

**(TECHNOLOGY)  
ENTREPRENEURSHIP & NEW BUSINESS  
DEVELOPMENT**

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**MINDMAP/OVERVIEW SUMMARY**

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# INCREASED INTEREST IN ENTREPRENEURSHIP

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## Global trend

- There is tremendous interest in entrepreneurship worldwide
- However, differences between regions still apply

## GEM (Global Entrepreneurship Monitor) statistic

- ~5% of Western Europeans are:
- Actively starting a new business OR
- Owners of a business less than 3 years old

## Indicators of increased interest

- Books Amazon lists tens of thousands of books on entrepreneurship and small business
- Higher education Introduction of “entrepreneur student” status
- Allows students who start a business after graduation to keep student advantages

# WHAT IS ENTREPRENEURSHIP? (ACADEMIC DEFINITIONS)

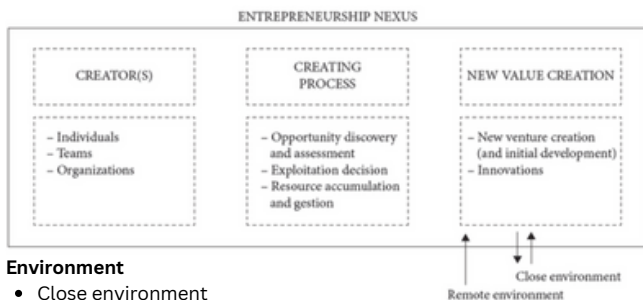
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## Definitions

- Entrepreneurship is the art of turning an idea into a business
- Entrepreneurship is the process by which individuals pursue opportunities without regard to the resources they currently control (Stevenson & Jarillo)
- Entrepreneurship is about entrepreneurial agents (1), whose aim is to creating new value (2) by means of creating process (3) that capitalizes on unilaterally imposed environmental factors (4) and environmental possibilities that can be strategically selected (5) (Debrulle, Maes, and Sels)
- **Insane perseverance in the face of total rejection**

# THE ENTREPRENEURSHIP NEXUS (FRAMEWORK)

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## Environment

- Close environment
- Remote environment → only affects you ↔ you cannot affect it (law that u need to pay employees)

# WHY BECOME AN ENTREPRENEUR?

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## Three primary reasons:

1. Desire to be own boss
2. Desire to pursue own ideas
3. Financial rewards

# CHAPTER 1: INTRODUCTION TO ENTREPRENEURSHIP

## CORE CHARACTERISTICS OF SUCCESSFUL ENTREPRENEURS

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- **Vision-driven individual**
  - Willing to assume:
    - Personal risk
    - Financial risk
  - To start or expand a business
- **Right place, right time** – and action
  - Recognize opportunities and act
  - Passionate execution matters
- **Passion for the business**
  - Number one shared characteristic
  - Sustains effort during uncertainty and setbacks
- **Product / customer focus**
  - Intense product/customer focus
- **Tenacity despite failure**
  - Failure rates are high because entrepreneurs:
    - Try new things
    - Operate under uncertainty
  - Success requires persistence through setbacks/failures

## SECONDARY CHARACTERISTICS OF SUCCESSFUL ENTREPRENEURS

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- **Prior industry experience**
  - Helps an entrepreneur recognize and evaluate opportunities
  - Leads to:
    - Spotting underserved niches
    - Building useful networks
- **Prior entrepreneurial experience**
  - Familiarity with process
  - Fewer costly mistakes
- **Social Networks**
  - 40–50% of entrepreneurs get ideas via social contacts
  - Network depth and breadth matter
  - Strong ties vs. weak ties
    - Weak ties often introduce new information
    - Strong ties provide support
- **Higher Education & Creativity**
  - Enhances entrepreneurial skills
  - Not through theory alone, but by:
    - Linking different pieces of information
    - Improving problem-solving
- **Cognitive Factors**
  - Entrepreneurial alertness
    - Sometimes called a “sixth sense” → allows them to discover opportunities sooner than others
    - Ability to:
      - Notice opportunities without deliberate search
      - Not magic – related to experience and cognition

# TYPES OF ENTREPRENEURSHIP

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## Corporate entrepreneurship / Intrapreneurship

- The conceptualization of entrepreneurship at the business level which affects many individuals
- Entrepreneurial activities inside existing firms
- Employees act entrepreneurially within organizations

## Nascent entrepreneurship

- Refers to individuals in the process of becoming entrepreneurs
- Not yet fully established businesses

## Social entrepreneurship

- Focus on creating and sustaining social value
- Innovation aimed at societal problems, not only profit
- Tripple-bottom line principle: profit is not the main/only goal ↔ single bottom line: profit is the only goal

# CULTURAL VIEW ON FAILURE

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## Different attitudes:

- Western Europe: Failure is stigmatized
- United States: Failure is expected (sometimes required)
- Canada: Intermediate, closer to US

## Failure as learning

- Failure should be treated as a learning process
  - Mourn briefly
  - Restart
  - Stay optimistic publicly
  - Analyze mistakes privately
- Exam insight: Failure ≠ incompetence; it's part of the entrepreneurial process.

# COMMON MYTHS ABOUT ENTREPRENEURS

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## Myth 1: Entrepreneurs are gamblers

- Reality:
  - Entrepreneurs are moderate risk takers
- Myth origin:
  - Unstructured jobs → and so they face a more uncertain set of possibilities than people in traditional jobs
  - High need for achievement mistaken as risk-seeking

## Myth 2: Entrepreneurs are motivated primarily by money

- Reality:
  - Money is rarely the main motivation
  - Over-focus on money can be distracting

## Myth 3: Entrepreneurs should be young and energetic

- Reality:
  - Entrepreneurship occurs at all ages
  - Investors value:
    - Experience
    - Reputation
    - Track record of success
- Older entrepreneurs often preferred

# THREE TYPES OF START-UP BUSINESSES

<b>Salary-Substitute Firms</b> Firms that basically provide their owner or owners a similar level of income to what they would be able to earn in a conventional job	<b>Lifestyle Firms</b> Firms that provide their owner or owners the opportunity to pursue a particular lifestyle, and make a living at it	<b>Entrepreneurial Firms</b> Firms that bring new products and services to the market by creating and seizing opportunities regardless of the resources they currently control
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## THE WINDOW OF OPPORTUNITY

**The window of opportunity is:**  
The time period during which a business can realistically enter a (new) market

- How it works**
1. Opportunity is recognized
  2. A window opens
  3. Market grows
  4. Market becomes mature and saturated with competitors
  5. Window closes

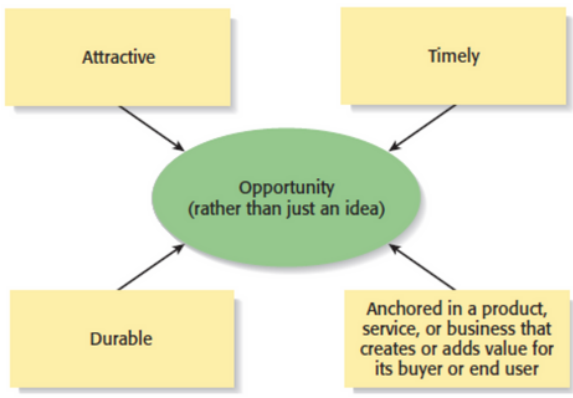
- Key implication**
- Timing matters:
    - Too early → market not ready
    - Too late → competition too intense
- Typical exam trap: Opportunities are time-bound, not permanent.

## IDEA VS OPPORTUNITY

- |  |  |
|--|--|
| <p><b>Idea</b></p> <ul style="list-style-type: none"> <li>• A:                     <ul style="list-style-type: none"> <li>◦ Thought</li> <li>◦ Impression</li> <li>◦ Notion</li> </ul> </li> <li>• Ideas alone do not guarantee value</li> </ul> | <p><b>Opportunity</b></p> <ul style="list-style-type: none"> <li>• An idea that is:                     <ul style="list-style-type: none"> <li>◦ Attractive</li> <li>◦ Durable</li> <li>◦ Timely</li> <li>◦ Anchored in a product or service</li> <li>◦ Creates value for buyers or users</li> </ul> </li> </ul> |
|--|--|
- Core distinction:**  
All opportunities start as ideas, but not all ideas are opportunities.

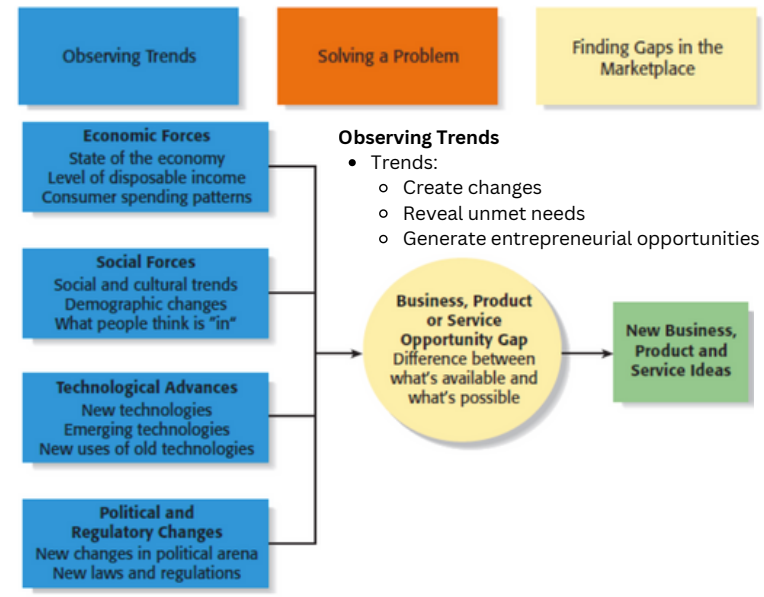
# CHAPTER 2: RECOGNIZING OPPORTUNITIES AND GENERATING IDEAS

## DEFINING AN OPPORTUNITY

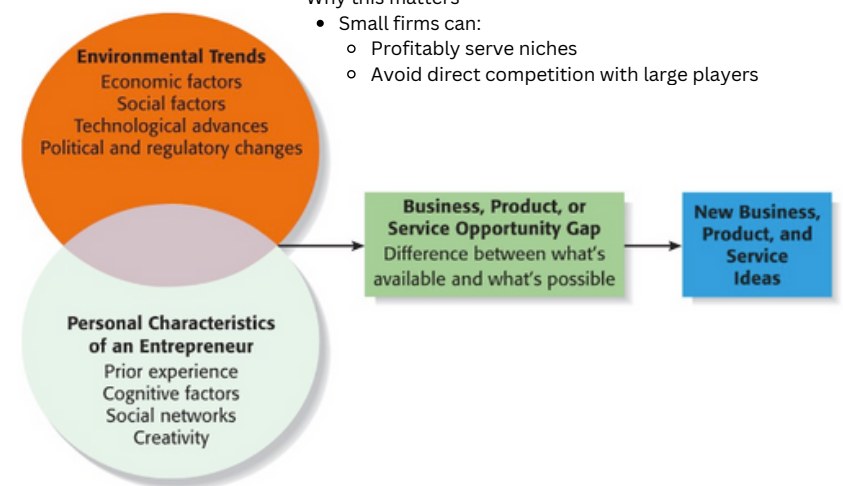


- An opportunity must satisfy four conditions:
  - Attractive: Customers are willing to pay
  - Timely: Exists within an open window of opportunity
  - Durable: Not easily copied or short-lived
  - Product/service creates or adds value for users
- Exam insight: Missing one of these means it is not an opportunity.

# 5 IDENTIFYING AN OPPORTUNITY



- Observing Trends**
- Trends:
    - Create changes
    - Reveal unmet needs
    - Generate entrepreneurial opportunities
- Solving a Problem**
- Opportunities can arise by:
    - Noticing a problem
    - Finding a way to solve it
  - Sources of problem identification:
    - Trend observation
    - Personal intuition
    - Serendipity
    - Change
- Gaps in the Marketplace**
- A market gap exists when:
    - A product/service is needed by a specific group
    - Market is too small to interest large firms
  - Why this matters:
    - Small firms can:
      - Profitably serve niches
      - Avoid direct competition with large players

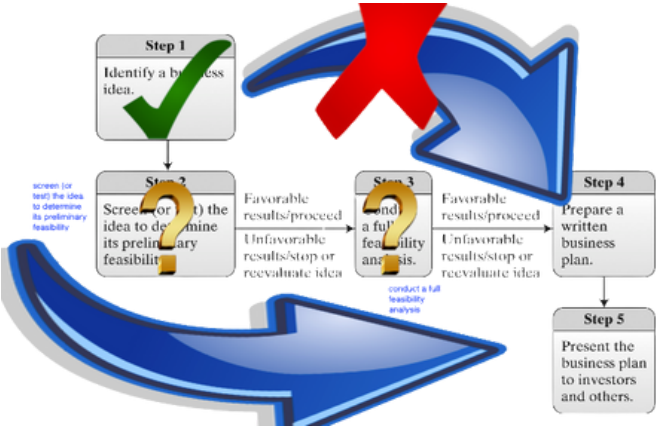


# WHAT TO DO BEFORE WRITING A BUSINESS PLAN

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- Common mistake**
- Entrepreneurs:
    - Identify an idea
    - Jump directly to writing a business plan

- Correct sequence**
- Preliminary screening (First Screen analysis)
  - Full feasibility analysis
  - Business plan writing
- Exam trap: Business plan ≠ first step.



