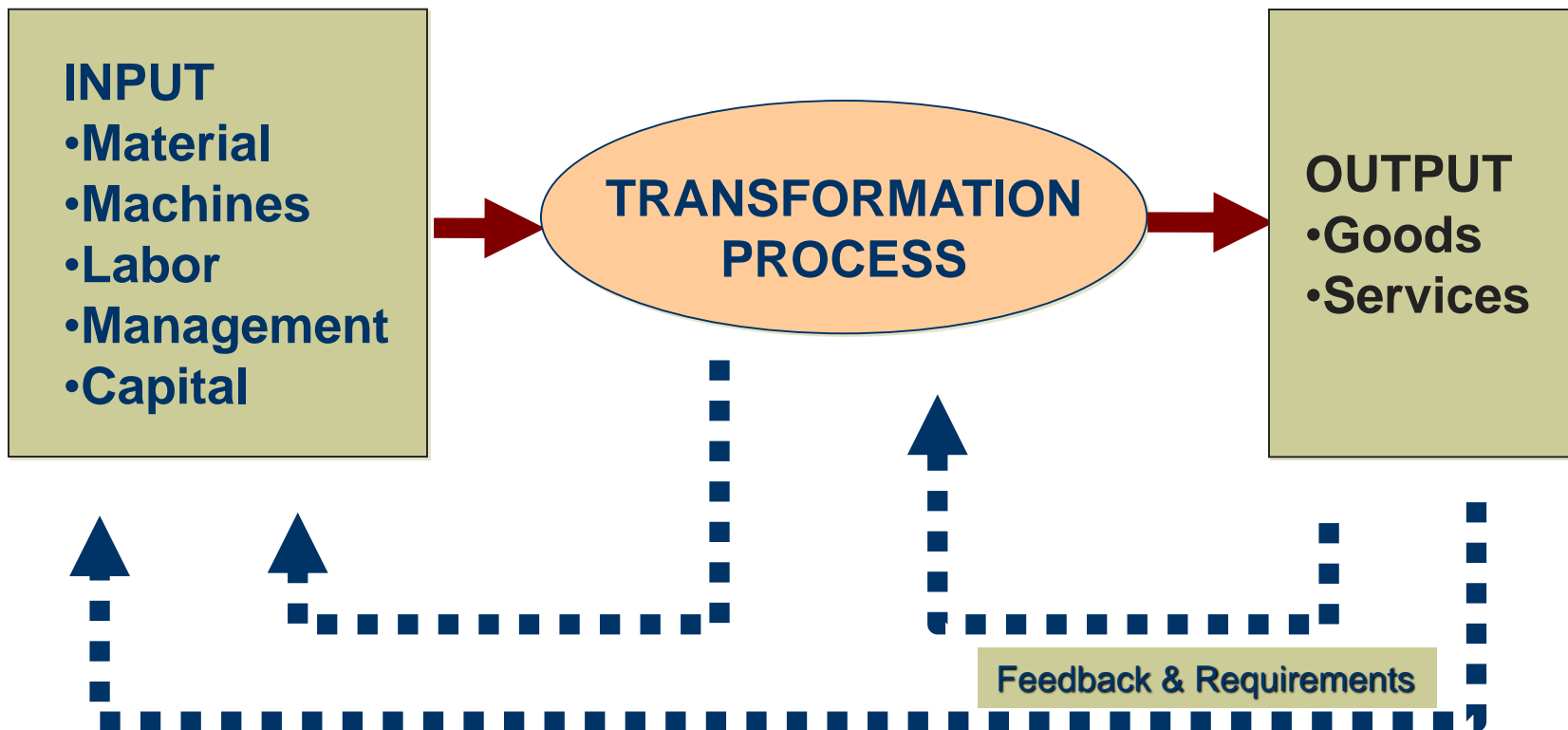
