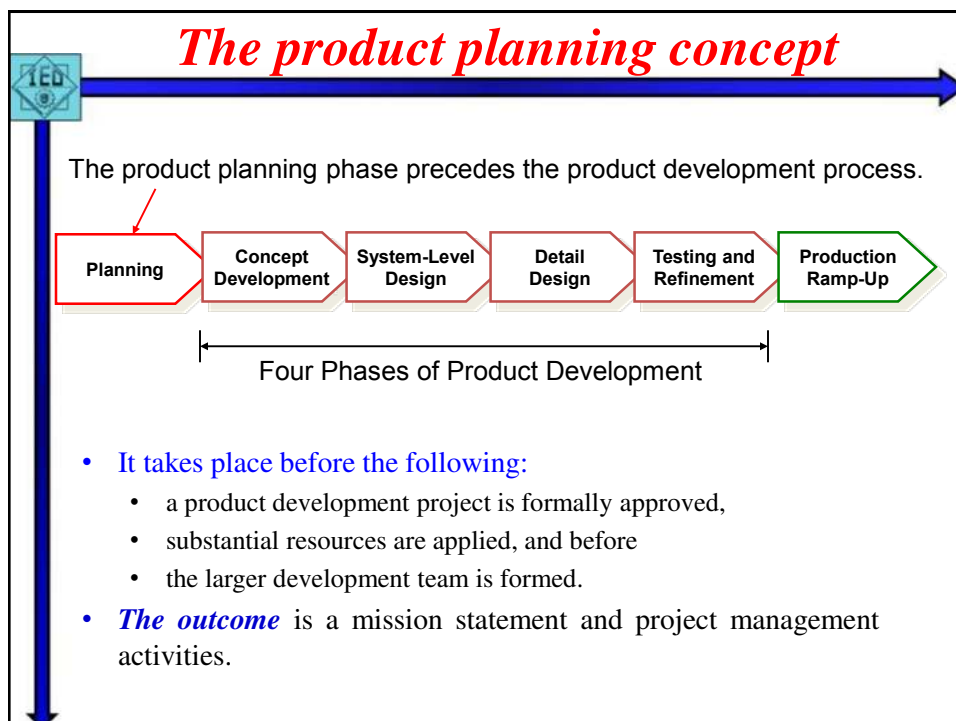


Chapter-4 Product Planning

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