## FEASIBILITY ANALYSIS DEFINITION

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**A feasibility analysis is:**

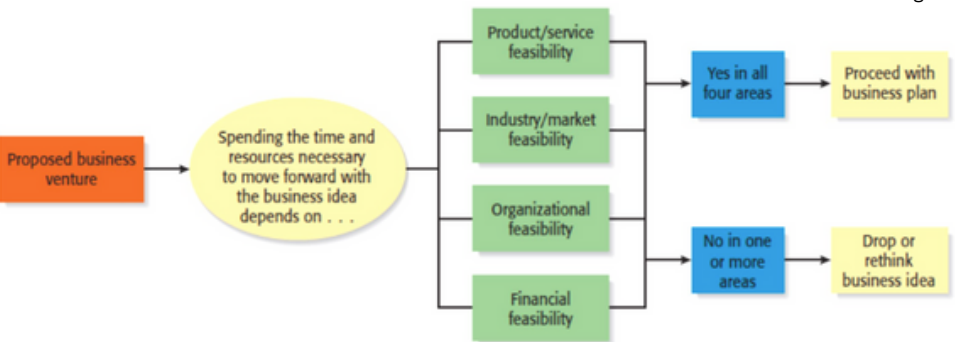
- The process of determining whether a business opportunity is viable
- The preliminary evaluation of a business opportunity, before the writing of a business plan

- Purpose**
- To decide:
    - Is this opportunity worth pursuing?

- Timing**
- Must be done early
  - Before committing large resources

## FEASIBILITY ANALYSIS

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# CHAPTER 3: FEASIBILITY ANALYSIS

## Product / Service Feasibility.

- Purpose**
- Assess:
    - Overall appeal of the product or service

- Key questions**
- Does the product solve a real problem?
  - Is there a clear value proposition?
  - Will customers want it?

**Two components:**

**Product/service desirability**

- Determine the basic appeal of the product or service
- Is this a good time to introduce the product or service to the market?
    - Is the window of opportunity open?
  - Does the product/service make sense?
    - Is it reasonable?
    - Is it something consumers will get excited about?
  - Does it:
    - Take advantage of an environmental trend, or
    - Solve a problem, or
    - Take advantage of a gap in the marketplace?
  - Are there any fatal flaws in the product's or service's basic design or concept?

**Administer a concept test:**

- Develop a concept statement
  - A one-page description (or equivalent tool) of a prospective business
  - Distributed to (specific) people who are asked to provide feedback on the opportunity
- What the feedback should give the entrepreneur:
  - A sense of the viability of the product/service idea
  - Suggestions for how the opportunity can be strengthened or "tweaked" before proceeding

**New Business Concept**  
New Venture Fitness Drinks Inc.

**Product**  
New Venture Fitness Drinks will sell delicious, nutrition-filled, all-natural fitness drinks to fitness sports enthusiasts. The drinks will be sold through small storefronts (100 sq. ft.) that will be the same size as popular convenience restaurants. The drinks were formulated by Dr. William Peters, a world-renowned nutritionist, and Dr. Michelle Smith, a sports medicine specialist, on behalf of New Venture Fitness Drinks and its customers.

**Target Market**  
In the first three years of operation, New Venture Fitness Drinks plans to open three or four restaurants. They will all be located near large sports complexes that contain soccer fields and softball diamonds. The target market is fitness sports enthusiasts.

**Why New Venture Fitness Drinks?**  
The industry for sports drinks continues to grow. New Venture Fitness Drinks will introduce exciting new sports drinks that will be priced between \$1.50 and \$2.00 per 16-ounce serving. Energy bars and other over-the-counter sports snacks will also be sold. Each restaurant will contain comfortable tables and chairs (both inside and outside) where sports enthusiasts can congregate after a game. The atmosphere will be fun, cheerful, and uplifting.

**Special Feature—No Other Restaurant Does This**  
As a special feature, New Venture Fitness Drinks will videotape select sporting events that take place in the sports complexes nearest its restaurants and will register highlights of the games on video monitors in their restaurants. The "highlight" film will be a 30-minute film that will play continuously from the previous day's sporting events. This special feature will allow sports enthusiasts, from kids playing soccer to adults in softball leagues, to drop in and see themselves and their teammates on television.

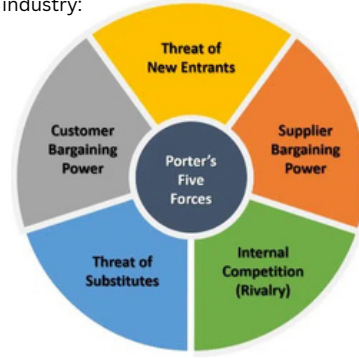
**Management Team**  
New Venture Fitness Drink is led by its co-founders, Jack Petty and Peggy Mills. Jack has 15 years of experience with a national restaurant chain, and Peggy is a certified public accountant with seven years of experience at a Big 4 accounting firm.

## Industry / Market Feasibility

- Industry feasibility**
- Assesses:
    - Industry attractiveness

Characteristics of an attractive industry:

- Large and growing
- Not overly competitive
- Healthy margins



## Market feasibility

- Assesses:
  - Target market
  - Customer demand
  - Competitive landscape

## Organizational Feasibility

- Determine whether entrepreneurs possess sufficient:
  - Management expertise
  - Organizational competence
  - Resources
- Focus on non-financial resources only

**Two components:**

**Management prowess**

- Determine the abilities of the management team
- Two of the most important abilities are:
  - The passion that is shown for the business opportunity
  - The extent to which the entrepreneurs understand the market in which the business will be active

**Resource sufficiency**

- Determine whether the entrepreneurs have sufficient resources to launch the proposed business
- Test resource sufficiency:
  - List the 6 to 12 most critical non-financial resources that will be needed to move the business forward
  - Examples: Affordable office space, availability of contract manufacturers and employees, ability to obtain intellectual property protection and to form partnerships, etc.

## Financial Feasibility

- Prepare a budget that lists all the anticipated capital purchases and operating expenses needed to generate the first €1 in revenues
- Better to overestimate rather than underestimate the costs involved
- Estimate the proposed start-up's financial performance by comparing it to similar, already established businesses
  - Simple observational research may be required
  - Example: Track the number of people that go into a coffee shop and estimate their average spending
- Several other financial factors associated with the overall financial attractiveness of promising new businesses:
  - Steady and rapid growth in sales during the first years in a clearly defined market niche
  - High percentage of recurring revenue, meaning that once a firm wins a client, the client will provide recurring revenue
  - Internally generated funds to finance and sustain growth
- At this stage, the assessment of each factor is based on an estimate rather than actual business performance

# WHAT IS A BUSINESS PLAN?

- A business plan is:
  - A written narrative that describes in detail what a new business intends to accomplish
- A business plan is a dual-purpose document (for most new ventures):
  - Outside: investors and other external stakeholder
    - Goal: convince them that the business is:
      - Attractive
      - Worth their money, time, or attention
  - Inside: the business' employees
    - Goal: ensure everyone:
      - Works in the same direction
      - Moves forward consistently and purposefully
- Smart entrepreneurs understand that different audiences require different plans: One size does not fit all!

## GUIDELINES FOR WRITING A BUSINESS PLAN

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### Structure matters

- Investors are busy:
  - They want to find critical information quickly
- Therefore:
  - A clear, logical, and standardized structure is essential
- There are many (AI) software packages available that employ an interactive, menu-driven approach to assist in the writing of a business plan
- Entrepreneurs should avoid a boilerplate plan that looks as though it came from a "canned" source

### Content

- Roadmap for the entrepreneurial process!
- The business plan should give clear and concise information on all the important aspects of the proposed venture
- It must be long enough to provide sufficient information yet short enough to maintain reader interest
  - For most plans, 25 to 35 pages is sufficient

### Corridor principle: Elements of a business plan may change

- Important: recognize that a business plan will continuously (have to) change
- When an entrepreneur starts a business → goes down a path where "corridors" leading to new, unexpected opportunities become apparent
  - These are "open doors" you can only see when you are walking down the corridor, they are not visible from your starting point at the end of the hall
- This process continues throughout the life of a business
- The business plan is, therefore, a living breathing document rather than something set in stone

## TYPES OF BUSINESS PLANS

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Summary Business Plan	Full Business Plan	Operational Business Plan
10–15 pages	25–35 pages	40–100 pages
Works best for new ventures in the early stages of development that want to "test the waters" to see if investors are interested in their idea	Works best for new ventures who are at the point where they need funding or financing; serves as a "blueprint" for the company's operations	Is meant primarily for an internal audience; works best as a tool for creating a blueprint for a new venture's operations and providing guidance to operational managers

# CHAPTER 4: WRITING A BUSINESS PLAN

## Section 2: Company description

- General description of the company, including its one-sentence definition
- Other items to include:
  - Company history
    - Where did the idea for the business come from?
  - Mission and vision statement, company objectives
    - Why does the business exist and what does it aspire?
  - Products and services
    - References to the feasibility analysis can be made
  - Current status
    - How far developed is the business?
  - Legal status and ownership
    - Who owns the business, how the ownership is split up if more than one individual is involved and whether a founder's agreement has been set up
      - Founder's agreement: a written document signed by all founders
        - Deals with issues such as the relative split of the equity among the founders of the business and how individual founders will be compensated for their "sweat equity"

## Section 3: Industry analysis

- Before selecting a target market → have a good grasp of its industry, including where its promising areas are and where its points of vulnerability lie
  - Outline:
    - Industry definition
    - Industry size, growth rate and sales projections
    - Industry characteristics
      - Industry structure
      - Nature of industry participants
      - Operating and financial industry ratios
      - Industry critical success factors (CSFs)
  - Industry trends
    - Environmental trends (cf. PESTEL)
    - Business trends
  - Industry long-term prospects

## Section 6: Management team and company structure

- The management team: the founders and a handful of key management personnel
- Many investors look first at the executive summary and then go directly to the management team section to assess the strength of the people starting the business
- Outline:
  - Management team and key personnel
  - Management team skills profile
  - Ownership structure and compensation
  - Board(s) of advisors
  - Other professionals
  - Organizational chart



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# BUSINESS PLAN OUTLINE

## Section 1: Executive summary

- Short overview of the entire business plan
  - It provides a busy reader with everything that needs to be known about the new venture's distinctive nature
  - It shouldn't exceed 2 pages
- In many instances investors will first ask for a copy of a business' executive summary
  - The executive summary is arguably the most important section of a business plan

## Section 4: Target market analysis & Market analysis outline

### The target market analysis

- Breaks the industry into segments and zeros in on a specific segment or target market
  - New businesses do not service their entire industry → focus on servicing one specific target market
  - The more a business knows about the consumers in its target market, the more it can tailor its products or services to their needs

### Market analysis outline

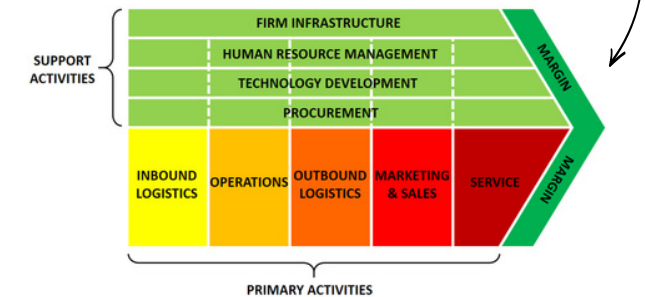
- Industry segmentation
- Target market selection
- Target market size
- Target market trends
- Competitor analysis
- Estimate of annual sales and market share

## Section 5: Marketing plan

- Focuses on how the business will market and sell its product(s) or service(s)
  - Start by articulating the overall marketing strategy, the business' positioning and its points of differentiation (PODs)
  - Then shed light how these aspects will be supported by price, the promotions mix and distribution and sales
- Outline:
  - Overall marketing strategy
    - Positioning strategy
    - Points of differentiation
  - Pricing strategy
    - Cost-based pricing
    - Value-based pricing
  - (Sales process)
  - Promotions mix
  - Distribution and sales

## Section 7: Operations plan outline

- Outlines in detail how the business will be run once it achieves full production
- One way to illustrate this is to describe the business in terms of "backstage" (unseen by the customer) and "frontstage" (seen by the customer) activities
  - A careful balance is required between adequately describing this topic and providing too much detail



**Section 7: Operations plan outline**

- Business location
- Facilities and equipment
- Operations model and procedures
- Operations strategy and plans

**Section 8: Product (or service) development plan**

- Focuses on the status of the development efforts of the business on its way to reaching full production
- Usually done by means of “milestones” including popular terms such as product or service conception, prototyping, initial production, testing and full production
  - Provide a timeline describing the remaining steps in the development process
  - Identify challenges and risks per milestone and develop a risk mitigation plan for each risk
- Outline
  - Development status and tasks
  - Challenges and risks
  - Costs remaining
  - Intellectual property (if appropriate)

**Section 9: Financial projections**

- The final section of a business plan
- Deals with a business’ pro forma (or projected) financial projections
  - Having completed the earlier sections, financial projections should not be that hard to compute
- Addresses the basic logic of how profits are earned and how many units must be sold for it to “break even”
- Outline
  - Sources and use of funds statement
  - Financial assumptions sheet
  - Pro forma income statement(s)
  - Pro forma balance sheet(s)
  - Pro forma cash flow statement(s)
  - Ratio analysis
  - Break-even analysis

# WHAT IS AN INDUSTRY – AN INDUSTRY ANALYSIS? 1

- **An industry:** a group of businesses producing a similar product or service in a similar way
- **Industry analysis:** research that focuses on the attractiveness of the larger industry

# WHY DO AN INDUSTRY ANALYSIS? 2

- Early in the venture creation process:
  - It is too early to define a specific target market
- Industry analysis:
  - Describes how the average firm in the industry is doing and what the overall trends are
  - Defines the playing field and the rules of the game
  - Acts as a point of reference
  - Shows what is realistically possible for a new business

- Key principle
- Firm performance is strongly constrained by industry performance
    - About 8–30% of profitability differences are attributable to industry effects

Exam trap: Even great firms cannot fully escape bad industries.