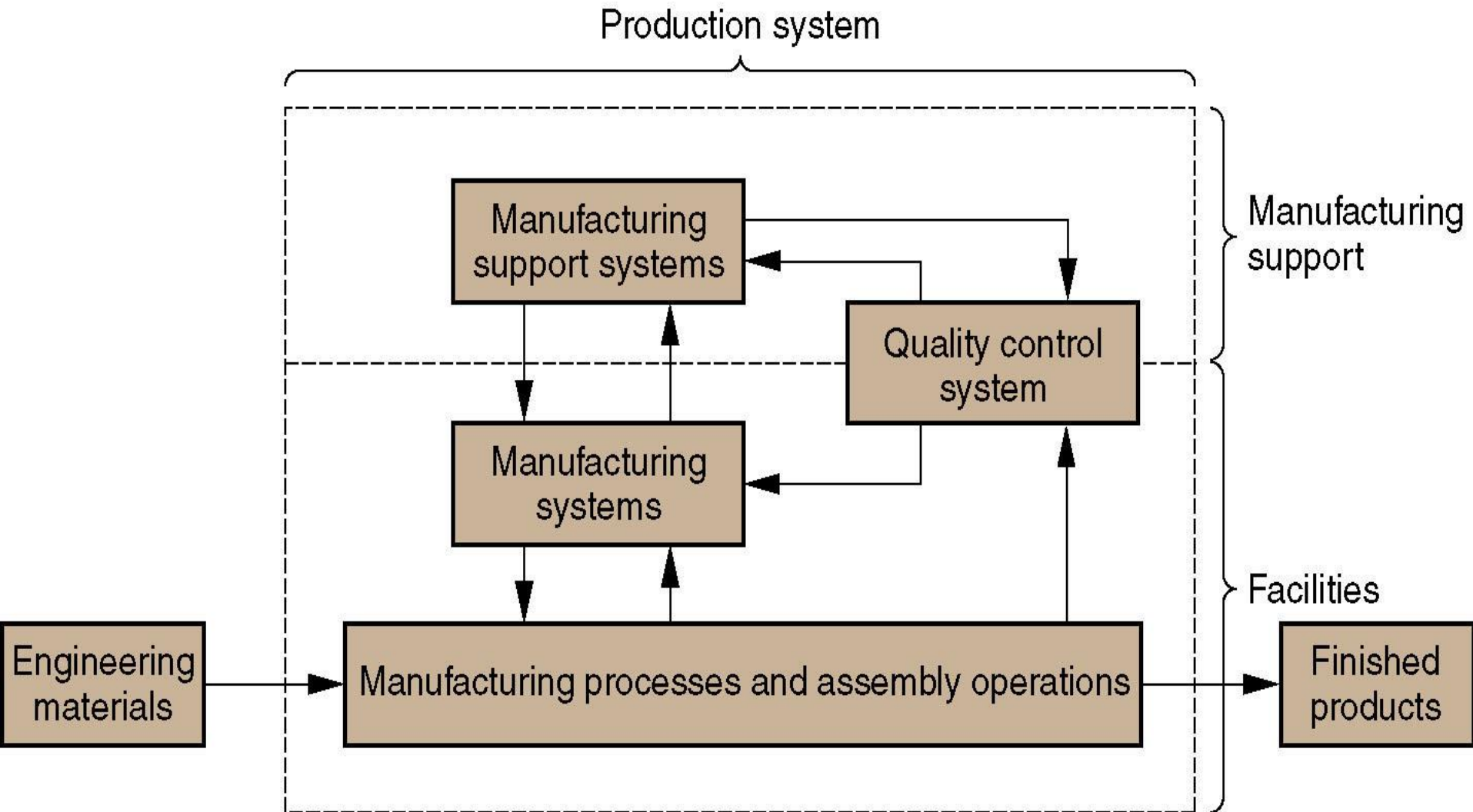