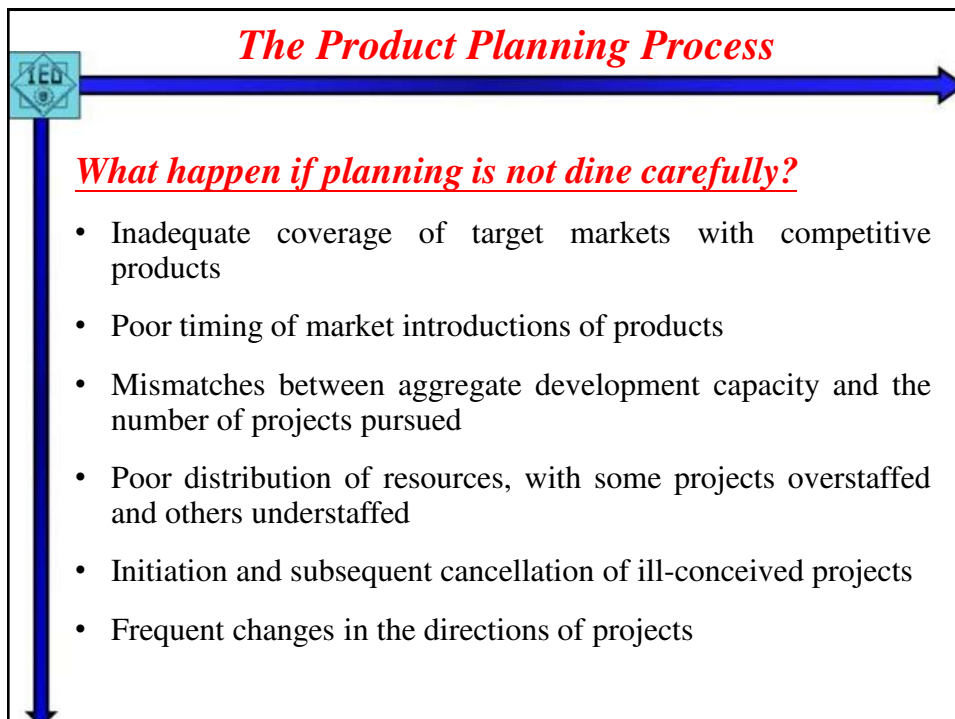
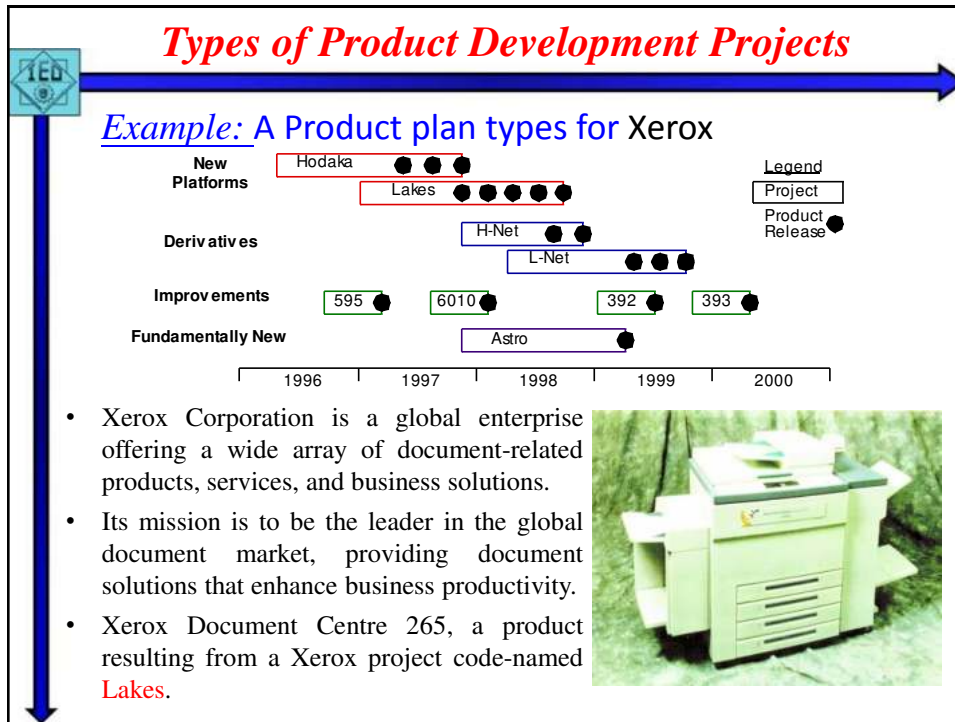
The product planning Activity