# Industry Definition 1

- Briefly describe the business' industry in one (or a couple of) sentence(s)
- Don't bother producing fancy wording, adopt a definition that has been developed for you
  - Standard Industrial Classification: SIC-code
  - North American Industry Classification System: NAICS-code
  - Nomenclature statistique des Activités économiques dans la Communauté Européenne: NACE-code
    - Level 1: Industry section (letter)
    - Level 2: Industry departments (max. 2 numbers)
    - Level 3: Industry groups (2+1 numbers)
    - Level 4: Industry class (3+1 numbers)

# Industry Size, Growth Rate & Sales Projections 2

- **Industry size**
  - Total sales (e.g. € or units) generated by the industry
- **Growth rate**
  - Speed at which the industry is expanding or contracting (%)
- **Future sales projections**
  - For the dominant industry(ies) the business will be entering
  - If you project the numbers yourself, you should explain how you arrived at your estimates
- Apply the following **rules of thumb:**
  - Display data in a multiyear format, making it easy to spot trends
  - Display information graphically (if possible)
  - Provide information about your industry (industries) on a regional or local basis (if appropriate)
  - Report both positive and negative information on your industry (industries)



see Specialization session on Intellectual Property, Competitive Benchmarking & Technology Life Cycles

# CHAPTER 5 – PART I: ANALYZING THE INDUSTRY

## THINGS TO INCLUDE IN AN INDUSTRY ANALYSIS 3

### 3 Industry Characteristics

Four key characteristics to deal with:

- 1) Industry structure**
  - **General industry attractiveness**
    - Question for the incumbents: Is this is nice place to be?
    - *5 Forces analysis:*
      - Helps determine the average rate of return for an industry
      - Always take the point of view of the incumbents
      - 5 start company
        - No threat of new entrants / substitute products
        - No bargaining power buyers / supplier
      - New ventures must explain how they overcome these barriers
  - **Level of concentration or fragmentation**
    - Concentrated industries: dominated by a few large firms
    - Fragmented industries: many small firms
    - Tool: HH-index (Herfindahl-Hirschman Index)
- 2) Nature of industry participants**

Describe the nature and mixture of businesses in the industry:

  - Major players
  - Their characteristics
  - Market shares
  - Competitive strategies

- 3) Operating and financial industry ratios**
  - Provide further insight into the structure and attractiveness of an industry
  - Benchmarks to compare your business' financial and non-financial projections against

- 4) Industry critical success factors (CSFs)**
  - Shed light on what a business in the industry must be good at to be successful
  - "For a company to be successful in this industry, it must be good at ..."
  - Most industries have: 6–10 CSFs
  - Successful firms: Are competent in all CSFs, yet excel in 2–3 of them → These become points of differentiation (PODs)
  - CSFs are later used for:
    - Competitive analysis grid
    - Marketing plan

### 4 Industry Trends

- Two types of trends to analyze:
- **Environmental trends (PESTEL)**
    - Political
    - Economic
    - Social
    - Technological
    - Environmental
    - Legal
  - **Business-economic trends (most important)**
    - Are profit margins increasing or falling?
    - Is innovation accelerating or slowing down?
    - Are input costs rising or declining?
    - Are new markets opening or closing?

### 5 Industry Long-Term Prospects

- **Final part of the industry analysis**
- Should:
  - Conclude with a brief statement of your beliefs regarding the long-term prospects for the industry
- Important rule:
  - No new information
  - Only synthesis of previous sections



- Best industries for new businesses?**
- **No good substitutes**
  - **Limited power** of suppliers to negotiate input prices
  - **Limited power** of buyers to force selling price down
  - **No cutthroat competition**
  - **High barriers** of entry to keep competitors out
    - Make clear in the target market analysis how the business will overcome these barriers

# WHAT IS A TARGET MARKET ANALYSIS?

Key distinction

- Industry analysis:**
  - Looks at the entire industry / broad business domain
  - Focuses on the average firm
- Target market analysis:**
  - Breaks the industry into segments and zeroes in on the specific segment that the business intends to tackle
  - Find out Q: how many products you think you will sell
  - $Q = TMS \text{ (target market size)} \times AMS \text{ (anticipated market share)}$
  - $R \text{ (revenue)} = Q \times P$
- Marketing:**
  - In contrast, focuses on price, promotion and distribution (place)
- Exam trap: New ventures never target an entire industry.

# WHY DO A TARGET MARKET ANALYSIS?

- Good target market analysis focuses on:
  - Business' target market
  - Its customers
  - Its competitors
  - How it will compete in the marketplace
  - Its potential sales and market share
- It answers the question: "Who are our customers and how will we appeal to them?"

# Industry Segmentation

- The industry first needs to be segmented → To determine the (best) customers
- Segmentation:** the process of dividing the industry into distinct subsets or segments that behave in the same way or have similar needs
- The industry segmentation may recap some information already provided in the industry analysis, but with more specific information being added
- Rules for a successful segmentation:**
  - Homogeneity of needs and wants within segments
  - Heterogeneity of needs and wants between segments
  - Differences within a segment should be small compared to differences across segments
  - Segments should be distinct enough so that its members can be easily identified
  - It should be possible to determine the size of a segment
  - Segments should be large enough to be profitable
- Even the biggest companies do it: Segmentation at McDonald's
- Different segmentation rounds to get to the target market size - see slides
- Popular bases for segmentation:
  - Geography:** City, state, country
  - Demographic variables:** Age, gender, family size, income
  - Product type**
  - Psychographic variables:** Personality, lifestyle, values
  - Behavioral variables:** Benefits sought, product usage rate, brand loyalty

# Target Market Selection

- Business has segmented its industry → it selects a preferred segment to target
- New businesses are usually best served by segmenting their industry carefully and zeroing in on one specific target segment (at a time)
- The biggest mistake new businesses can make is to define their target market too broadly

# CHAPTER 5 – PART II: TARGET MARKET ANALYSIS

## THINGS TO INCLUDE IN A TARGET MARKET ANALYSIS

### 3 Target Market Size

- The use of secondary data
- Not easy: estimating the size of a target market for a market that doesn't exist or a market that is specific to a particular location or geographic area
- Conducting primary research might be required

### 4 Target Market Trends

- The more a business understands its target market, the more it can finetune its product(s) or service(s) to its needs and wants
  - Investigate industry trends that have the potential to affect the target market
    - Find 2/3
  - Analyze specific market trends that might only affect the target market
    - Find 2/3

### 6 Estimate of Annual Sales and Market Share

- Usually provided in the financial plan section (cf. later)
  - Before the business can plan its operations, marketing budget and the number of employees it will need, it needs to know how much sales it can anticipate
- No precise way to predict the number of sales and market share
  - Look at industry statistics
  - Find comparable businesses
  - Conduct internet searches
  - Conduct primary research
  - Use a multiplication method based on publicly available annual accounts**
- Always report the underlying assumptions
- Estimation of annual sales and market share
  - Look at competitors last 5 years of revenue
  - Red = first-year (caution), green = second-year (preferred)

Company/year	2025	2024	2023	2022	2021
Behance	50k€	60k€	45k€	30k€	20k€
(started 10y ago)	36%	52%	60%	60%	66%
DeviantART	23k€	15k€	7k€	5k€	/
	16%	13%	9%	20%	/
Flickr	42k€	30k€	20k€	15k€	10k€
(started 16y ago)	30%	26%	27%	30%	33%
Creabook	25k€	10k€	3k€	/	/
	18%	9%	4%	/	/
<b>TOTAL</b>	<b>140k€</b>	<b>115k€</b>	<b>75k€</b>	<b>50k€</b>	<b>30k€</b>

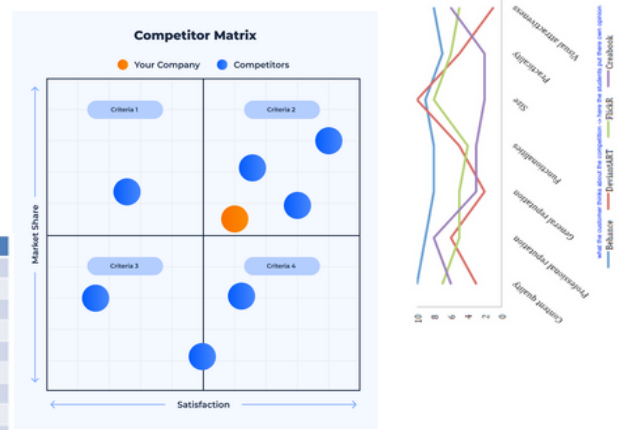
# 5 Competitor Analysis

- Detailed analysis of a business' competition within a target market
- All companies have competitors, no matter what or how innovative their product or service is!
  - Determine who the competition is by looking at three types of competitors
  - Keep in mind it is not always possible to identify all competitors
    - A handful of representative companies should suffice
- A competitive analysis grid is used to graphically represent the information a business collects about its competition



### Competitive analysis grid

- 1st examine and understand the strategies and behaviors of its (representative) competitors
  - Competitive intelligence:** the information that is gathered by a business to learn about its competitors
  - Any business should collect its competitive intelligence in a professional and ethical manner
    - Purchase competitors' products
    - Study competitors' web sites
    - Read industry-related books, magazines and websites
    - Talk to customers of competitors
- Next, competitive intelligence is used to see how the new business can stack up against its (representative) competition
  - STEP 1:** Identify the industry's and target market's critical success factors (CSFs)
    - Some may be copied from the industry analysis
    - Usually, at least 8 to 10 CSFs are identified
  - STEP 2:** Establish for each competitor a factor score for each CSF
    - Customer input required (e.g. survey, focus group, etc.)
- Below is an example of a bad **competitive analysis grid**
  - CSFs are not obvious, specific enough and there are not enough of them → they also need to be ordered in order of importance
- Competitor matrix is how it should be



# WHAT IS ENTREPRENEURIAL MARKETING?

- Entrepreneurial marketing: a new business's overall approach to marketing its products or services
- Like market analysis, marketing follows a stage-wise approach:
  - Define the overall marketing strategy**
    - It's position relative to its (main) rivals
    - Points of differentiation (PODs)
  - Explain how this strategy is supported by:**
    - Pricing
    - Promotions
    - Sales processes
    - Distribution strategy

Exam insight: Marketing is not just promotion → it is a strategic system.

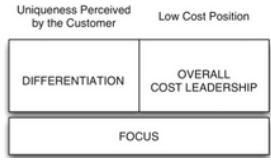
# WHY HAVE A MARKETING PLAN?

- Market analysis vs marketing plan
  - **Market analysis:**
    - Focuses on identifying the business' target market, customers, competitors and potential sales
    - Who are our customers and competitors?
  - **Marketing plan answers:**
    - Emphasizes how the business communicates to its customers and closes its sales
    - How will we convince our target market to buy from us rather than competitors?



# Overall Marketing Strategy

- Sets the tone for many aspects of the new business
- **Consistency is key**
  - Should mirror how the company feels about its target market
  - Should be reflective of the new business':
    - Mission
    - Vision
    - Objectives
  - Impacts business development in a variety of ways (e.g. pricing, hiring, financial projections, company structure, etc.)
- **Two generic strategies** exist intended to strengthen a business' competitive position
  - **Cost leadership:** produce a similar product or service at a lower cost
  - **Differentiation:** produce a "different" product or service that can extract a price premium
    - Stella in Belgium → cost leadership vs. Stella in US → differentiation
    - Today we can combine cost leadership & differentiation thanks to our technology → mass customization
- The key is (was?) to choose one dimension and execute it consistently
  - This point is debatable!
    - **All-rounder strategy:** combines reasonable price & differentiation → the firm is not extreme on cost nor differentiation
    - **Strategy clock:** framework that shows how firms position themselves based on price & perceived value → to analyze competitive positioning

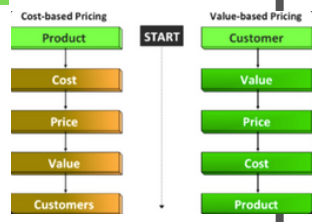


# CHAPTER 11: MARKETING A PRODUCT OR SERVICE

## THINGS TO INCLUDE IN A MARKETING PLAN

### 2 Pricing Strategy

- The price a company charges for its products or services sends a clear message
- It largely determines how much money the company can earn
  - Remember: Number of sales already determined in the market analysis
- Two methods:
  - **Cost-based pricing:** Price is determined by adding a markup (percentage) to a product's or service's cost
  - **Value-based pricing:** Price is determined by estimating what consumers are willing to pay (WTP) and then backing off a bit to provide a cushion



### 3 (Sales Process) → no info

- Positioning strategy → still part of overall marketing strategy  
Once a target market has been selected → select and conquer a "competitive position" in this market
- Positioning: how a business is situated relative to its rivals
  - Combine core capabilities and strategic assets to create **sustainable competitive advantages (SCAs)**
    - Achieved by implementing a value-creating strategy (**VRIO framework**)
      - **Value:** Does the resource help the firm create value?
      - **Rarity:** Is the resource scarce relative to competitors?
      - **Imitability:** Is the resource costly or difficult to imitate?
      - **Organization:** Is the firm organized to exploit the resource?

