ENGINEERING ENTREPRENEURSHIP AND IPR

Module 3

- **3.1 Business plan preparation**
- **3.2 Prototype development plan preparation**

Module 3 Syllabus

Business plan preparation

- Business plan framework
- Market analysis
- Product/ service description
- Marketing and sales strategy
- Operations plan
- Financial projections
- Risk management

Module 3 Syllabus Contd…

Prototype development plan preparation

- Prototype requirements analysis
- Technical specifications
- Development approach
- Development timeline
- Resource allocation
- Testing and quality assurance
- Iterative development and feedback loop
- Documentation and version control

Business Plan Preparation- Introduction

- A well-crafted business plan serves as a strategic roadmap, <u>detailing the goals, strategies, and financial projections</u> necessary for guiding a business towards its objectives.

Business Plan Framework

- A business plan framework is a structured outline that guides the creation of a comprehensive business plan. It provides a systematic approach to organizing and presenting the key components of a business plan, ensuring that all critical aspects of the business are thoroughly addressed.
- The framework typically includes the following sections:
- 1. **Executive Summary**: This is the first section of the business plan, providing a snapshot of the business, its mission, and its objectives.

- **2. Market Analysis**: This involves researching the industry, market trends, target audience, and competitors. Understanding the market landscape helps in identifying opportunities and threats, and in positioning the business effectively.
- **3. Organization and Management**: This section outlines the business's organizational structure, detailing the roles and responsibilities of the management team. It highlights the expertise and experience of the team members, which is crucial for gaining investor confidence.

- **4. Products or Services:** Here, the business describes its offerings in detail, explaining how they meet the needs of the target market. This section should also cover the unique selling propositions (USPs) and any intellectual property or proprietary technology.
- **5. Marketing and Sales Strategy:** This part of the plan details how the business intends to attract and retain customers. It includes marketing tactics, sales strategies, pricing models, and distribution channels.

- **6. Operation Plans:** the daily activities required to run the business efficiently. Include details on the production process, facilities and equipment, supply chain management, and quality control measures. Also, address human resources management and risk management strategies to ensure all operational aspects are well-coordinated and aligned with the business's strategic goals.
- **7. Financial Projections:** Financial forecasts are essential for demonstrating the business's potential for profitability. This section includes projected income statements, cash flow statements, and balance sheets, typically for the next three to five years.

Example: Cashflow of an Established, profitable business

Cash flow from Operating Activities		+Rs 2500 Cr
Cashflow from Financing Activities (shares, loan etc)		0
Cashflow from Investing Activities (purchase of machinery, sale of fixed assets, investment etc)	Purchase of Machinery Investment	-Rs 1000 Cr -Rs 1500 Cr
Total Cash flow		0

Example: Cash flow of a Struggling business

Cash flow from Operating Activities		-Rs 1000 Cr
Cashflow from Financing Activities (shares, loan etc)	Loan	+Rs 1200 Cr
Cashflow from Investing Activities (purchase of machinery, sale of fixed assets, investment etc)	Purchase of Machinery	-Rs 200 Cr
Total Cash flow		0

- **8. Risk Management:** Risk Management cover the identification and assessment of potential risks that could impact the business. Include strategies to mitigate these risks, such as safety protocols, insurance coverage, and contingency plans. Address operational, financial, market, and regulatory risks to ensure the business is prepared for uncertainties. This proactive approach helps protect the business's assets and maintain stability.
- **9. Funding Request:** If the business plan is being used to seek investment, this section outlines the amount of funding needed, how it will be used, and the proposed terms of the investment.

- **10. Appendix**: Additional information such as resumes, legal documents, and other relevant materials.