Technological /Manufacturing Systems
and
Contextual issues in Entrepreneurship

Manufacturing/Production Operation as a Transformation Process

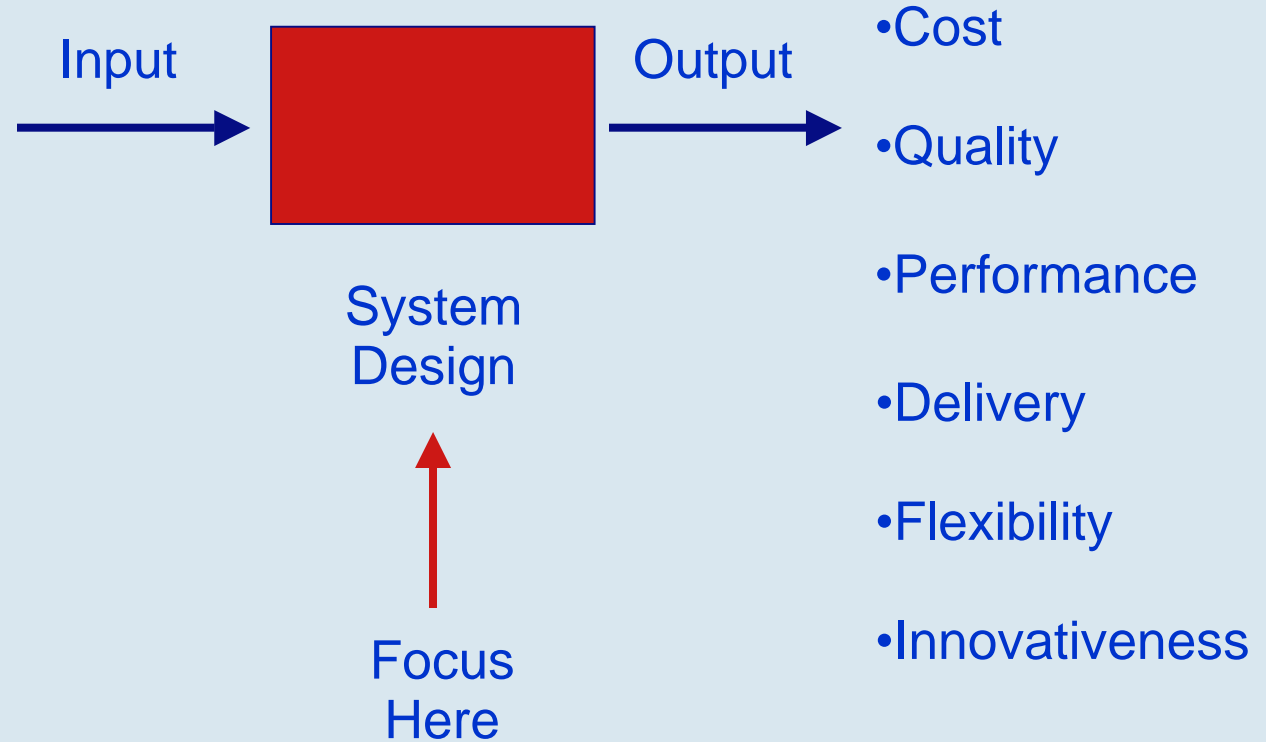


Overview of Major Topics



Overview of production system and major topics in *Fundamentals of Modern Manufacturing*.

Critical Performance Factors:



Things to Consider

- Production volume
- Product mix
- Product design
- Frequency of changes
- Complexity
- Process capability
- Type of organization
- Worker skill/knowledge

Strategy and Tactics

- Distinctive Competencies

The special attributes or abilities that give an organization a competitive edge.

- Price (Cost)
- Quality
- Time
- Flexibility

These are critical performance factors

Business Plan

What is a Business Plan ?

- A business plan is a written statement that describes and analyses the business concept and presents detailed projections about the future.
- It also covers the financial aspects of starting or expanding the business.
- Basic Requirement: How is one going to make money ?
- Best to leverage off the product proposal

What is the need of a Business Plan ?