- Points of differentiation  
A business establishes a unique position in its customers' mind by consistently drawing attention to its **points of differentiation (PODs)**
- Clear aspects of the product, service or business that make it different compared to existing products, services or businesses
  - Focus on maximum two or three PODs
    - Make them memorable and distinct
    - Make sure that the value of these elements is easy to understand
  - You already did much of the work: (Industry) critical success factors (CSFs)
  - A useful way for a new business to visually depict its PODs is by adopting the competitive analysis grid as a starting point (cf. market analysis)

# 4 Promotions Mix

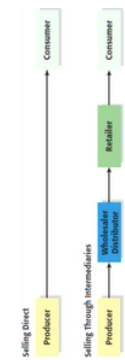
- The specific tactics that a business uses to communicate with its target market customers
- Largely two methods:
    - **Advertising:** Making people aware of a product or service in the hopes of persuading them to buy it
      - Advantages
        - Raise customer awareness of a product or service
        - Explain a product's or service's comparative features and benefits
        - Create associations between a product or service and a certain lifestyle
      - Disadvantages
        - Low credibility
        - The possibility that a high percentage of people who see the ad will not be interested
        - Message clutter
        - Relative costliness
        - Intrusiveness
    - **Public relations:** Efforts aimed at establishing a company's image with the (larger) public
      - Organizations believe that generating favorable public relations is better than advertising because it doesn't seem to be as self-serving
      - It helps build the business' credibility
      - One of the most cost-effective ways to increase awareness of a business' products or services
      - e.g., Press releases; Social media coverage; Blogging, Traditional media coverage; Civil, social and community involvement
      - The major difference between public relations and advertising is that public relations is not paid for directly
    - **Other promotional activities:**
      - Creating buzz by creating awareness and a sense of anticipation about a business and its products or services

### Putting together an ad

- **Step 1: Identify the purpose of the ad:** clearly identify one or more purposes that you expect the advertisement to achieve
- **Step 2: Determine the target audience:** identify who you want to see the ad
- **Step 3: Select a medium:** select a medium for the ad, such as television, radio, or newspaper
- **Step 4: Create the ad:** create an ad that is appropriate for your audience, product, and budget
- **Step 5: Select a place and time for the ad to appear:** select the specific place and the specific time of day (or location in a newspaper) for an ad to appear
- **Step 6: Fulfill expectations:** make sure to have enough product on hand (or people to take orders) if the ad is successful

# 5 Distribution and Sales

- Distribution and sales encompass all the activities that move a business' product(s) from its place of origin to the customer
- **Different alternatives exist:**
  - Direct sales
  - Catalogue sales
  - Internet sales
  - Sales through an intermediary
- The key to making the right choices is to think carefully about where customers in your target market shop and then about the most effective and economical way(s) to get your products some shelf space in those outlets
- An important (financial) decision to make is whether a business needs its own sales force or works through intermediaries



# WHAT IS A PRODUCT (OR SERVICE) DEVELOPMENT PLAN?

1

- Critical to businesses that are developing a **completely new product or service**
  - Only of marginal importance to businesses that are not
- While a production plan:
  - Informs investors how the business will be organized once the product or service is produced in quantity
- The product (or service) development plan:
  - Sheds light on the **journey towards this level of full production**
- Key distinction:
  - Development plan = how we get there
  - Production plan = how we operate once we're there

# WHY HAVE A PRODUCT (OR SERVICE) DEVELOPMENT PLAN?

2

- Many promising new businesses:
  - Never get off the ground because:
    - Their product or service development efforts stall, or
    - The actual development turns out to be **more difficult than anticipated**
- Having a working prototype is not enough
  - A plan is needed to:
    - Boost production
    - Meet financial projections
- Entrepreneurial capacity vs managerial capacity problem (cf. later)
- It answers the key question:
  - **"How will the business be developed up to a point that it can handle mass production?"**
- Exam insight: investors care less about ideas and more about scalability.

# Development Status and Tasks

1

- Shed light on the **present status** of the development of the product or service
  - There is a direct correlation between:
    - The **perceived risk** of the business, and
    - How far the company is from selling the product or service in quantity
- Usually done by adopting **milestones**, such as:
  - Conception
  - Prototyping
  - Initial production
  - Testing (alpha, beta, etc.)
  - Full production
- Provide a **timeline** describing the **remaining tasks** in the development of the product or service
- The closer to full production, the lower the perceived risk.

# CHAPTER 6A: PRODUCT (OR SERVICE) DEVELOPMENT PLAN

## THINGS TO INCLUDE IN A PRODCUT/SERVICE DEVELOPMENT PLAN

### 2 Challenges and Risks

- Investors **anticipate** that challenges and risks inherently exist
  - They want to know what they are
- Show evidence that:
  - You are aware of risks and challenges ahead
- Disclose any major anticipated **design and development challenges and risks** involved in bringing the product or service to market
- Discuss:
  - How challenges and risks will be **avoided**
  - How they will be **mitigated** upon occurrence
  - Their **impact** on:
    - Development of the product or service
    - Costs
    - Timeline
- Typical exam phrasing: identify → mitigate → assess impact.

### 4 Intellectual property (if appropriate)

- Intellectual property (IP) is any product of human intellect that is:
  - Intangible
  - Has value in the marketplace
- **Trademarks and copyrights**
  - Can be obtained inexpensively
- **Patents**
  - Expensive (€5,000 to €50,000)
  - Must be applied for **within one year** of:
    - First offer for sale
    - Public use
    - Description in any printed publication
  - Sometimes possible to file a **provisional patent** application
- **Trade secret**
  - Any formula, pattern, physical device, idea, process or other information
  - That provides the owner with a competitive advantage
- Exam trap: patent timing (1-year rule) is often tested.

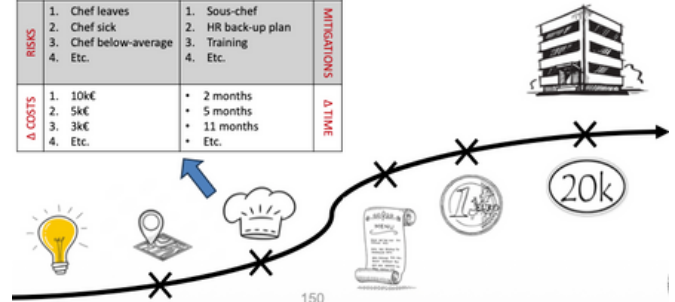
### 3 Costs Remaining

- Estimate the budget for the **remaining design and development work** that needs to be done to market the product or service
- Think outside the box:
  - Do not forget costs of:
    - Labor
    - Material
    - Consulting fees
    - Prototyping
    - Usability testing
    - Etc.
- Exceeding this budget:
  - Should be one of the risks included in the challenges and risks section
- Important link: costs remaining ↔ risk section.

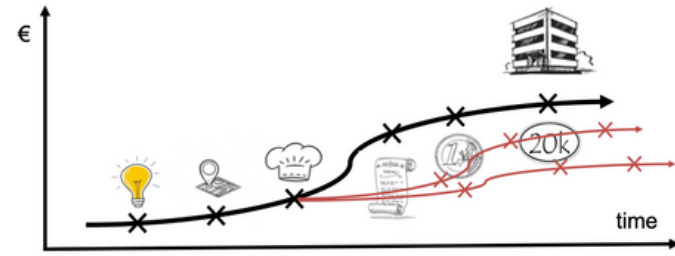
### Product (or service) development plan example

- Risk Mitigation Plan
- Risks are identified (e.g. technical, operational, cost-related)
- For each risk:
  - A mitigation strategy is defined
- Development path illustrated through:
  - Milestones
  - Increasing investment
  - Increasing commitment
- Risk is managed progressively, not all at once.

Risk Mitigation Plan			
RISKS	1. Chef leaves	1. Sous-chef	MITIGATIONS
	2. Chef sick	2. HR back-up plan	
	3. Chef below-average	3. Training	
	4. Etc.	4. Etc.	
A COSTS	1. 10k€	• 2 months	A TIME
	2. 5k€	• 5 months	
	3. 3k€	• 11 months	
	4. Etc.	• Etc.	



- Vertical axis: € (costs / investment)
- Horizontal axis: time
- As time progresses:
  - Investment increases
  - Commitment increases
- Red lines illustrate:
  - Alternative development paths
  - Potential overruns or failures
- Core idea: development is path-dependent and risky, not linear.



# WHAT IS AN OPERATIONS PLAN?

1

- A concise description of:
  - How exactly a business will produce its product or service in large quantities
- Emphasis is on:
  - Aspects that are **essential** to the success of the business and/or
  - **Set the business apart from competitors**
- Routine topics:
  - Should be dealt with lightly and quickly
  - Or not dealt with at all
- Includes:
  - Lots of charts
  - Supplemented with text
- Exam nuance: focus on what is strategically critical, not everything.

# WHY HAVE AN OPERATIONS PLAN?

2

- While the marketing plan is about:
  - **Attracting customers**
- The operations plan is about:
  - **Serving them**
- It answers the key question:
  - "What will the business look like once it achieves mass production?"

# Business Location

1

- In some instances:
  - Location is an extremely important factor
- In other instances:
  - It is not important at all
- Reasons for the business' location to become critical:
  - Proximity to a qualified labor force
  - Closeness to suppliers
  - Access to transportation
  - Proximity to customers
  - Access to favorable tax rates
  - Access to economic incentives
  - Etc.
- Location matters only insofar as it supports the business strategy.

## Value chain analysis (VCA)

- Ascertains a business':
  - **Weaknesses**
  - **Strengths**
- On an activity-by-activity basis
- **Relative to its rivals**
- Each activity:
  - Requires several resources and capabilities
- No business is likely to have:
  - Enough resources and capabilities to be good at all activities
- Does a business have the resources and capabilities to perform a particular activity in a **superior way?**
  - Better than its competitors?
  - **(Benchmarking)**
- If the outcome is unsatisfactory:
  - The activity could be outsourced
  - Based on a **two-stage decision model**

# CHAPTER 6B: DEVELOPING EFFECTIVE BUSINESS MODELS

## THINGS TO INCLUDE IN A PRODCUT/SERVICE DEVELOPMENT PLAN

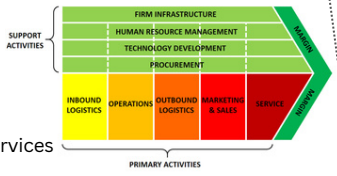
### 2 Facilities and Equipment

- Focus on **critical production facilities** the business must have access to in order to achieve → desired sustainable competitive advantages (SCAs)
- If parts of the production process are outsourced:
  - **Business partners** become equally critical
  - Must explain:
    - How partners were identified and selected
    - How they will be held accountable for quality of their output
- If **future growth** is an objective:
  - Shed light on how:
    - Facilities
    - Equipment will evolve over time

## Operations Strategy and Plans

4

- Businesses:
  - Choose a strategy
  - Then configure internal operations to support it
- To succeed: they must have the right organizational structure in place for the chosen strategy so to produce most value
- **Value creation activities** (cf. VRIO):
  - Can be categorized as:
    - **Primary activities:**
      - Directly associated with:
        - Development
        - Production
        - Distribution of goods and services
    - **Support activities:**
      - Assist in the accomplishment of primary activities
- A company's operations can be thought of as:
  - A chain
  - Composed of a series of **distinct value creation activities**

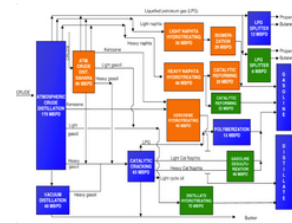


### Two-stage decision model in value chain analysis

- Do we really need to perform an activity in-house?
- Is the activity industry-specific (or common)?
  - Is the activity proprietary (firm-specific) (or not)?
    - 2x "Yes": Perform the activity in-house
    - No: Think about outsourcing
      - Turning the activity over to an outside supplier (specialist)
      - "Leaner and meaner" organizations focus more on core activities

# 3 Operations Model and Procedures

- Not necessary to offer a step-by-step description of how the business will be run
- But the **major building blocks** must be covered
- Multiple methods have been adopted over the years:
  - Separation between:
    - "Backstage" activities (unseen by the customer)
    - "Frontstage" activities (seen by the customer)
  - Operations flow diagram
  - Business model canvas
- All are closely related to:
  - **The value chain**
  - **Value chain analysis (VCA)**
- Important elements that might need to be discussed in more detail:
  - How will **inventory** be stored?
    - How frequently will it be turned over?
  - Description of:
    - The length and nature of the business' **production cycle**
  - Where are **bottlenecks** likely to occur?
    - How will they be handled?
  - How will the business take care of **after-sales service**?
  - How will the company deal with:
    - **Seasonal production loads**
    - Without service disruption?
  - How will **quality control** be handled?
  - Etc.