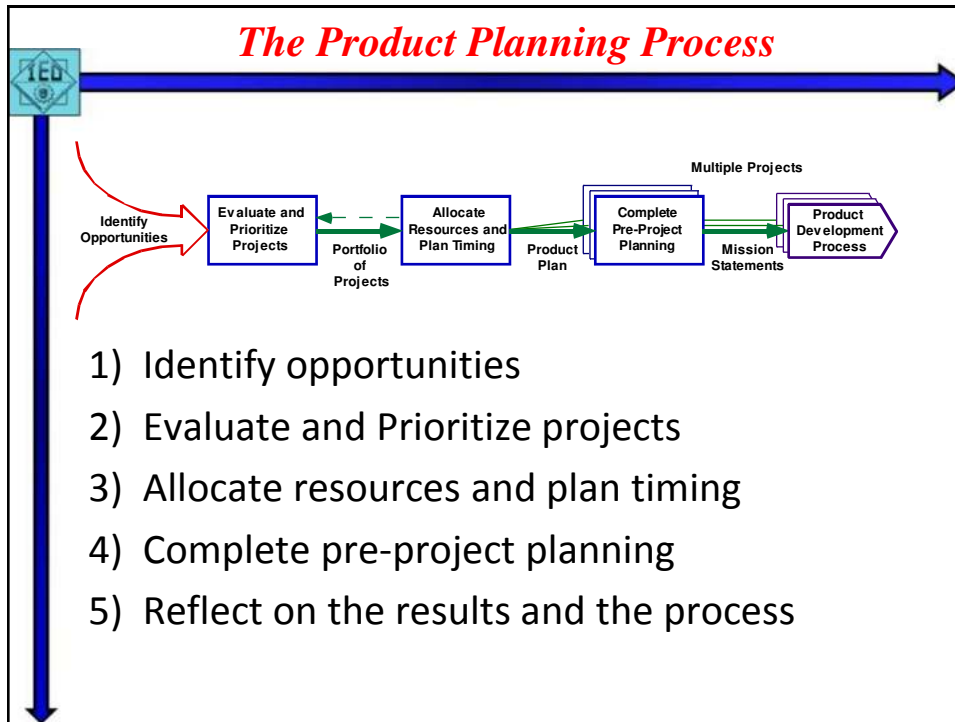
- ❖ Product planning determines portfolio of projects by answering the following:
 - What product development *projects* will be undertaken?
 - What *mix* of fundamentally new products, platforms, and derivative products should be pursued?
 - How do the various projects relate to each other as a *portfolio*?
 - What will be the *timing* and *sequence* of the projects?
- ❖ For each selected project a mission statement is given answering the following:
 - What market segments should be considered in designing the product and developing its features?
 - What new technologies (if any) should be incorporated into the new product?
 - What are the manufacturing and service goals and constraints?
 - What are the financial targets for the project?
 - What are the budget and time frame for the project?