- To **proceed** or **stop**: Identify warning signals and act
- To improve concept and define goals & targets
- To improve on the odds
- To stay on track, anticipate and solve problems, achieve goals
- To obtain funding from investors

- Getting Started

- Define Business

- Begin Brainstorming

Needs to deal with changes (Future): Taste, Trends and Technology

Questionnaire / Checklist for B-Plan

- What problem do we solve for the target customer(s)
- Who are our target customers and how will we communicate with them (how will we advertise and promote the business?)
- What products/services will we provide?
- Where will our business be located?
- Where will we buy the products that we need?
- Who will work for the startup/business and how will they be paid? - who will handle critical tasks like selling and marketing, purchasing, accounting and finance, and shipping?
- What are our competitors' strengths?
- How are we different from the competitors? – as viewed by our customers

Questionnaire / Checklist for Manufacturers

- Does the manufacturing process create toxic or polluting materials - how to deal with that?
- Is there a labor pool available (skilled, unskilled)?
- Will we manufacture per order or have an inventory?
- Will we manufacture one product or a family for them?
- Is our competition from small or large firms?

Questionnaire / Checklist for Project Development

- Will there be a buyer and are we sure of the selling price of our project?
- Are we sure of the cost of the project?
- What happens if there is a cost or time overrun?

Factors - critical to New Ventures

- **The People:** the core team members and associates providing key services. *(some venture capitalists read the resume section first, since without the right people and the right team, none of the other parts of the business plan matters much)*
- **The Opportunity:** profile of industry; how will the venture grow; what can be the obstacles.
- **The Context:** the environment - regulatory, interest rates, demographic trends, inflation, etc., the factors that will change but beyond the control of the entrepreneur
- **Risk and Reward:** an assessment of what can go wrong (risk) and what can work (pay-off). How the team responds to problems and uncertainties?

Format Skeleton of a B-Plan

Executive Summary

And then.....

A. Project/Program Overview

B. Management & Strategy

C. Products

D. Market & Sales

E. Competition

F. Operations

G. Risks & Rewards

H. Financial Models

Appendix

- A.1. Primary Final Objective
- A.2. Supportive Financial Projections
- A.3. Historical Financial Data
- A.4. Organization
- A.5. Resources

Table of Contents

- Executive Summary
- **A. Program Overview:** Introduction - History - Products -
- Market - Marketing and sales – Competition - Location -
- Funding requirements - Financial goals - Return to investors
- **B. Management and Strategies:** Corporate mission -
- Business development strategy – Goals - Management team -
- Consultant
- **C. Products :** Concept - Product approach - Product design
Product, trademark, and regulatory status - Future products
- **D. Marketing and Sales:** Marketing plan overview -
- Sales plan overview - Market size - Marketing research
Marketing for the initial

Table of Contents (contd.)

- **E. Competition:** Perspective - Specific competitive products
Anticipated competition
- **F. Operation:** Perspective - Product R&D - Product design -
Manufacturing – Quality
- **G. Risks and Rewards:** Risks - Benefits - Stockholders
- **H. Financial Models**
- **Appendices**

Executive Summary (one page)