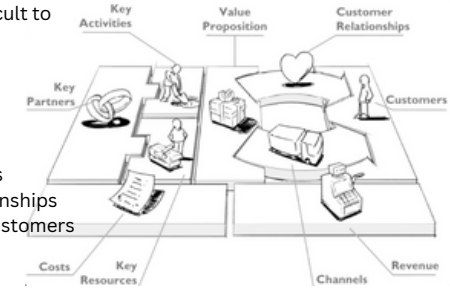


### Operations flow diagram

- A detailed visual representation of:
  - **Activities performed** inside and outside the company
- Sometimes:
  - (Too) difficult to interpret

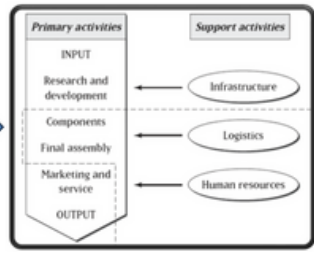
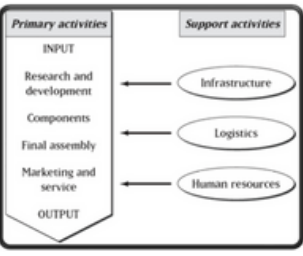
### Business model canvas

- A **diagram** illustrating:
  - How the business:
    - Competes
    - Uses its resources
    - Structures relationships
    - Interfaces with customers
    - Creates value
- Focuses attention on: how all elements of a business **fit together**
- Sheds light on:
  - The business
  - Its "partners in crime"
- Articulates: a company's core logic to all stakeholders
- **No standard business model** for an industry or for a target market within an industry
  - Yet over time, the most **successful business models predominate**



Note: Outsourcing ≠ Offshoring

- Offshoring = International outsourcing
  - Danger of OEM – ODM – OBM
- Inshoring = Domestic outsourcing
- Captive sourcing = Creating subsidiaries in foreign locations to perform in-house activities (FDI)



# WHAT IS A NEW VENTURE TEAM? 1

A new venture team is:

- A group of **founders, key employees, and advisors**
- That move a new venture from an idea to a fully functioning business



Key characteristics:

- Doesn't come together all at once
  - Built incrementally at rate of affordability
- Involves more than paid employees:
  - May include boards of advisors
  - And professional service providers (lawyers, accountants, etc.)
- Core idea: a venture team is broader than just "the founders".

## NEW VENTURE TEAM SPECIFICS 2

- Size of the founding team
  - More than half of all new businesses are started by multiple individuals
- **Team composition:** heterogeneity vs homogeneity
  - **Heterogeneous teams:**
    - Combine diverse experiences and competencies
    - Advantages:
      - Better handling of strategic uncertainty
      - Broader skill coverage
  - **Homogeneous teams:**
    - Similar backgrounds and experiences
    - Advantages:
      - Improved communication
      - Better integration
      - Establishment of trust between members
- Exam nuance: diversity improves adaptability, similarity improves coordination
- Team vs solo entrepreneur
  - Do ventures started by a team have an advantage?
    - Teams bring **more talent, resources, and ideas**
    - Teams provide broader **networks** and greater **psychological support**
  - Potential downsides of teams
    - Team members **may not get along**
    - If founders have similar areas of expertise, they may **duplicate** rather than complement each other
    - Members can easily **disagree** on: work habits, risk tolerance, passion levels, how the business should be run

### Common mistakes when putting together a new venture team

- Placing **unqualified friends or family members** in key management positions
- Assuming that:
  - Previous success in other industries
  - **Automatically translates** to the new business' industry
- Presenting a "**one-man team**" philosophy:
- Hiring top managers **without sharing ownership** in the business
- Not disclosing management team **skill or competency gaps**
- Having unclear or absent plans for **filling skill or competency gaps**
  - That are disclosed or clearly exist
- Exam trap: investors heavily penalize weak or unrealistic team structures.

## CHAPTER 9: BUILDING A NEW VENTURE TEAM

### 3 LIABILITY OF NEWNESS

- New businesses have a **high propensity to fail**
  - Due to the **liability of newness:**
    - The fact that these businesses **lack a track record of success**
- Investors are skeptical because:
  - The business is new
  - The team has not yet proven execution capability

#### How to address it

- Assemble a:
  - Talented
  - Experienced
  - Well-connected management team (or board(s) of advisors)
  - Building a **skills profile** is a good technique to investigate where additional experience/knowledge is required
- Liability of foreignness: customers or institutions prefer domestic firms, putting foreign firms at a disadvantage.
- Asset of foreignness: foreign origin signals quality or expertise (e.g. German cars, French food, Belgian chocolates).

### 4 BUILDING A SKILLS PROFILE

#### What is a skills profile?

- A chart that depicts:
  - The most important skills or competencies
  - Needed for success (CSFs)
  - And shows gaps where skills are missing
- Only 1 person per responsibility
- Multiple responsibilities per person

#### Purpose

- Helps founders identify:
  - Where additional experience or knowledge is required

#### How to deal with skill gaps

- Through:
  - Recruiting
  - Board(s) of advisors

Exam relevance: skills profiles operationalize "team quality".

### 5 BOARD OF ADVISORS

- A board of advisors is:
  - A panel of experts
  - Asked by a business to provide:
    - Counsel
    - Advice
  - On an ongoing basis
- Legal position
  - Boards of advisors:
    - Have no legal responsibility
    - Provide nonbinding advice
    - Unlike a board of directors
- Purpose
  - Can be established:
    - For general purposes
    - Or to address a specific issue
- Primary functions
  - Provide guidance
  - Lend legitimacy to the business
- Key benefit
  - Well-known and respected advisors:
    - Bring instant credibility to a new venture

	Executive Leadership	Store Operations	Supply Chain Management	Marketing and Sales	HR/Recruiting	Accounting and Finance	Community Relations	Information Systems	Franchise Operations
Jack Petty	X								
Peggy Wells		X				X			
Jill Petersen				X					
Cameron Ivey			X						
Gap 1					O				
Gap 2							O		
Gap 3									O

X = position filled  
O = position vacant

# WHAT ARE FINANCIAL STATEMENTS?

1

- Written reports that quantitatively describe a business' financial health
- Used to assess whether:
  - **Financial objectives** are being met

## Two types of financial statements

### 1) Historical financial statements

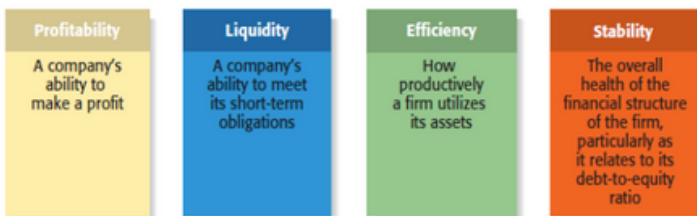
- Reflect past performance
- Prepared on quarterly or annual basis

### 2) Pro forma financial statements

- Projections for future periods
  - Based on forecasts
- Act as strictly planning tools
- Deal with:
  - Positive
  - Neutral
  - Negative "scenarios" and assumptions
- Recommended to adopt:
  - 3 to 5 years of statements
  - Show how the start-up period will be covered

# FINANCIAL OBJECTIVES

2



## Profitability

- The ability to **earn a profit**
- Many new businesses:
  - Are **not profitable during their first one to three years**
  - Due to:
    - Developing activities
    - Training employees
    - Building their brands

## Liquidity

- The ability to **meet short-term financial obligations**
- Even if a business is profitable:
  - It is often a challenge to keep enough money available
  - To meet **routine financial obligations**
- Key idea: profitability ≠ liquidity

## Efficiency

- How productively a business:
  - **Utilizes its assets relative to its revenue and profits**
- Not necessarily expressed in financial terms
  - Example: Turnaround time of airplanes

## Stability

- The **strength and vigor** of a business' overall financial posture
- To be financially stable, a business must:
  - **Earn a profit**
  - **Maintain good liquidity**
  - **Keep its debt in check**

# CHAPTER 8: FINANCIAL PROJECTIONS

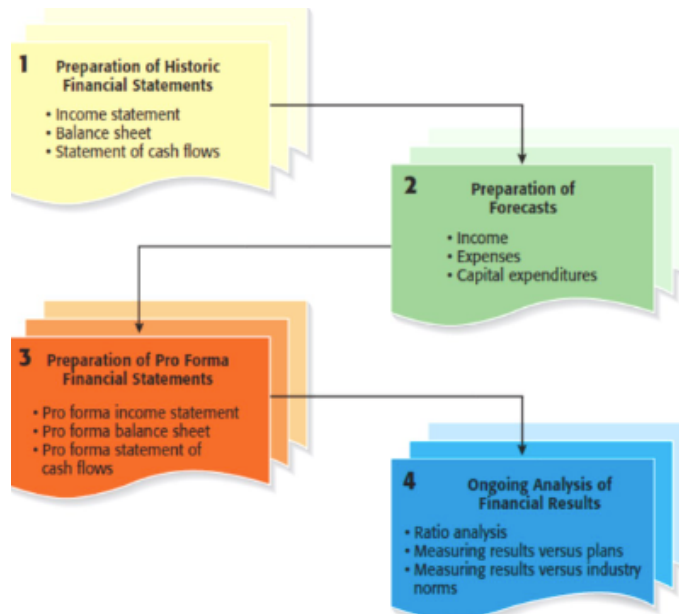
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## FINANCIAL MANAGEMENT

- Financial management deals with two things:
  - Raising money (cf. later)
  - Managing finances so the business achieves:
    - The highest rate of return
- Important questions:
  - Will the business make or lose money?
  - How much cash does the business need available?
  - How efficiently is the business utilizing its assets?
  - Where will the needed funds come from?
  - Overall: Is the business in good financial shape?

4

## FINANCIAL STATEMENTS



## Sources and use of funds statement

- Document that lays out specifically:
  - How much money the business **needs**
  - Where the money is **coming from**
  - What the money will be **used for**
- These items traditionally become the **initial assets and liabilities of the business**
  - Important starting point in developing the **balance sheet**

## Financial assumptions sheet

- A collection of the most **critical assumptions** that the projected financial statements are based on
  - Some assumptions will be based on **general information** and no specific sources must be cited to substantiate
  - Other assumptions will be based on rather **specific information** and the source for these assumptions should be cited
- The financial assumption sheet is likely to refer to prior sections of this course (cf. industry analysis, market analysis, marketing plan, etc.)
  - **Positive, negative and neutral** assumptions can be included

## Preparation of forecasts

- Forecasts are **predictions of a business' future sales, expenses, income and capital expenditures**
  - Help a business create accurate budgets, build financial plans and manage its finances in a more proactive manner
- New businesses typically base their forecasts on:
  - Industry averages
  - Experiences of similar start-ups
  - **Estimates of sales**

## Estimates of sales

- Projection of a **business' sales (and revenue)** for a specified period
- The **first forecast** developed
- **Basis for most of the financial statements**
- Once a business has completed its estimates of sales, it must forecast its **cost of sales or cost of goods sold** as well as other items on its income statement
  - The most common way to do this is to use the **"percentage-of-sales" method**
    - Each expense item on the income statement will grow at the same rate as the estimates of sales, except for items that can be **individually forecasted**

# Income statement 1

- Reflects the **projected results** for a business for a specific period
- Shows whether the business will be making a profit or be experiencing a loss
  - Often referred to as the “**profit and loss**” statement
- Provides no indication of a business’ **cash position**
  - A business can show excellent sales numbers, but these might convert into accumulated accounts receivable or be used to build inventory

## Three numbers that receive the most attention

- **Net sales**
  - Consist of total sales minus allowances for returned goods and discounts
  - Custom to adopt **different scenarios**
- **Cost of goods sold**
  - All the **direct costs** associated with producing a product or service, including all material costs and direct labor
- **Operating expenses**
  - Include marketing, utilities and administrative costs **not directly** related to producing a product or service

**TABLE 8.6 PRO FORMA INCOME STATEMENT FOR NEW VENTURE FITNESS DRINKS, INC.**

	2011 Actual	2012 Projected	2013 Projected
Net sales	\$586,600	\$821,200	\$1,026,500
Cost of sales	268,900	390,000	487,600
Gross profit	317,700	431,200	538,900
Operating expenses			
Selling, general, and administrative expenses	117,800	205,300	256,600
Depreciation	13,500	18,500	22,500
Operating income	186,400	207,400	259,800
Other income			
Interest income	1,900	2,000	2,000
Interest expense	(15,000)	(17,500)	(17,000)
Other income (expense), net	10,900	20,000	20,000
Income before income taxes	184,200	211,900	264,800
Income tax expense	53,200	63,600	79,400
Net income	131,000	148,300	185,400

**Net sales** = Total sales – Returned goods and discounts

**Cost of Goods Sold** = Direct costs associated with production (e.g. labour, raw materials)

**Operating expenses** = Indirect costs associated with production (e.g. marketing, administrative costs)

**Possible exam question:** What is the difference btn sales and net sales?

sales = P x Q => net sales = sales - return goods - discounts

# 4 FINANCIAL STATEMENTS

## 2 Balance Sheet

- Unlike the income statement, which covers a specific period, the balance sheet is a projection of a business’ assets, liabilities and owners’ equity **at a specific point in time** (cf. “snapshot”)
- A balance sheet **must always “balance”**, meaning a business’ assets must always = its liabilities plus the owners’ equity
- The top of a balance sheet (or the left-hand side) shows a business’ assets, while the bottom (or right-hand side) shows its liabilities and the owners’ equity
  - The assets are listed in order of their **liquidity** or the length of time it takes to convert them to cash
  - The liabilities are listed in the order in which they **must be paid**
- Most new businesses create a “**projected opening**”
  - A balance sheet that shows what the business will look like at the beginning point in time (cf. sources and use of funds statement)
- Some interesting facts:
  - Mind that “**off balance sheet**” transactions exist (sweat equity)
    - Operating leases
    - Training provided to employees
    - Value of the brand
    - Intellectual property (sometimes)
- Real estate is valued at its historic cost rather than at market value

### Important numbers:

- **Current assets**
  - Cash plus items that are readily convertible to cash
  - Also includes items such as **accounts receivable and inventory**
- **Fixed assets**
  - Assets used over a **longer time frame**, such as real estate, buildings, equipment and furniture
- **Current liabilities**
  - Obligations that are **payable within a year**, including accounts payable, accrued expenses and the current portion of long-term debt
- **Long-term liabilities**
  - Notes or loans that are repayable **beyond one year**, such as liabilities associated with buildings and equipment
- **Owners’ equity**
  - The equity invested in the business by its **owners** plus the **accumulated earnings** reported by the business after paying dividends