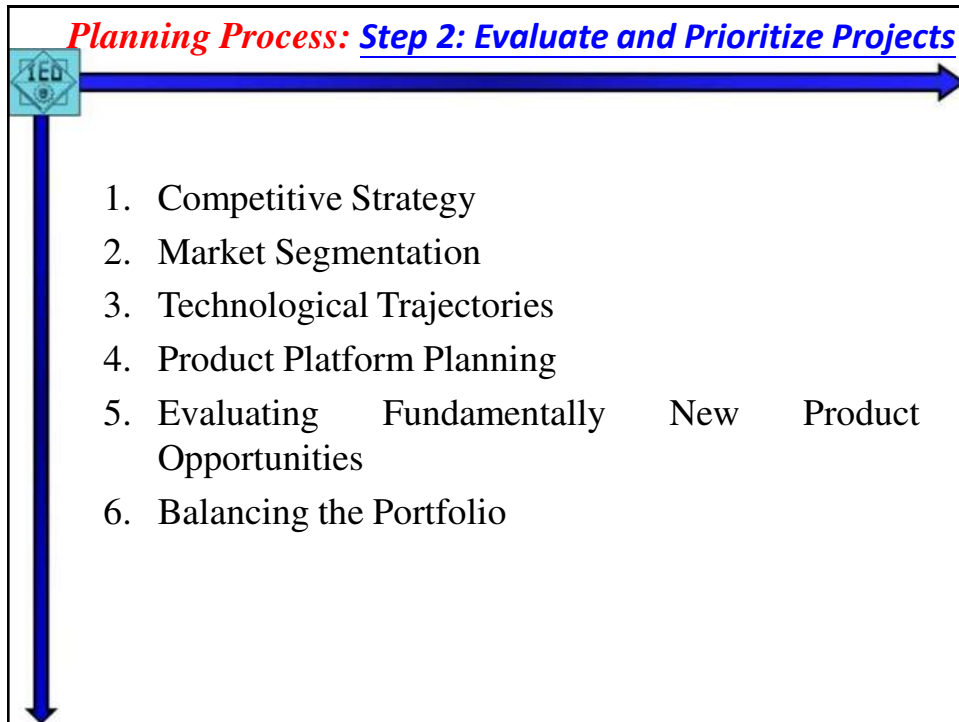
Types of Product Development Projects

There are Four Types of Product Development Projects

- New product platforms: it is aimed at the development of a new, product platform.
- Derivatives of existing product platforms: To develop a new product based on an existing product platform would be an example.
- Incremental improvements to existing products: A slight change to remedy minor flaws in an existing product.
- Fundamentally new products: The first time product is developed.







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Planning Process: Step 2: Evaluate and Prioritize Projects

2- Market Segmentation

- Dividing a market into segments allows the firm to consider the actions of competitors and the strength of the firm's existing products with respect to each well-defined group of customers.
- By mapping competitors' products and the firm's own products onto segments, the firm can assess which product opportunities best address weaknesses in its own product line and which exploit weaknesses in the offerings of competitors.

Example:

Product segment map showing Xerox B&W digital products and the competition in three market segments: personal, workgroup, and department machines. Key performance dimensions (pages per minute, networking capability) and price point are listed for each product in the map, along with the time of its market introduction.

The product segment map is divided into three horizontal sections representing market segments: Department, Workgroup, and Personal. The vertical axis is labeled 'Market Segment' and the horizontal axis is 'Year of Release' from 1997 to 2000. Products are represented by hexagons containing their specifications (ppm, price) and release year. A legend indicates: red hexagon for 'Xerox product', blue hexagon for 'competitor product', and green hexagon for 'potential competitor product'. In the Department segment, 'Lakes Project' (Xerox) and 'Lakes Extensions' (Xerox) are shown. In the Workgroup segment, 'Hodaka Project' (Xerox) is shown. In the Personal segment, 'Hodaka Project' (Xerox) is shown. The map shows Xerox products generally leading in performance and price over time.

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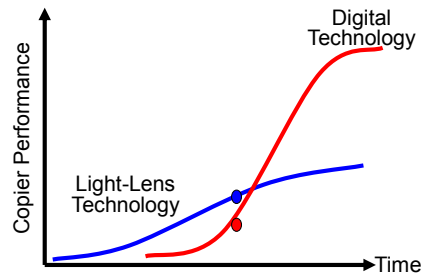
Planning Process: Step 2: Evaluate and Prioritize Projects

3- Technological Trajectories

- The product planning decision is when to develop digital products, as opposed to developing another product based on light-lens technology. *Technology S-curves* are a conceptual tool to help think about such decisions.
- The *technology S-curve* displays the performance of the products in a product category over time, usually with respect to a single performance variable such as resolution, speed, or reliability.

Example:

This technology S-curve illustrates that Xerox believed digital copier technologies were just emerging and improve product performance in the coming years. Xerox believed that it could develop a full-featured digital copier in the near future with performance exceeding that of light-lens copiers.



Planning Process: Step 2: Evaluate and Prioritize Projects

The technology S-curve Example: A simple example of these dynamics comes from the “typewriter” industry.

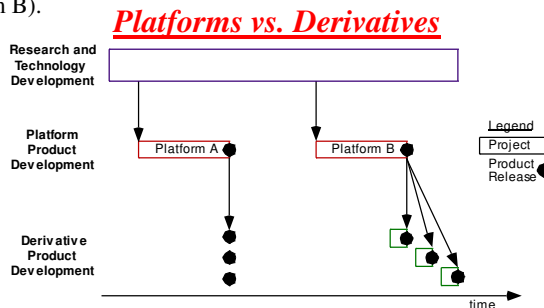
The advent of the manual typewriter was a true breakthrough. But then came the IBM Electric from “outside” the industry, displacing the manual technology and creating a new “electric typewriter” industry. The word processor followed, driving IBM’s business into obsolescence. And then of course the computer, Microsoft’s Word and desktop printing represents the latest S-curve.