Executive Summary

- Brief overview of the business
- Mission statement
- Products/services offered
- Target market
- Goals and objectives

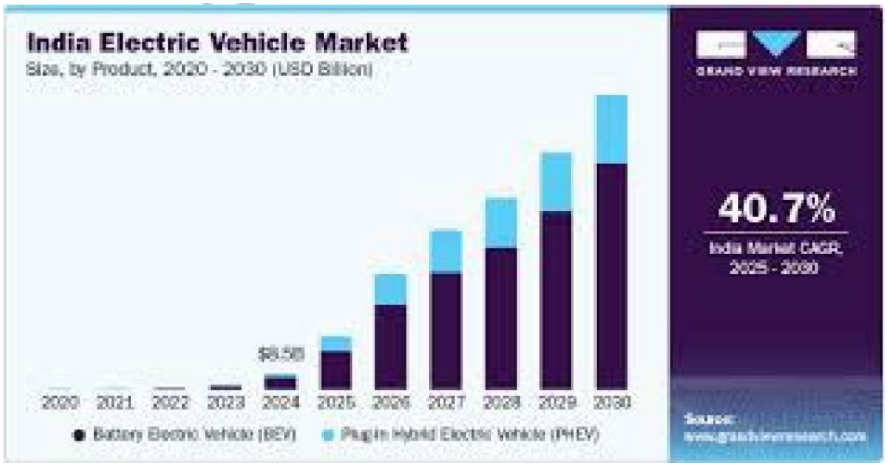
Importance of Market Analysis

- Understanding customers and their needs.
- Tracking competition and identifying opportunities.
- Predicting future trends and challenges.
- Informing business decisions and strategies.
- Enhancing marketing efforts and identifying new segments to target.

Key Components of Market Analysis

1. **Industry Overview**: Analysing the overall industry, including size, growth rate, trends, and regulatory environment.
2. **Target Market**: Identifying and segmenting the target audience based on demographics, psychographics, and buying behaviour.
3. **Competitive Analysis**: Evaluating competitors, their strengths and weaknesses, market share, and strategies.
4. **Market Needs**: Understanding the needs and preferences of the target market.
5. **Market Trends**: Identifying current and emerging trends that could impact the business.
6. **SWOT Analysis**: Assessing the business's strengths, weaknesses, opportunities, and threats.

Example : Electric Vehicle (EV) Market in India



- **Industry Overview**: The EV market in India is expanding, supported by government incentives and a push towards sustainable transportation.
- **Target Market**: Urban commuters, environmentally conscious consumers, and fleet operators.
- **Competitive Analysis**: Major players include Tata Motors, Mahindra Electric, and new entrants like Ola Electric. Each competitor focuses on different segments, such as affordable EVs or premium models.
- **Market Needs**: Consumers seek reliable, cost- effective, and environmentally friendly transportation options.

- **Market Trends**: Increasing adoption of EVs, development of charging infrastructure, and advancements in battery technology.
- **SWOT Analysis**:
    - Strengths: Eco-friendly technology, lower operating costs.
    - Weaknesses: Limited charging infrastructure, higher initial cost.
    - Opportunities: Government subsidies, growing urbanization.
    - Threats: Competition from traditional vehicles, technological challenges.

- By conducting a thorough market analysis, businesses can gain valuable insights into their industry and target market, enabling them to develop effective strategies and achieve long-term success.

Methods of Market Analysis

- **Surveys**: Gathering information through online or offline surveys.
- **Personal Interviews**: Conducting one-on-one interviews to gather information about preferences and opinions.
- **Focus Groups**: Discussing products or services with a small group of individuals.
- **Field Trials**: Testing products or services in selected areas to observe consumer reactions.
- **Observations**: Manually observing the market and audience to understand tastes and preferences.

Product/Service Description

- A product/service description is a detailed explanation of a product or service, including its features, benefits, and functionality.
- **<u>Importance of Product/Service Description</u>**
- 1. **Clearly Communicates Value**: Helps customers understand the value and benefits of the product or service.
- 2. **Differentiates from Competitors**: Highlights the unique features and benefits that set the product or service apart from competitors.
- 3. **Supports Marketing and Sales Efforts**: Provides a clear and concise description of the product or service, making it easier to market and sell.
- 4. **Helps with Product Development**: Ensures that the product or service meets the needs and expectations of the target market.
- 5. **Enhances Customer Satisfaction**: Clearly communicates what the customer can expect from the product or service, reducing the risk of misunderstandings.