**TABLE 8.7 PRO FORMA BALANCE SHEETS FOR NEW VENTURE FITNESS DRINKS, INC.**

Assets	December 31, 2011	Projected 2012	Projected 2013
<b>Current assets</b>			
Cash and cash equivalents	\$63,800	\$53,400	\$80,200
Accounts receivable, less allowance for doubtful accounts	39,600	57,500	71,900
Inventories	19,200	32,900	41,000
Total current assets	122,600	143,800	193,100
<b>Property, plant, and equipment</b>			
Land	260,000	260,000	360,000
Buildings and equipment	412,000	512,000	687,000
Total property, plant, and equipment	672,000	772,000	1,047,000
Less: accumulated depreciation	65,000	83,500	106,000
Net property, plant, and equipment	607,000	688,500	941,000
<b>Total assets</b>	<b>729,600</b>	<b>832,300</b>	<b>1,134,100</b>

**TABLE 8.7 PRO FORMA BALANCE SHEETS FOR NEW VENTURE FITNESS DRINKS, INC.**

Liabilities and shareholders’ equity	December 31, 2011	Projected 2012	Projected 2013
<b>Current liabilities</b>			
Accounts payable	30,200	57,500	71,900
Accrued expenses	9,900	12,000	14,000
Total current liabilities	40,100	69,500	85,900
<b>Long-term liabilities</b>			
Long-term debt	249,500	174,500	274,500
Total long-term liabilities	249,500	174,500	274,500
Total liabilities	289,600	244,000	360,400
<b>Shareholders’ equity</b>			
Common stock (100,000 shares)	10,000	10,000	10,000
Retained earnings	430,000	578,300	763,700
Total shareholders’ equity	440,000	588,300	773,700
<b>Total liabilities and shareholders’ equity</b>	<b>729,600</b>	<b>832,300</b>	<b>1,134,100</b>

### Cash Flow Statement 3

The most valuable of the financial statements

- Starts with:
  - A beginning cash balance (=a amount of cash a business has on hand at the beginning of a period)
- Add:
  - Projected monthly income (or loss)
- Then list:
  - All the other transactions that either add or subtract from that cash
- Indicates:
  - Whether the business can maintain sufficient cash

Divided into three activities:

- Operating activities**
  - Net income (or loss)
  - Depreciation
  - Changes in current assets and liabilities (excluding cash)
- Investing activities**
  - Purchases, sales or investments of/in:
    - Fixed assets
      - Real estate
      - Equipment
      - Buildings
- Financing activities**
  - Cash raised during the period by:
    - Borrowing money
    - Loan repayments
    - Paying dividends

Possible Exam Question: Why is depreciation positive here?

TABLE 8.8 PRO FORMA STATEMENT OF CASH FLOWS FOR NEW VENTURE FITNESS DRINKS, INC.

	December 31, 2011	Projected 2012	Projected 2013
<b>Cash flows from operating activities</b>			
Net income <sup>a</sup>	\$131,000	\$148,300	\$185,400
<b>Changes in working capital</b>			
Depreciation	13,500	18,500	22,500
Increase (decrease) in accounts receivable	9,300	(17,900)	(14,400)
Increase (decrease) in accrued expenses	1,900	2,100	2,000
Increase (decrease) in inventory	1,200	(13,700)	(8,100)
Increase (decrease) in accounts payable	(16,700)	27,300	14,400
Total adjustments	9,200	16,300	16,400
Net cash provided by operating activities	140,200	164,800	201,800

TABLE 8.8 CONTINUED

	December 31, 2011	Projected 2012	Projected 2013
<b>Cash flows from investing activities</b>			
Purchase of building and equipment	(250,500)	(100,000)	(275,000)
Net cash flows provided by investing activities	(250,500)	(100,000)	(275,000)
<b>Cash flows from financing activities</b>			
Proceeds from increase in long-term debt	119,500	—	100,000
Principle reduction in long-term debt		(75,000)	
Net cash flows provided by financing activities			
Increase in cash	9,200	(10,400)	26,800
Cash and cash equivalents at the beginning of the year	54,600	63,800	53,400
Cash and cash equivalents at the end of the year	63,800	53,400	80,200

1  
Net income taken from previous income statement

Use of cash = negative figure  
Source of cash = positive figure

Depreciation = Positive as it was deducted from the net income on the income statement but does not represent a cash expenditure (>< decrease in accounts payable = negative)

Purchase/sale or investment in fixed assets (e.g. equipment)

Cash raised by borrowing money or selling stock, cash used by paying dividends or buying back stock

### 4 Ratio Analysis

- The most practical way to interpret or make sense of financial statements
- Ratios are computed by:
  - Linking numbers from different financial statements
- Each ratio:
  - Reveals a particular insight into business potential
- Should be compared to:
  - Industry norms (cf. industry analysis)
- Any discrepancy:
  - Must be carefully explained

Three most common categories of financial ratios:

- Profitability ratios**
  - Compare income earned against resources used
- Liquidity ratios**
  - Measure relationship between:
    - Short-term assets
    - Short-term liabilities
- Overall financial stability ratios**
  - Measure overall financial stability

TABLE 8.4 RATIO ANALYSIS FOR NEW VENTURE FITNESS DRINKS, INC.

Ratio	Formula	2011	2010	2009
Profitability ratios: associate the amount of income earned with the resources used to generate it				
Return on assets	ROA = net income/average total assets <sup>a</sup>	21.4%	18.7%	14.7%
Return on equity	ROE = net income/average shareholders' equity <sup>b</sup>	35.0%	31.0%	24.9%
Profit margin	Profit margin = net income/net sales	22.3%	17.9%	13.6%
Liquidity ratios: measure the extent to which a company can quickly liquidate assets to cover short-term liabilities				
Current	Current assets/current liabilities	3.06	2.26	2.35
Quick	Quick assets/current liabilities	2.58	1.89	1.96
Overall financial stability ratio: measures the overall financial stability of a firm				
Debt	Total debt/total assets	39.7%	37.4%	42.3%
Debt to equity	Total liabilities/owners' equity	65.8%	59.8%	73.2%

### 5 Break-even Analysis

- Determines the volume of sales needed to:
  - "Break even"
  - In terms of profit and loss
- Condition:
  - Total revenue = total cost
- Formula:
  - Total fixed costs / (price - average variable costs)
- Allows evaluation of:
  - The potential of different strategies

# THE IMPORTANCE OF GETTING FUNDING OR FINANCING

1

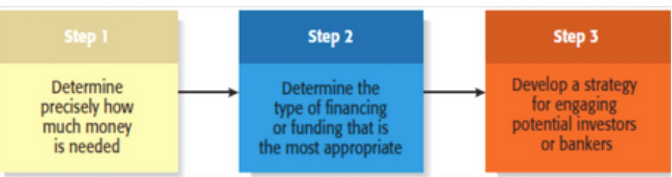
- Many entrepreneurs:
  - Approach the task of raising capital **haphazardly**
  - Because they **lack experience** in this area
- Why most new businesses need **external funding**:
  - **Cash flow challenges**
    - Expenses must be paid before sufficient revenues are generated
  - **Capital investments**
    - Cost of buying equipment, facilities, technology, etc.
  - **Lengthy product development cycles**
    - The business may need to spend money for a long time before it can generate enough revenue

Core idea: lack of funding can kill a good business idea.

<b>Cash Flow Challenges</b> Inventory must be purchased, employees must be trained and paid, and advertising must be paid for before cash is generated from sales.	<b>Capital Investments</b> The cost of buying real estate, building facilities, and purchasing equipment typically exceeds a firm's ability to provide funds for these needs on its own.	<b>Lengthy Product Development Cycles</b> Some products are under development for years before they generate earnings. The up-front costs often exceed a firm's ability to fund these activities on its own.
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## ALTERNATIVES OF RAISING MONEY

2



- **Personal financing**
  - **Personal funds**
    - Most founders contribute personal funds (and sweat equity) to their business
    - **Sweat equity**:
      - Represents the value of the time and effort that a founder puts into a new business
  - **Friends and family, fools (3Fs)**
    - The second source of funds for many new businesses
- **Equity capital**
  - Exchanging partial ownership in a business, usually in the form of stock or equity, for funding (e.g. venture capitalists, business angels, IPO)
- **Debt financing**
  - Getting a loan (e.g. commercial banks, other financial institutions)
- Other sources of financing

- **Bootstrapping**
  - The third source of seeding money
  - Finding ways to:
    - Avoid the need for external financing
    - Through creativity, ingenuity, thriftiness, cost cutting, or any means necessary
  - Examples:
    - Buying used instead of new equipment
    - Obtaining payments in advance from customers
    - Coordinating purchases with other businesses
    - Sharing office space or employees with other businesses
    - Hiring interns

# CHAPTER 10: GETTING FUNDING OR FINANCING

## 3 BUSINESS ANGELS

- Individuals who invest their **personal capital** directly into new businesses
- **Typical profile**:
  - About 50 years old
  - High income and wealth
  - Well educated
  - Successful as an entrepreneur
  - Interested in entrepreneurship
- **Typical investment size**:
  - Between €100,000 and €200,000 in a single company

## 4 VENTURE CAPITALISTS (VCS)

- **Limited partnerships of money managers** who:
  - Raise money in funds
  - Invest in start-ups and growing businesses
- Funds **raised from**:
  - Wealthy individuals
  - Pension plans
  - University endowments
  - Insurance companies
- **Venture capitalists**:
  - Fund fewer entrepreneurial initiatives compared to business angels
  - Are typically looking for the "home run"
  - Are interested in a majority stake
- **Venture capital funding** involves:
  - A **due diligence process**
- Invest money in **stages**
- Tend to exert significant pressure on the venture

- **Leasing**
  - A written agreement in which:
    - The owner of a property allows an individual or business to use it for a specified period
    - In exchange for regular/monthly payments
  - Enables a company to:
    - Acquire assets with very little or no initial down payment
  - Leasing is almost always more expensive than paying cash
  - At the end of the lease:
    - Typically the option to:
      - Stop using the equipment
      - Purchase it for fair market value
      - Renew the lease

## 5 INITIAL PUBLIC OFFERING (IPO)

- An **initial public offering (IPO)**:
  - A company's **first sale of stock to the public**
- When a company goes public:
  - Its stock is traded on one of the major stock exchanges
- IPO is a major **milestone** for a business
- Typically:
  - A business is not able to go public until:
    - It has demonstrated it is viable
    - It has a bright future (roadshow)
- IPO motivations:
  - Raise equity capital to fund operations
  - Increase the business' public profile
  - Liquidity event for investors to recoup their money
  - Use equity as a form of currency (e.g. acquisitions)

## 6 COMMERCIAL BANKS

- Historically:
  - Commercial banks have **not been viewed as a practical source of financing for new businesses**
- Reason:
  - Banks are **risk-averse** → Financing entrepreneurial initiatives is risky
- Banks are interested in businesses that have:
  - Strong cash flow
  - Low leverage
  - Audited financials
  - Good management
  - Healthy balance sheet
- Typically finance businesses that:
  - Have achieved or are close to "full production" (cf. product or service development plan)

## 7 OTHER SOURCES OF FINANCING

- **Peer-to-peer lending**
  - Financial transaction directly between individuals or peers
- **Crowdfunding**
  - Form of raising money via the Internet
  - People pool their money to support a new business or initiative
  - Usually in return for stock or equity
  - Kickstarter is a popular online crowdfunding platform
- **Private grants and government grants**
- **Strategic partnerships**
  - One business strategically invests in another

## GROWTH NOT ALWAYS A GOOD THING

1

- Problems with growth:
  - Not all businesses have the potential to grow aggressively
  - A business can grow too fast
  - Business success doesn't always scale
- Hence, businesses should establish growth-related plans

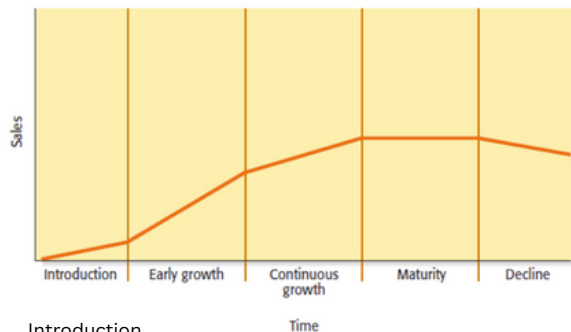
### 10 Warning Signs That a Business Is Growing Too Fast

1. Borrowing money to pay for routine operating expenses
2. Extremely tight profit margins
3. Over-stretched staff
4. Declining product quality
5. E-mail starts going unanswered
6. Customer complaints are up
7. Employees dread coming to work
8. Productivity is falling
9. Operating in a "crisis" mode becomes the norm rather than the exception
10. Those working with the business's financial structure are starting to worry

## MANAGING GROWTH & STAGES OF GROWTH

3

- It's important for a business owner to know the stages of growth along with the unique opportunities and challenges that each **stage** entails



### Introduction

- Start-up phase where a business determines what its core strengths and capabilities are
- The main challenge is to make sure the initial product or service is right

### Early growth

- Generally characterized by increasing sales and heightened complexity
- Two important things must happen for a business to be successful in this stage:
  - The founder(s) must start working "on the business" rather than "in the business"
  - Increased formalization takes place, and the business must start developing policies and procedures

### Continuous growth

- The need for structure and formalization increases
- Some of the toughest decisions must be taken in this stage:
  - One is whether the owner and current management team have the experience and abilities to take the business any further

### Maturity

- Growth stalls
- The business is typically more focused on managing efficiently than developing new products or services
- Well-managed businesses often look for partnering opportunities or opportunities for acquisitions or licensing deals to breath new life into the company

### Decline

- It is not inevitable that a business enters the decline stage
- A business' ability to avoid decline hinges on the strength of its leadership and its capacity to adapt over time