Planning Process: Step 2: Evaluate and Prioritize Projects

4- Product Platform Planning

- It is the critical, strategic decision of whether a project will develop a derivative product from an existing platform or develop an entirely new platform.
- Decisions about product platforms are very closely related to the technology development efforts and technologies to employ in new products.
- The decision to develop derivative products may be included in the initial platform development effort (Platform A) or derivative products may follow thereafter (Platform B).



Planning Process: Step 2: Evaluate and Prioritize Projects

4- Product Platform Planning

*One technique to coordinate between a technology development and platform planning is **technology road map***

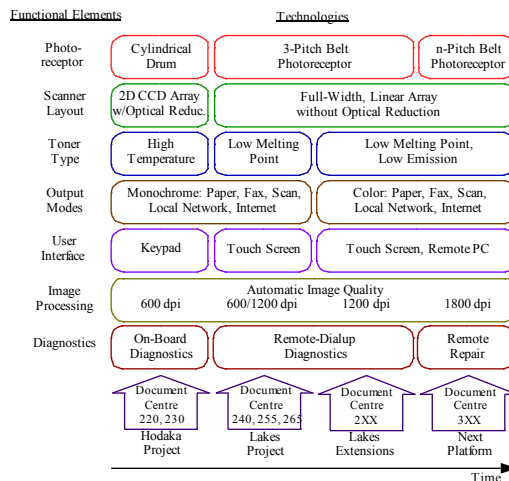
- It is a way to represent the expected availability and future use of various technologies relevant to the product being considered.
- It has been used by Motorola, Philips, Xerox, and other leaders in fast-moving, high-technology industries.
- It is particularly useful for planning products in which the critical functional elements are well known in advance.
- It can serve as a planning tool to create a joint strategy between technology development and product development.
- **technology road map is by** Multiple generations of technologies are labeled and arranged along a time line. The result is a diagram showing a product's key functional elements over a given period of time.

Planning Process: Step 2: Evaluate and Prioritize Projects

4- Product Platform Planning

Technology road map Example

This technology roadmap shows the life cycles of several digital photocopying technologies and identifies which technologies would be used in each product. For the lakes platform, Xerox selected technologies for critical functions which could be extended to the higher speeds and color capability required of its derivative products.



Planning Process: Step 2: Evaluate and Prioritize Projects

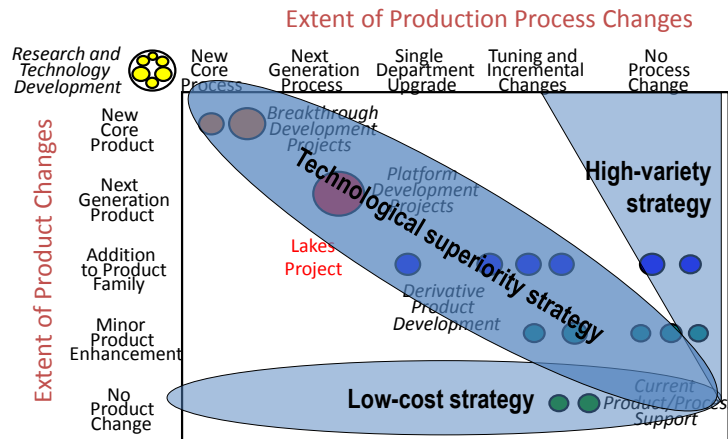
5- Evaluating Fundamentally New Product Opportunities

- Market size (units/year x average price).
- Market growth rate (percent per year).
- Competitive intensity (number of competitors and their strengths).
- Depth of the firm's existing knowledge of the market.
- Depth of the firm's existing knowledge of the technology.
- Fit with the firm's other products.
- Fit with the firm's capabilities.
- Potential for patents, trade secrets, or other barriers to competition.
- Existence of a product champion within the firm.
- Balancing the portfolio: a firm benefits from a diverse set of projects.
 - For example, a firm pursuing a low-cost strategy would expect the portfolio to contain more production process improvement projects.
 - Firms following a strategy requiring high product variety would need to develop many derivative products based upon existing platforms.
 - Firms implementing a strategy based on technological superiority may need to have a portfolio including more technology development and breakthrough projects in anticipation that not all of these risky projects will result in marketable new products.