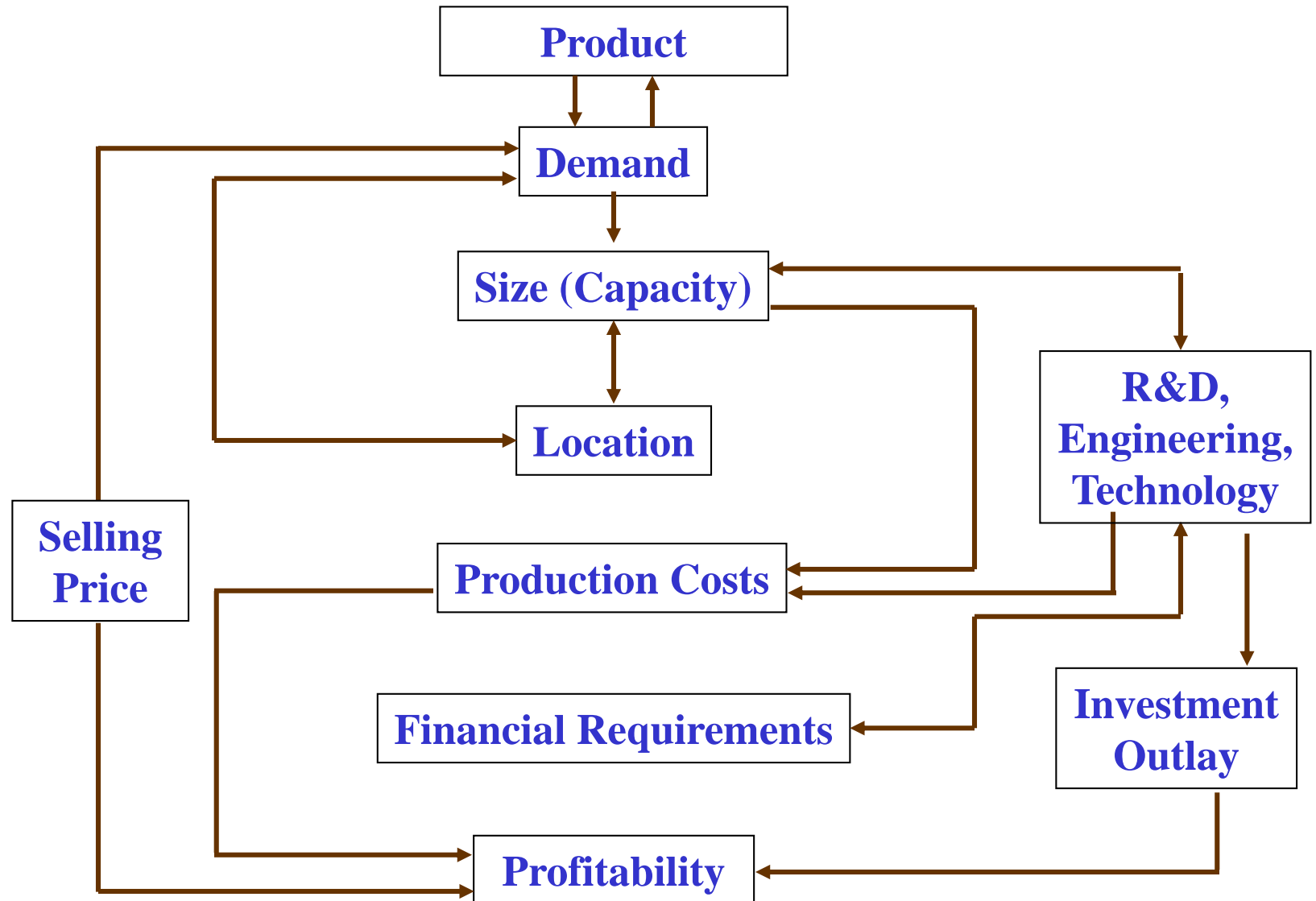
- **Overview:** Name the organization and general description of its nature, mission, long-term objectives, and products.
- **Competitive products:** Description of product types available from competitors and their shortcomings compared to your products, as lead-in to the next topic.
- **Our(New venture) products:** Illustrate the existing and future products and how they improve competitive shortcomings.
- **Added product features/ issues:** Description of additional benefits of our products and candid mention of any inadequacy and how they are being addressed.
- **Business development :** Briefly outline the status of both product and business development (BD individually of each of three divisions - administration, technology and marketing).

Executive Summary..... contd

- **Market(s) and shares:** Profile the market(s) (the nature and size) your products address, extracting summary data from the program overview and the marketing and sales section.
- **Project strengths:** List the major strengths of the project (e.g., management team, product features and acceptance, patent status, technical prowess, marketing prowess).
- **Funding requirements:** Describe the funding sought, how it is to be used, how it relates to total long-range funding plans, and what is offered in return. In a brief table below the ending text, summarize for each year of the 5-year model: (1) the required investment, (2) sales, (3) market share and (4) pretax profit.

