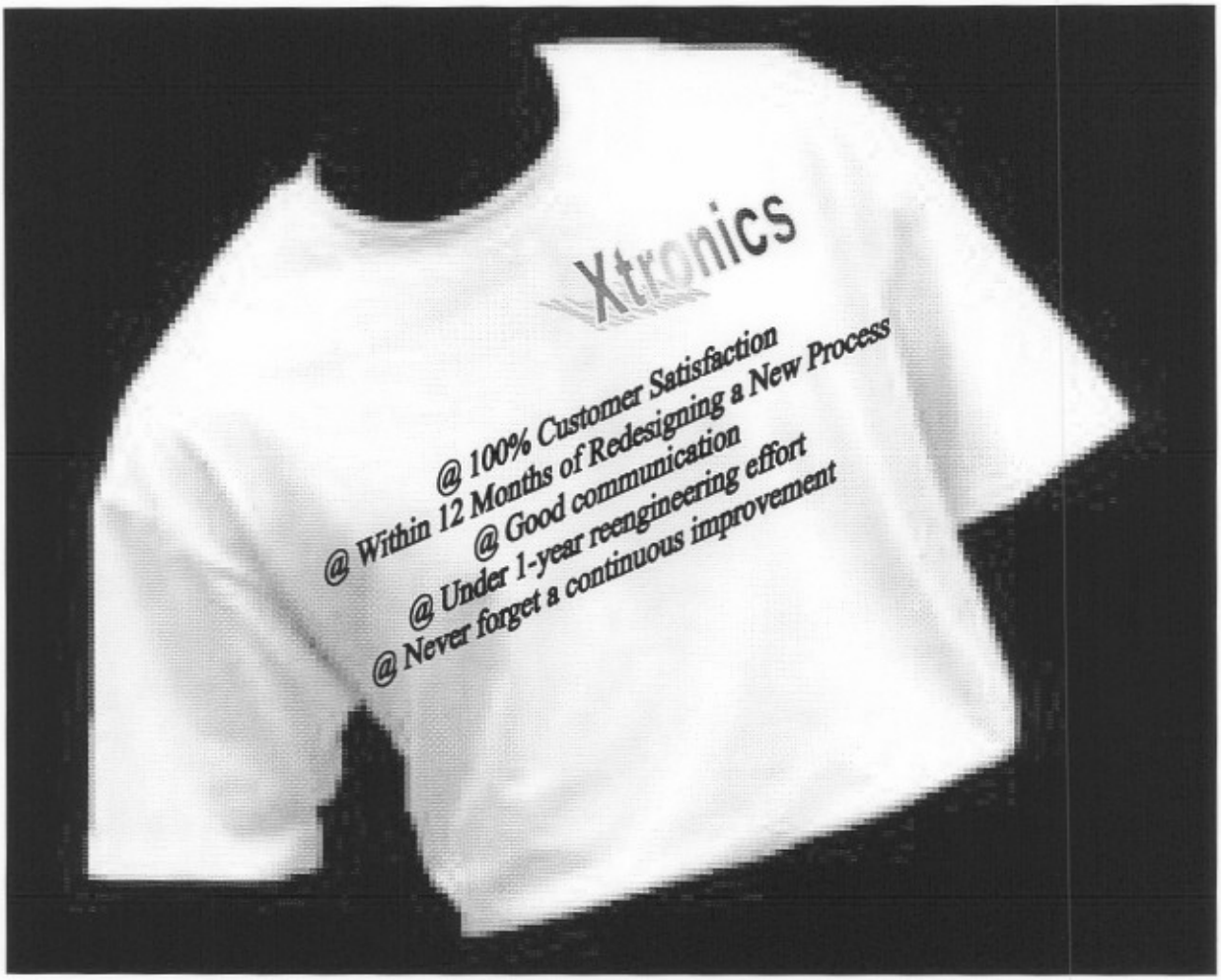



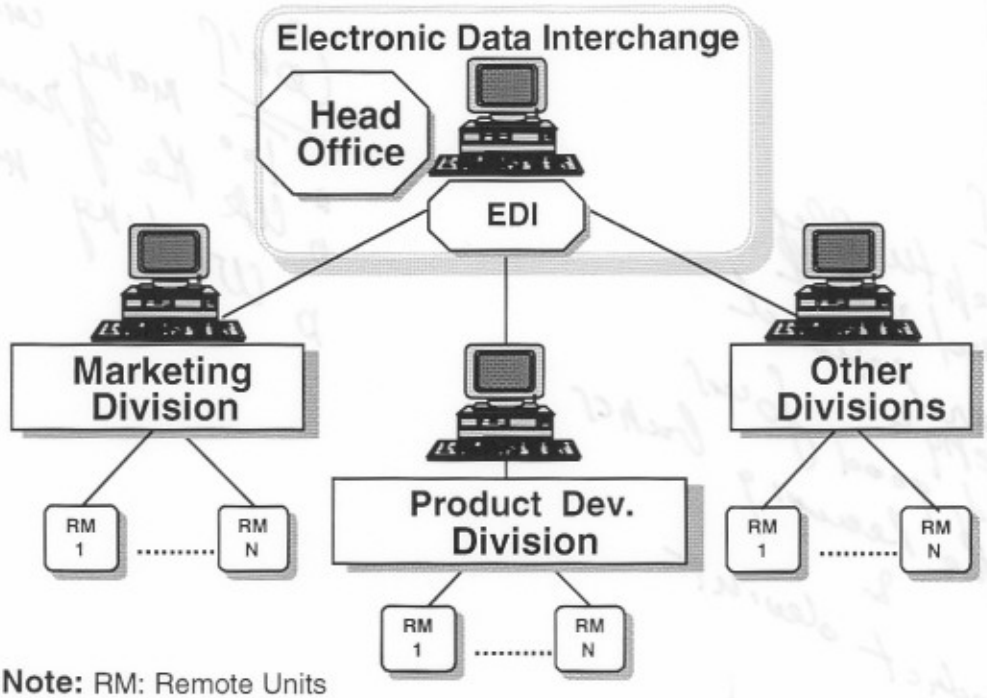



*Appendix C1*


Xtronics
@ 100% Customer Satisfaction
@ Within 12 Months of Redesigning a New Process
@ Good communication
@ Under 1-year reengineering effort
@ Never forget a continuous improvement

*Appendix C2*




**Note:** RM: Remote Units