Planning Process: Step 2: Evaluate and Prioritize Projects

6- Balancing the Portfolio

Product-process change matrix. The size of the circles indicates the relative cost of the development projects.



Planning Process: Step 3: Allocate Resources and Plan Timing

1. Resource Allocation

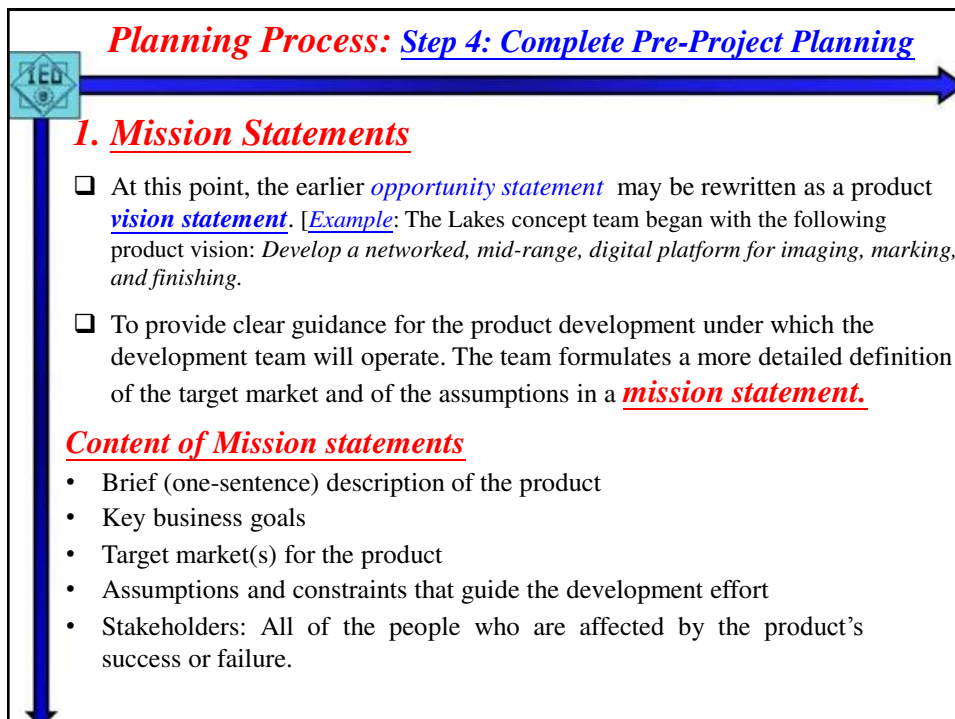
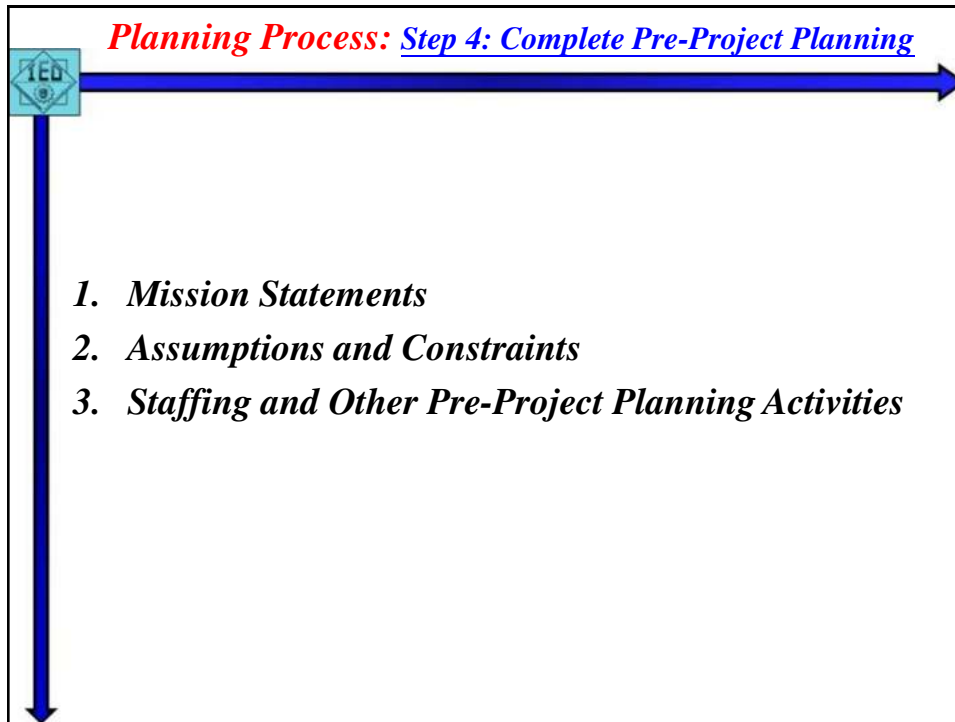
- ❑ An organization make efficient use of its resources by pursuing only those projects can reasonably be completed within the budgeted resources and enable responsiveness, planned capacity utilization [use Aggregate planning].