Key Elements of a Product/Service Description

1. **Portfolio**: A comprehensive list of the products or services offered.
    a. **What it is**: The products or services offered by the business, including any future products or services
    b. **Why it's needed**: How the product or service solves a problem for the market
2. **Features and Benefits**: Detailed descriptions of the products or services, highlighting their unique features and benefits.
    a. **How it compares**: How the product or service compares to competitors' products or services
    b. **Pricing**: How the product or service will be priced
    c. **Distribution**: How the product or service will be distributed

3. **Problem and Solution**: Explanation of the customer problems the products or services solve.

4. **Innovation**: Any innovative aspects or proprietary advantages.

5. **Development Stage**: The current stage of development (e.g., idea, prototype, market-ready).

6. **Product Life-Cycle**: The expected lifespan of the products or services.

7. **Future Plans**: Plans for future product or service development and market expansion.

8. **Limitations**: Any risks or limitations associated with the product.

Example: Electric Scooters in India

- **Portfolio**: The company manufactures and sells electric scooters designed for urban commuting.
  - **What it is** - The business manufactures and sells electric scooters designed for urban commuting. Future models may include enhanced features like longer battery life and advanced connectivity options.
  - **Why it's needed** - Electric scooters provide a sustainable and efficient solution to urban transportation challenges, such as traffic congestion and pollution. They offer a cost-effective alternative to traditional fuel-powered vehicles.

- **Features and Benefits**: The scooters are eco-friendly, cost-effective, and equipped with advanced features like GPS navigation, long battery life, and fast charging.
  - **How it compares** - These scooters are competitive due to their advanced features like GPS navigation, fast charging, and IoT integration for real-time monitoring. They offer a superior user experience compared to many existing models in the market.
  - **Pricing** - The scooters are priced competitively to attract a broad customer base, including urban commuters and environmentally conscious consumers. The pricing strategy balances affordability with the advanced features offered.
  - **Distribution** - The scooters are distributed through a network of dealerships in major cities, an online sales platform, and partnerships with ride-sharing companies to reach a wider audience.
- **Problem and Solution**: Urban commuters face issues with traffic congestion and pollution. These electric scooters provide a sustainable and efficient transportation solution.

- **Innovation**: Integration of IoT technology for real-time monitoring and maintenance alerts.
- **Development Stage**: The scooters are in the final testing phase and will be launched in the market soon.
- **Product Lifecycle**: The scooters are designed for durability with a lifespan of several years.
- **Future Plans**: The Company aims to develop more models with enhanced features and expand its distribution network across India.
- **Limitations**: Risks include the current limited charging infrastructure in many parts of India, which could hinder widespread adoption. Additionally, there are potential regulatory challenges and competition from both established automotive companies and new entrants in the EV market.

Types of Product/Service Descriptions

- 1. **Product Data Sheet**: A detailed technical description of a product.
- 2. **Service Level Agreement (SLA):** A description of the service level commitments and expectations.
- 3. **Sales Sheet**: A concise and persuasive description of a product or service, used to support sales efforts.
- 4. **Product Brochure**: A detailed and visually appealing description of a product or service.
- 5. **Website Content**: A description of a product or service on a company website.

Marketing and Sales Strategy

- A marketing and sales strategy is a plan that outlines how a business will reach, engage, and convert target customers into buyers.
- **Importance of Marketing and Sales Strategy**
- 1. **Increases Brand Awareness**: Helps to build brand recognition and establish a company's reputation.
- 2. **Generates Leads**: Attracts potential customers and generates leads.
- 3. **Drives Sales**: Converts leads into sales and revenue.
- 4. **Differentiates from Competitors**: Sets a business apart from competitors and establishes a unique value proposition.
- 5. **Measures Performance**: Provides a framework for measuring and evaluating marketing and sales performance.