Key Project Inter-linkage: Corporate Plan and Business Strategy

(Relate to Project Feasibility)



Format Skeleton of a B-Plan

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A. Program Overview

- **Introduction:** This section provides information regarding the industry, the specific industry, the company product, the base technology's state of the art and its strengths and weaknesses. It also presents the product review and how it exploits the technology. (2 - 4 paragraphs)
- **History:** Presents a list of people inducted and goals achieved to date, such as technical marketing development, management team structure, facilities created, patent status, and project recognition. (1 - 2 paragraphs)
- **Products:** Describes what the product accomplishes functionally (not what it is), outline the product's technical rationale, and list important product attributes. (1-3 paragraphs)
- **Market:** Depict the market size and the market share estimates, future expansion of markets with the same or other products, and why the market segment is considered appropriate for the product. (2 - 3 paragraphs)

A. Program Overview (contd.)

- **Marketing and sales:** States marketing objectives, strategies and their rationale, sales promotion activities and their assessment measures, product positioning details and associated rationale, and the expected sales growth profile and its rationale. (2 - 4 paragraphs)
- **Competition:** Presentation of a condensed version of the full section on competition. (1 - 2 paragraphs)
- **Location:** Past and current data as well as the future plans. (1 para)
- **Funding requirements:** Presenting a table that shows project-quarter wise funding need and corresponding major enterprise activities.(1 para)
- **Financial goals:** A tabular presentation of the following key financial goals for each year of the plan: sales revenue, expenses, pre and post tax profit, and earnings per share.
- **Return to investors:** Stating the distribution of stock among investors and management and brief discussion on the mechanism(s) identified as exit strategies feasible over a time period (e.g., buyback of company stock, private and/or public offering, merger, company sale etc.).

B. Management and Strategy Section

- **Corporate mission:** States, in one or two sentences, exactly as needed in line with strategic planning.
- **Business development strategy:** Describe company and product development with underlying rationale, industry reception or pre-introduction marketing research, future product development plans. (2 - 4 paragraphs)
- **Goals:** States the five-year sales goals with identified reasons why it should materialize (e.g. unique technology, extensive industry knowledge, current market position, new or extended marketing approaches planned, future products and markets). (1 paragraph)
- **Management team:** Lists the current team and background (1 paragraph). Brief summary of each team member's details including professional field, specialty, major strengths, education and role (1 paragraph per team member). Includes the time commitment and strength of all members, individually or collectively. (1 paragraph)
- **Consultants:** This reduces long-term commitments and therefore costs for irregular or low-level activities. (1 paragraph)

C. Products

- ***Concept:*** Describes the fundamental concepts that underlie new products/features that embody said concepts, and expected customer reactions. Indicates any significant future enhancements or additional concepts. (1 paragraph)
- ***Product approach:*** Reviews specific design approach in general terms. (1 paragraph)
- ***Product design:*** Describes the initial product design in some detail (without revealing proprietary elements) including: general nature of product design status, intended use, configuration of various models, highlighting major functional improvements accomplished (e.g., simple mechanisms, reliable components, extended guarantee) and means of production. (3 - 5 paragraphs)
- ***Patent, trademark, and regulatory status:*** Reviews patent/ trademark status of near-term products (1 - 3 paragraphs)
- ***Future products:*** Describes the philosophy, organization, budget, and leadership of R&D and presents the long-term project plans including how will enterprise grow. (1 - 2 paragraphs)

D. Marketing and Sales

- **Marketing plan overview:** Describes the program design; customer analysis; product imaging, positioning, promotion, pricing , and delivery; competitive analysis; forecasting; new product planning; sales management; and customer service (2-4 paragraphs). Address the strategic and tactical planning to develop, design, implement, and control all marketing and sales functions, and the responsibilities (1 paragraph). Next, addresses promotion and advertising by describing current or planned elements, the target marketplaces, and how your marketing properly conforms to said markets (1 paragraph).
- **Sales plan overview:** Reviews the general nature, structure, leadership, and makeup of the sales function, how data are collected to aid product design.(1 paragraph)
- **Market size:** Defines market size and relevant assumptions; company market share and sales of each plan year; discusses reasonableness of such company market share achievement; and lists few strong attributes of the product fostering market penetration (e.g., value, low cost, improved efficiency). (4 paragraphs)