2. Project Timing

- Timing of product introductions: Launching a product before it is of adequate quality can damage the reputation of the firm.
- Technology readiness
- Market readiness: Too quickly frustrate the customers; too slowly risk lagging behind
- Competition: The anticipated release of competing products may accelerate the timing of development projects.

3. The Product Plan

- ❖ Product plans (as shown earlier) are updated on a periodic basis, perhaps quarterly or annually, as part of the firm's strategic planning activity.



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Planning Process: Step 4: Complete Pre-Project Planning

Example: Lakes Project Mission Statement

- Mission statement for the Lakes project this document summarizes the direction to be followed by the product development team.
- Many more details are appended to this mission statement, including the environmental goals, service objectives, and specific technologies identified for use in the Lakes platform.

Product Description	<ul style="list-style-type: none">◦ Networkable, digital machine with copy, print,
Key Business Goals	<ul style="list-style-type: none">• Support Xerox strategy of leadership in digital office equipment• Serve as platform for all future B&W digital products and solutions• Capture 50% of digital product sales in primary market• Environmentally friendly• First product introduction 4thQ 1997
Primary Market	Office departments, mid-volume (40-65 ppm, above 42,000 avg. copies/mo.)
Secondary Markets	<ul style="list-style-type: none">• Quick-print market• Small 'satellite' operations
Assumptions and Constraints	<ul style="list-style-type: none">• New product platform• Digital imaging technology• Compatible with Centre Ware software• Input devices manufactured in Canada• Output devices manufactured in Brazil• Image processing engine manufactured in both USA and Europe
Stakeholders	<ul style="list-style-type: none">• Purchasers and Users• Manufacturing Operations• Service Operations• Distributors and Resellers

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Planning Process: Step 4: Complete Pre-Project Planning

2- Assumptions and constraints

- Manufacturing
 - The design of the manufacturing system for Lakes is a project of similar magnitude to the design of the product itself.
 - (capabilities, capacities, and constraints) Which internal production facilities might be used to manufacture and assemble the product? What key suppliers should be involved in the development, and when? Are the existing production systems capable of producing the new technologies which have been identified for the product?
- Service
 - For Lakes, serviceability goals included reducing both the number of field-replaceable modules required to fully service the machine and the time to install them by an order of magnitude.
- Environment
 - Most customers will not directly express a need for low environmental impact. "Zero to landfill" policy adopted by Xerox.