Key Components of a Marketing and Sales Strategy

1. **Market Segmentation**: Identifying and targeting specific groups within the broader market.

2. **Value Proposition**: Clearly defining what makes the product or service unique and why customers should choose it over competitors.

3. **Marketing Channels**: The platforms and methods used to reach the target audience (e.g., social media, email marketing, SEO).

4. **Sales Strategy**: The approach to selling the product or service, including sales processes, team structure, and sales tactics.

5. **Pricing Strategy**: How the product or service will be priced to attract customers while ensuring profitability.

6. **Distribution Strategy**: How the product or service will be delivered to the customer.

7. **Promotional Strategy**: The tactics used to promote the product or service, such as advertising, public relations, and sales promotions.

Types of Marketing and Sales Strategies

- 1. **Inbound Marketing**: Focuses on creating valuable content and experiences to attract and engage customers.
- 2. **Outbound Marketing**: Uses interruption-based tactics, such as advertising and cold calling, to reach customers.
- 3. **Account-Based Marketing**: Targets specific accounts and decision-makers with personalized content and messaging.
- 4. **Social Media Marketing**: Leverages social media platforms to reach and engage customers.
- 5. **Content Marketing**: Creates and distributes valuable, relevant, and consistent content to attract and retain customers.

Operations Plan

- An operations plan is a detailed plan that outlines the steps and processes necessary to achieve a company's goals and objectives.
- **Importance of Operations Plan**
- 1. **Ensures Efficiency**: Streamlines processes and reduces waste, leading to increased efficiency.
- 2. **Improves Productivity**: Clearly defines roles and responsibilities, leading to improved productivity.
- 3. **Enhances Quality**: Establishes quality control processes, ensuring high-quality products or services.
- 4. **Reduces Costs**: Identifies areas for cost reduction, leading to improved profitability.
- 5. **Supports Strategic Objectives**: Aligns with the company's overall strategic objectives

Key elements of Operations Plan

1. **Operational Strategy**: The overall approach to operations, including key objectives and how they align with the business's strategic goals.

2. **Production Process**: The steps involved in producing the business's products or services, from sourcing raw materials to final delivery.

3. **Facilities and Equipment**: Information about the physical locations where operations will take place and the equipment needed.

4. **Supply Chain Management**: How the business will manage its supply chain, including sourcing, procurement, and logistics.

5. **Quality Control**: Measures in place to ensure products or services meet quality standards.

6. **Human Resources**: Staffing requirements, roles, and responsibilities, as well as training and development plans.

7. **Operational Workflow**: A visual or descriptive representation of the workflow, showing how tasks and processes are interconnected.

8. **Risk Management**: Identifying potential operational risks and outlining strategies to mitigate them.

9. **Budget and Financial Projections**: Detailed cost estimates for operational activities.

Example: Electric Scooters in India

a. **Operational Strategy**: The strategy aims to produce affordable and efficient electric scooters to address urban transportation challenges and reduce pollution.

b. **Production Process**: The process involves designing the scooters, sourcing components, assembling the scooters in a manufacturing facility, and conducting quality checks before distribution.

c. **Facilities and Equipment**: The business operates a manufacturing plant in Pune with advanced assembly lines and testing equipment.

d. **Supply Chain Management**: The company sources components from both domestic and international suppliers and has established partnerships with logistics companies for distribution.

e. **Quality Control**: Quality control measures include testing each scooter for performance, safety, and durability before it leaves the factory.

f. **Human Resources**: The business employs engineers, assembly line workers, and quality control inspectors, with regular training sessions to keep them updated on the latest technologies.

g. **Operational Workflow**: The workflow includes design, component sourcing, assembly, quality testing, and distribution, with each stage managed by specialized teams.

h. **Risk Management**: Risks include supply chain delays and technological failures. Mitigation strategies involve maintaining a buffer stock of critical components and investing in R&D to improve product reliability.

i. **Budget and Financial Projections**: The budget covers costs for components, manufacturing, quality control, and distribution, with financial projections indicating a steady increase in sales and market share over the next five years.