## ADDENDUM: PREPARING FOR GROWTH

2

### REASONS FOR PURSUING GROWTH

- Economies of scale
- Economies of scope
- Establishment of market leadership
- Influence, power and survivability
  - Larger businesses usually have more influence and power
- Accommodate for the growth of key customers
- Attract and retain key employees

3

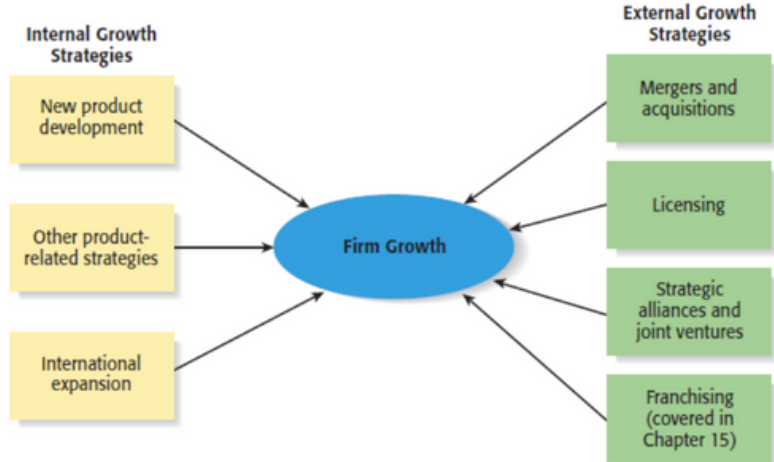
### CHALLENGES OF GROWTH

- Managerial capacity
- Moral hazard
  - As a business grows and adds personnel, the new employees typically do not have the same ownership incentives as the original founders, so they may not be as motivated to put in long hours (and may even try to avoid hard work)
- Adverse selection
  - As the number of employees a business needs increases, it becomes increasingly difficult for the business to find the right employees, place them in appropriate positions and provide adequate supervision
- Day-to-day challenges
  - Cash flow management
    - A business requires an increasing amount of cash as it grows
  - Price stability
    - If growth comes at the expense of a competitor's market share, a price war could ensue
  - Quality control
    - An increase in business activities can result in quality control issues if a business is not able to increase its resources to handle the extra work
  - Capital constraints
    - Ever-present problem for growing businesses
- A business can't quickly increase its managerial services to take advantage of new market, product or service ideas because:
  - It is expensive to hire new employees
  - It takes time for new employees to be socialized into the culture of the business
  - It takes time for new employees to acquire business-specific skills
- When a business' managerial resources are insufficient to take advantage of its new ideas, the subsequent bottleneck is referred to as the managerial capacity problem

# INTERNAL AND EXTERNAL GROWTH STRATEGIES

1

- Internal growth strategies
  - Involve efforts taken within the business itself, such as new product development and international expansion
- External growth strategies
  - Rely on establishing relationships with third parties, such as mergers, acquisitions, strategic alliances and joint ventures



## ADVANTAGES AND DISADVANTAGES OF INTERNAL GROWTH

2

- Advantages
- Incremental, even-paced growth
  - Provides maximum control
  - Preserves organizational culture
- Disadvantages
- Slow form of growth
  - Requirement to develop new resources
  - Investments can be difficult to recoup
  - Adds to industry capacity

- Top 10 Reasons New Products Fail
1. Target market is not defined correctly.
  2. Product is not positioned effectively.
  3. Product's benefits are not understood by the target customer.
  4. Product does not address important customer needs.
  5. Product is seen as incomplete, or it requires too many ancillary services or other pre-requisites.
  6. Product costs too much, or the total cost of ownership is out of line with perceived benefits.
  7. Sales and marketing efforts are not focused and aligned.
  8. Sales cycles are longer than expected.
  9. The company is under-investing in marketing and sales efforts.
  10. The target market is smaller than originally projected, or the product is too far ahead of the market.

# ADDENDUM: STRATEGIES FOR BUSINESS GROWTH

3

## OTHER PRODUCT-RELATED STRATEGIES CHALLENGES OF GROWTH

- Improving an existing product or service
  - Often a business can increase its revenues by simply increasing the quality of an existing product or service
- Increasing market penetration
  - Growing the sales of a product or service through greater marketing efforts or through increased production capacity within known markets
- Extending product lines
  - Making additional variations of a product or service
- Geographic expansion
  - Growth via expanding to additional geographic locations

4

## INTERNATIONAL EXPANSION

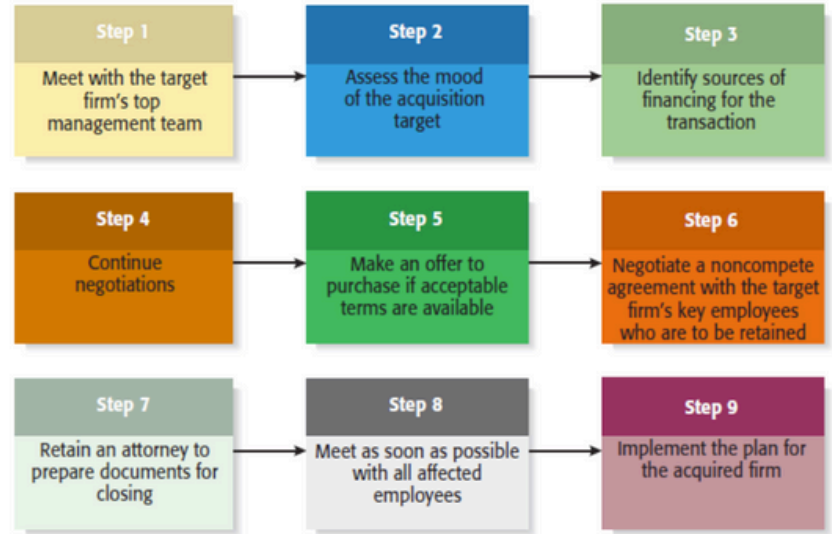
- International new ventures or “born globals” are businesses that, from their inception, seek to derive significant competitive advantage selling products or services in multiple countries
  - Although there is vast potential associated with selling overseas, it remains relatively complex
- Foreign market entry strategies:
  - Exporting (direct or indirect)
  - Licensing or franchising
  - Joint ventures
  - Wholly owned subsidiaries (M&A or greenfield)
  - Turnkey projects

5

## ADVANTAGES AND DISADVANTAGES OF EXTERNAL GROWTH

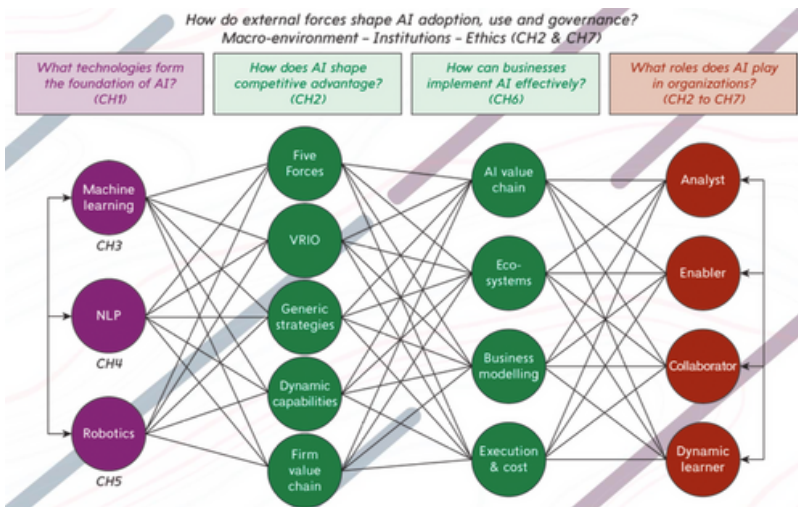
- Advantages
- Reduces competition
  - Quick access to new products or services and markets
  - Economies of scale
  - Diversification of business risk
- Disadvantages
- Incompatibility of top management
  - Clash of corporate cultures
  - Increased business complexity
  - Antitrust implications

## Mergers and acquisitions



# ARTIFICIAL INTELLIGENCE: CONCEPTS, ORIGINS & CHARACTERISTICS

1



# HOW MACHINE LEARNING WORKS – FROM VECTORS TO DEEP NEURAL NETWORKS

3

## AI & STRATEGY

## 2 FROM TRADITIONAL PROGRAMMING TO MACHINE LEARNING

**Problem context: cat vs dog classification**      **The core problem: variation**

- Goal:
    - Build a program that classifies images
    - 0 = Cat
    - 1 = Dog
  - Variations in:
    - Breed, Colour, Fur, Ear shape, Image angle, Lighting conditions, etc.
  - Result:
    - Endless rule writing
    - No scalability
    - No clear endpoint
- Traditional programming approach
- Business defines needs
  - IT writes explicit rules
  - Works for:
    - Few images
    - One specific cat or dog

### How machines “understand” data

- Machines do not:
  - Know what cats or dogs are
  - Understand features like fur or size intuitively
  - Interpret images like humans
- Solution:
  - Translate problems into vectors → features

### Vectors

- A vector:
  - Expresses position or direction using numbers
  - Examples:
    - 2D: (x, y)
    - 3D: (x, y, z)
- Analogy:
  - Directions such as “3 steps east, 4 north”

### Featurization

- Process:
  - Identify key features of the cat or dog
  - Convert features into vector-based format
  - Information → processable by machines
- Example vector:
  - [1, 2, 1, 3, 0.5, 0, 0]
  - Fur colour (brown): 2
  - Ear shape (floppy): 1
  - Breed (Cocker Spaniel): 3
  - Image brightness (medium): 0.5

### Binary encoding

- Features often encoded using binary vectors:
  - Black → [1, 0, 0]
  - Brown → [0, 1, 0]
  - White → [0, 0, 1]
- Benefits:
  - Consistency
  - Bias reduction

### Applying machine learning to our context

- Create vectors for many images of cats and dogs, each labelled with the correct category (“cat” or “dog”)
- The machine learns patterns that distinguish categories one from the other

### Conditions for machine learning:

- The problem must be suitable for ML
- A suitable algorithm must exist
- A viable solution must be possible

### Beating the stock market?

- ML is widely used in stock market analysis but delivers inconsistent results
  - High-frequency trading exploits short-term patterns
  - Hedge funds analyse large datasets for portfolio optimization
- Short-term successes exist, but long-term predictions remain highly uncertain
- Markets are shaped by unpredictable economic, political, and human factors
- ML can reduce uncertainty, but cannot eliminate it due to market complexity

### Enter machine learning

- Instead of coding rules:
  - Feed large sets of labelled images
  - Detect patterns and common features
  - Learn how to classify new images autonomously
- Benefits: This approach makes problem-solving faster, more scalable, and far less manual
- What made this possible:
  - Explosion of available data
  - Increased computing power (Moore’s Law)

### Preconditions for machine learning

- For ML to work:
- It must be a machine learning problem
  - A suitable algorithm must exist
  - A viable solution must be possible

### Limits of machine learning (stock market example)

- ML widely used in finance:
  - High-frequency trading
  - Hedge fund portfolio optimization
- Outcomes:
  - Some short-term success
  - Long-term predictions remain uncertain
- Reason:
  - Markets influenced by unpredictable factors:
    - Economic shifts
    - Political events
    - Human behavior
- ML:
  - Reduces uncertainty
  - Cannot eliminate uncertainty

- AI technologies – a myriad of terms**
- At the end of this part, students should be able to:
- Understand foundational AI technologies
  - Grasp essential AI terminology and concepts
  - Identify technical capabilities and potential applications of AI

### What does “Artificial” and “Intelligence” mean?

- Artificial:
  - Anything created through human intervention
  - Opposed to arising naturally
- Intelligence:
  - A “suitcase term”
  - Cognitive capacities of humans, animals, or machines
  - Can exist individually or collectively
- Artificial Intelligence:
  - Systems engineered to simulate human cognitive abilities
  - Execute tasks historically dependent on human intellect

### Artificial Intelligence – ID Card

- Genesis:
  - Post World War II
  - “Computing machinery and intelligence” – Alan Turing (1950)
- Business interest:
  - Foundation: Third AI Wave
  - Spark: ChatGPT by OpenAI (2022)
- Main characteristics:
  - Data-driven learning
  - Neural networks
  - Language and perception capabilities
  - Embodied intelligence
- Ownership & organization:
  - Multidisciplinary teams
  - Driven by data scientists

# HOW MACHINE LEARNING WORKS – FROM VECTORS TO DEEP NEURAL NETWORKS

3

## AI & STRATEGY

### From shallow to deep learning

- Shallow learning techniques:
  - Regression, decision trees
  - Manual feature engineering → humans identify and select relevant data features
  - One hidden layer
- Deep learning techniques:
  - Automatic feature extraction
  - Learns directly from raw data
  - Multiple hidden layers
- Driven by advances in Artificial Neural Networks (ANNs):
  - 1957: Perceptron (Rosenblatt)
  - 1959: Term “machine learning” (Arthur Samuel)
  - 1969: Backpropagation (Bryson & Ho)

### Artificial Neural Networks (ANNs)

- Inspired by the human brain
- Brain:
  - Billions of neurons → working together to process and store information
  - Neural pathways strengthen with use
- ANN structure: Modelled after the brain yet with artificial neurons
  - Input layer: Receives raw data (e.g., image features, pixel info)
  - Hidden layer(s): Processes and interprets information
  - Output layer: Produces a result (e.g., “dog” or “cat”)

#### Step 1 – The input layer:

- Each neuron ( $x_i$ ) represents a pixel in the image
  - Grayscale (28×28) → 784 input neurons (pixels)
  - Colour image (RGB) → 3× more neurons = 2,352 inputs