D. Marketing and Sales contd...

- ***Marketing research:*** Reviews company and product advantages and presents the list, choosing items that highlights positives as gathered from marketing research (e.g., customer needs, desires, concerns, and shortcomings; appropriateness of industry sophistication, diversity, and maturity; environmental or regulatory issues), and finally closes with a brief description of how well the product meets the attributes. (2 para)
- ***Future markets and their approaches:*** Describes, briefly, the future product and/or marketing approach concepts. It is critical to show the essential commitment to ongoing product development and future growth. (1 paragraph)

E. Competition

- ***Perspective:*** Provides an overview of the market (size, growth, trends, nature of customer, product turnover rate etc.) and describes how the material to follow is organized, for example, by product within one market, by niche within one market, or by markets etc.
- ***Specific competitive products:*** Discusses each competitor by name, addressing size, company age, spectrum of products, competitive strengths and weaknesses (e.g., product development, innovation, design, quality, marketing), products specifically competitive to ours, and the good and bad of theirs versus ours. (1 paragraph per competitor)
- ***Anticipated competition:*** Describes enterprise's preparedness for competition in general, including future new market entrants. It is preferred to conduct continuous marketing research, in-house R&D, aggressive product development and market entry and any other relevant factors for sound as well as responsive business and product management.

F. Operations Section: Info on Internal Technical Operations

- **Perspective:** Introduces and defines each major company technical functions in order of product development ending with quality exclusive attention. (1 paragraph)
- **Product R&D:** Describes product development organization, its stewardship and reporting, facilities and equipment, sources of ideas, and other key data concisely reflecting how R&D works and blends with other company functions. (1 - 2 paragraphs)
- **Manufacturing:** Treats the same basic topics as R&D, plus how key elements (parts, materials, progressing product, finished product, nonconforming material) flow through the system, inventory management, packaging and shipping. (1 - 2 paragraphs)
- **Quality:** Discusses the same basic topics as R&D, emphasizing how quality is a distinct function and how quality control, assurance and management is performed indicating their organization, leadership, functions, facilities and equipment and other key issues.

G. Risks and Rewards

- **Risks:** Begins by asserting that it is essential to identify and assess both the risks and the rewards of the enterprise's venture, to aid informed planning. It includes a list of major project risks with following contents: Identifies one major project risk, followed by a brief explanation of how the project is addressing that risk (1 paragraph for each list item). Risk cases include management's ability to effect successful administration, marketing, sales, and products; the degree to which company products will be accepted by customers and bring them benefits; management's ability to provide adequate external funding and proper financial management; unexpected social, economic regulatory, or legal perturbations; the advent of competitive responses, products, and copying of company products or technology.

- **Benefits:** Briefly discuss or list potential benefits to founders (e.g., salary and benefits, entrepreneurial satisfaction, security, stockholder benefits), employees (e.g., salary and benefits, job satisfaction, advancement and professional development opportunities), and stockholders (e.g., potential equity growth, potential dividends, entrepreneurial satisfactions).

- **Stockholders:** To elaborate stockholder risks versus rewards, investment in startups or young firms usually accesses potentially growth in net worth.

H. Financial Model: financials, assumptions, Income and Balance Sheet

- Key assumptions used in developing the sales projections;
- Assumptions related to marketplace and competition;
- Pricing and discount policies and rationale;
- Rationale for salaries and compensation;
- Average time lag between a sale and actual receipt of payment;
- Average time lag between incurring of expenditure and payment of bills;
- Categories of bills or expenses that cannot be postponed;
- Functions that are contracted out rather than conducted in-house;
- Rationale for leasing or purchasing high-value items;
- Time-dependent relationships, such as bulk purchases;
- Relevant environmental, political, social, economic and regulatory issues.

The income, or profit-and-loss (P&L), statement summarizes income versus expenses.

The balance sheet shows the relative balance among assets, liabilities, and company equity and is organized to equate assets with the sum of liabilities and equity. Thus the balance sheet summarizes the company's general financial health.