- By including a comprehensive operations plan in the business plan framework, businesses can ensure that they have a clear and detailed roadmap for managing their day-to-day activities, achieving operational efficiency, and instilling confidence in stakeholders

Steps to Develop an Operations Plan

- 1. **Define the Company's Objectives**: Clearly define the company's objectives and goals.
- 2. **Conduct a Situation Analysis**: Analyze the company's current situation, including strengths, weaknesses, opportunities, and threats.
- 3. **Develop a Production Plan**: Outline the production process, including sourcing, manufacturing, and delivery.
- 4. **Develop a Supply Chain Management Plan**: Describe the management of the supply chain, including procurement, inventory management, and logistics.
- 5. **Develop a Quality Control Plan**: Establish quality control processes to ensure high quality products or services.
- 6. **Develop a Human Resources Plan**: Outline the staffing requirements, including recruitment, training, and development.
- 7. **Review and Revise**: Review and revise the operations plan as necessary.

Tools and Techniques for Operations Planning

- 1. **Flowcharts**: Visual representations of processes and systems.
- 2. **Process Maps**: Detailed diagrams of processes and systems.
- 3. **Gantt Charts:** Visual representations of project schedules and timelines.
- 4. **Inventory Management Software**: Software used to manage inventory levels and optimize supply chain operations.
- 5. **Quality Control Software**: Software used to manage quality control processes and ensure high-quality products or services.

Financial Projections

- Financial projections are estimates of a company's future financial performance, typically including income statements, balance sheets, and cash flow statements.
- **<u>Importance of Financial Projections</u>**
- 1. **Informed Decision Making**: Financial projections provide a basis for making informed decisions about investments, funding, and strategic planning.
- 2. **Fundraising and Financing**: Financial projections are often required by investors, lenders, and other stakeholders to assess a company's creditworthiness and potential for growth.
- 3. **Budgeting and Resource Allocation**: Financial projections help companies allocate resources effectively and create realistic budgets.
- 4. **Risk Management**: Financial projections can help identify potential financial risks and opportunities, enabling companies to develop strategies to mitigate or capitalize on them.
- 5. **Performance Monitoring**: Financial projections provide a benchmark for measuring actual performance and making adjustments as needed.

Key Components of Financial Projections

1. **Income Statement Projections**: Forecasts of revenue, expenses, and profits over a specific period.

2. **Cash Flow Projections**: Estimates of cash inflows and outflows, showing how much cash is expected to be available.

3. **Balance Sheet Projections**: Predictions of the company's assets, liabilities, and equity at future dates.

4. **Break-even Analysis**: Estimates of the point at which a company’s revenues equal its fixed and variable costs.

- These projections help businesses plan for growth, secure funding, and manage resources effectively. They are crucial for demonstrating the viability and financial health of the business to investors and stakeholders.

Example : Startup in the E-commerce Sector Scenario: An Indian startup, "ShopEase," plans to launch an online marketplace for local artisans.

- Financial Projections:

1. **Income Statement Projections**:
   - **Revenue**: ShopEase projects revenue of ₹50 lakhs in the first year, growing to ₹2 crores by the third year, driven by increased customer acquisition and market expansion.
   - **Expenses**: Initial expenses include ₹20 lakhs for technology development, ₹10 lakhs for marketing, and ₹5 lakhs for operational costs. These are expected to increase proportionally with revenue growth.
   - **Profit**: The company expects to break even by the end of the second year and achieve a net profit of ₹30 lakhs by the third year.

2. **Cash Flow Projections**:

- **Cash Inflows**: Primarily from sales revenue and an initial investment of ₹1 crore from venture capital.
- **Cash Outflows**: Major outflows include technology development, marketing, and operational expenses. The company plans to maintain a positive cash flow by securing additional funding in the second year.

3. **Balance Sheet Projections**:

- **Assets**: Initial assets include cash from investments and technology infrastructure valued at ₹30 lakhs.
- **Liabilities**: Initial liabilities include a ₹20 lakh loan for working capital.
- **Equity**: Equity is projected to grow as the company reinvests profits and attracts further investment.

4. Break even point: after 3rd year company becomes profitable.

Steps to Create Financial Projections

1. **Define the Projection Period**: Determine the length of the projection period, typically 3-5 years.
2. **Gather Historical Data**: Collect historical financial data to inform projections.
3. **Make Assumptions**: Make assumptions about future revenue growth, expenses, and other financial metrics.
4. **Create Projections**: Use historical data and assumptions to create financial projections.
5. **Review and Refine**: Review and refine projections based on feedback from stakeholders and changes in market conditions.

Risk Management

- Risk management is the process of identifying, assessing, and mitigating potential risks that could impact an organization's ability to achieve its objectives.
- **Importance of Risk Management**

1. **Reduces Uncertainty**: Identifies and assesses potential risks, reducing uncertainty and allowing for informed decision-making.
2. **Minimizes Losses**: Mitigates potential risks, minimizing losses and reducing the impact of adverse events.
3. **Protects Assets**: Protects organizational assets, including people, property, and reputation.
4. **Ensures Compliance**: Ensures compliance with regulatory requirements and industry standards.
5. **Enhances Reputation**: Demonstrates a commitment to risk management, enhancing the organization's reputation and stakeholder confidence

Types of Risks

1. **Strategic Risks**: Risks that impact an organization's ability to achieve its strategic objectives.

2. **Operational Risks**: Risks that impact an organization's ability to deliver its products or services.

3. **Financial Risks**: Risks that impact an organization's financial well-being.

4. **Compliance Risks**: Risks that impact an organization's ability to comply with regulatory requirements.

5. **Reputation Risks**: Risks that impact an organization's reputation and stakeholder confidence.

Key Steps in Risk Management

1. **Risk Identification**: Recognizing potential risks that could affect the organization. This includes internal and external risks, such as market fluctuations, operational failures, or cybersecurity threats.

2. **Risk Assessment**: Evaluating the likelihood and potential impact of identified risks. This helps prioritize which risks need more immediate attention.

3. **Risk Mitigation**: Developing strategies to minimize or control the impact of risks. This could involve implementing safety measures, diversifying investments, or creating contingency plans.

4. **Risk Monitoring**: Continuously tracking and reviewing risks and the effectiveness of mitigation strategies. This ensures that the organization can respond promptly to any changes in the risk landscape.

Example : Technology Startup Scenario: "TechInnovate," a startup developing AI-based solutions for healthcare

1. Risk Identification:

- **Market Risk:** Uncertainty about the adoption of AI in healthcare.
- **Regulatory Risk**: Compliance with healthcare regulations and data privacy laws.
- **Operational Risk**: Potential technical failures or cybersecurity threats.

2. Risk Assessment:

- **Market Risk**: High impact, medium likelihood. Adoption of AI is growing, but acceptance in healthcare can be slow.
- **Regulatory Risk**: High impact, high likelihood. Strict regulations in healthcare make compliance crucial.
- **Operational Risk**: Medium impact, high likelihood. Technical issues and cyber threats are common in tech startups.

3. **Risk Mitigation:**
   - **Market Risk**: Conduct market research and pilot projects to demonstrate the effectiveness of AI solutions.
   - **Regulatory Risk**: Hire legal experts to ensure compliance with all regulations and obtain necessary certifications.
   - **Operational Risk**: Implement robust cybersecurity measures and regular system audits to prevent technical failures.
4. **Risk Monitoring:**
   - Regularly review market trends and customer feedback.
   - Stay updated with regulatory changes and ensure continuous compliance.
   - Monitor system performance and cybersecurity threats continuously.