#### Step 2 – Connections between layers:

- Every neuron connects to all neurons in the next layer
- Each connection has a weight ( $w_{ij}$ ) that determines its strength
- Weights are the network’s adjustable parameters, controlling how much one neuron influences another

#### Step 3 – The hidden layer(s):

- Hidden neurons ( $z_j$ ) compute a weighted sum of their inputs
  - Include all weights and a bias term ( $\beta_j$ ) for flexibility.
  - Bias allows activation even with weak inputs → adds adaptability

- The result passes through an activation function, producing the neuron’s output

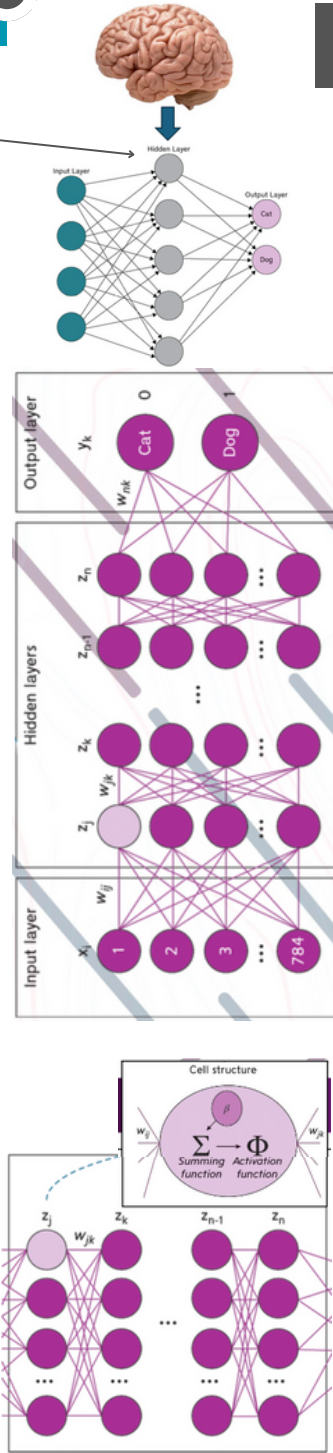
- Each additional hidden layer extracts increasingly complex features from the data

#### Step 4 – The output layer:

- Output neurons ( $y_k$ ) generate the final prediction
- In binary classification, outputs are typically above or below 0.5

### From ANNs to Deep Neural Networks (DNNs):

- Early ANNs: Contained only a few layers of neurons
- DNNs: Stack many layers, each doing specialized computations
  - Like following steps in a complex recipe



### Applying neural networks to our context

- A single neuron in action:
  - Inputs: Ear length ( $x_1$ ) = 3, fur texture ( $x_2$ ) = 2
  - Weights:  $w_{11} = 0.60$ ,  $w_{21} = 0.20$
  - Bias:  $\beta_1 = -1$
- Computation – Weighted sum:
  - $z_1 = (w_{11} \times x_1) + (w_{21} \times x_2) + \beta_1 = 1.20$
- Transformation – Activation (Sigmoid Function):
  - Maps the result to a value between 0 and 1 → 0.77 (77%)
- Outcome – Output:
  - Strong activation (> 0.5) → The neuron fires: It’s a dog!

### Forward propagation for prediction (guessing)

- Input data flows through successive layers of neurons to generate predictions
- Prediction accuracy depends on the network’s parameter values (i.e., weights and biases)
- When predictions differ from actual targets, the network adjusts its parameters → this is how it learns

### Backpropagation for learning (learning)

- The network makes initial (random) predictions through forward propagation:
  - It measures error using a loss function – the difference between actual and predicted values
  - A high loss means the prediction is inaccurate and parameters must be adjusted
- The network uses gradient descent to compute the slope (gradient) of the loss function for each parameter:
  - Weights and biases are updated to minimize loss step by step
  - Over time, the network converges toward an optimal decision boundary for accurate predictions

### Like walking downhill

- Gradient descent is a method for finding the minimum of a function – much like walking downhill to the lowest point in a valley
- The derivative tells us the slope at any given point – showing both the steepness and direction of the descent
- Using this slope, we take a small step downhill, moving closer to the minimum
- This process repeats until the slope becomes zero, meaning we have reached the lowest point – the minimum

### Optimizing your decisions

- Through backpropagation, the model eventually learns an optimal decision boundary
- This is a dividing line in the feature (or vector) space that best separates the output categories
- The process often involves trial and error and the careful tuning of hyperparameters to achieve the best results

### Hyperparameter tuning

- Hyperparameter tuning means choosing the best settings to improve a model’s accuracy and efficiency
- Unlike parameters learned during training, hyperparameters are set in advance
- The learning rate controls how much the model adjusts its parameters each step
  - Too high → the model may skip over the optimal solution
  - Too low → learning becomes slow and inefficient
- The batch size determines how many data samples are processed at once during training
- There’s no single best combination, so experimenting and fine-tuning are key to optimal performance

### Backpropagation for learning – this is not new!

Intuitive analogy – Learning to shoot a basketball:

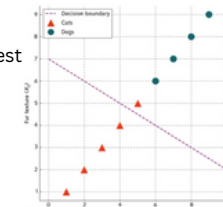
- At first: You might miss the hoop by using too much or too little force – a kind of false prediction (FP)
- After each miss, you analyse what went wrong and adjust your technique, using less force or changing your aim – like backpropagation (BB)
- With practice and repeated adjustment, your accuracy improves, just like a model that learns from its errors

### The issue with ambiguity and opacity

- The “black box” problem of DNNs:
  - DNNs often operate as a black box – while the algorithms and training steps are well understood, it’s often unclear why specific parameter changes lead to better performance
  - This raises concerns about reliability and trustworthiness
- Improving interpretability:
  - Transparency – What data, algorithms, and architectures are being used?
  - Explainability – How does the network arrive at a specific output? (→ XAI, Explainable AI)
  - Objective – Detect and correct biases, misinformation, and errors, especially in Gen AI

### The dog versus wolf hallucination

- A machine learning model was trained to classify images of huskies and wolves
- It initially appeared highly accurate, correctly labelling most images
- Deeper analysis showed the model wasn’t focusing on the animals’ features
  - It was reacting to the background
  - The dataset contained a hidden pattern: Wolves were usually shown on snowy backgrounds, huskies appeared in forests or non-snowy settings
- he model learned to associate snow equals wolf, rather than identifying the animals themselves
- This case reveals how AI systems can learn the wrong patterns, leading to flawed and unreliable classifications



### From main class: Intellectual property

- Intellectual property is any product of human intellect that is intangible but has value in the marketplace
  - Trademarks and copyrights** can be obtained inexpensively
  - Patents** are expensive (€5000 to €50000) and must be applied for within one year of when the product is first offered for sale, put into public use or is described in any printed publication
    - Sometimes it is possible to file a **provisional patent** application
  - A **trade secret** is any formula, pattern, physical device, idea, process or other information that provides the owners of the information with a competitive advantage in the marketplace

### Patents - Introduction

- A patent is a type of intellectual property that gives its owner the legal right to exclude others from making, using, or selling an invention for a limited period of time in exchange for publishing an enabling disclosure of the invention.
- Reason for patents: Innovation is hard and expensive, and if you are successful but copying is allowed, there is no incentive to do innovation.
  - Patents reward the inventor with a temporary monopoly
  - In return for the monopoly, the inventor has to disclose all information on how the invention works so others can build further on it
- Note: there are other types of intellectual property, like copyrights (authorship of software code, e.g. Microsoft), trade secrets (recipes and formulas, e.g. Coca Cola), trademarks (brand name and logo, e.g. Nike)
- An invention needs to meet 3 criteria to be patented. Before the patent office grants a patent, a patent examiner will validate whether the invention submitted for a patent is:
  - Novel:** Invention must be substantially different from anything else that is public knowledge
    - The scope of public knowledge is worldwide
    - Public knowledge is all knowledge available in existing patents, papers, products on the market
    - An invention that combines 2 existing ideas can be novel (air conditioning + shoe)
  - Non-Obvious:** The invention must not be easily perceived by a person of expertise in the invention's field
    - A toaster that could toast 10 slices of bread instead of 1 would not be considered for a patent
  - Useful:** The invention must work and serve some type of purpose
    - You would not be able to patent a time-machine (unless it works)
    - You would not be able to patent a new medicine if it had no effects
- Patents protect innovators and make the economy more dynamically efficient
  - Patents temporarily create monopoly power (bad)
  - Patents encourage creation of new products (good)
- Two central questions of patent policy
  - How long should a patent last
  - How broad should we allow a patent to span
- Since the monopoly power that comes with patents will cause welfare loss, choose the design that minimizes the welfare loss due to allowing the monopoly subject to allowing enough profits to ensure the right innovative effort

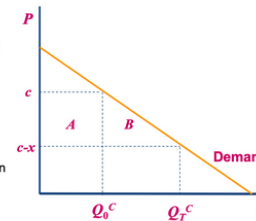
## INTELLECTUAL PROPERTY, COMPETITIVE BENCHMARKING & TECHNOLOGY LIFE CYCLES - INDUSTRY ANALYSIS, MARKET ANALYSIS

### Patent length

Should we give an exclusive right for 2 years, 5 years, 100 years?

Competitive industry with constant cost  $c$ :

- Successful innovation lowers cost to  $c - x$
- The successful innovator will set a price equal to  $c - \epsilon \sim c$  and take the entire market  $Q_0^c$
- The innovator takes a patent. During lifetime  $T$  of patent:
  - Innovator earns monopoly profit area A
  - The area A is producer surplus
- When patent expires after  $T$  years
  - Perfect competition again so  $P$  drops to  $c - x$  and  $Q$  raises to  $Q_1^c$
  - The areas A + B become consumer surplus - better than before innovation
- Trick is to choose length  $T$  that gives area A to producers for a long enough time to encourage high R&D so that firms make innovation towards cost savings  $c - x$ , but that does not delay the realization of A+B for consumers for too long a time



- What is the optimal duration of a patent
  - If  $T = 0$ , firms will not do any R&D
  - As  $T$  gets larger, firms do more R&D because it gives them more of rectangle A
  - Extending  $T$  beyond a certain time will not incentivize firms a lot because profits far in the future are subject to heavy discounting
  - As  $T$  gets larger, society has to wait longer to gain the welfare triangle B
  - Firms typically have decreasing returns to R&D, so you need very long  $T$  to push them beyond certain R&D levels
  - T should be larger than 0 but is also finite**

### Patent breadth

- What is the optimal scope of a patent
  - The broader, the more difficult it is for other firms to 'invent around' the existing patent and cut into the patent holder's profits.
    - If patent offices allow a broad scope, it is hard to invent around, this is good for patent holders who can retain their monopoly
    - If patent offices allow a broad scope, it is hard to invent around, this is bad for consumers who would benefit from more innovative products / cheaper products
  - How broad in scope can we allow a patent to be?
- Optimal patent length may depend on how broad patent protection is:
  - If patents are broad, length should probably be limited in time because broad and long patents would confer too much monopoly power
  - If patents are thin, length should probably be longer in time because thin and short patents would create a too small incentive for innovation

### Patent length and breadth

- What happens in practice
- When inventors submit their invention to obtain a patent, they must list 'related' existing patents and other literature and show that the invention is novel, non-obvious and useful.
  - Patent Breadth:** The patent examiner decides case by case whether the breadth of the invention is restricted sufficiently so that it is distinctive compared to existing patents.
  - Patent Length:** From the grant date of the patent, a patent is valid for 20 years in the countries where the patent is protected. Firms need to pay maintenance fees to keep patents alive.

### Monopoly power and sleeping patents

Sleeping patents are patents that are filed but never acted upon

- IBM, Philips or Siemens are reported to only use approximately 40% of their intellectual property portfolio (Financial Times, July 2001)
  - Sleeping patents help to create a buffer of protection for the monopoly profits generated by the truly valuable patent.
  - Sleeping patents prevent competitors to 'invent around' a patent

### Patent licensing

A contract through which an innovating firm shares its technical advance - comprised in a patent - with another firm for a price (lump sum/royalties), is called a licensing agreement

### Intellectual Property (Patents) - Summary

- A patent is a type of intellectual property that gives its owner the legal right to exclude others from making, using, or selling a novel, non-obvious and useful invention for 20 years in exchange for publishing an enabling disclosure of the invention
- A patent needs to be valid long enough to incentivize a firm to innovate but not too long so that the consumers don't have suffer from a monopoly situation too long
- A patent should not be too broad so that competition is still possible but also not too narrow so that firms are still motivated to patent
- Monopolists have high incentives to create sleeping patents
- You don't always need to bring a product to market, licensing the underlying technology can also be an attractive business model

### From main class:

#### Industry attractiveness

- Industries and target markets vary in terms of their overall attractiveness
- Assessing the attractiveness of a target market is tougher than that of an entire industry

#### Why do a target market analysis?

- A good target market analysis focuses on a business' target market, its customers, its competitors, how it will compete in the marketplace and its potential sales and market share
- It answers the question: "Who are out customers and how will we appeal to them?"

### Measuring market power

#### Market power is the ability to price above marginal cost

Suppose you have defined the market, how do you measure 'market power'?

#### The markup (%): $P - C / P$

- $p$  = selling price
- $c$  = unit cost of producing or acquiring the product, which can include:

- Direct costs:** Raw materials, labor, and manufacturing expenses
- Indirect costs:** Overhead, utilities, and sometimes allocated administrative costs

→ For retailers, it often means the **purchase price from the supplier**

### Rising market power

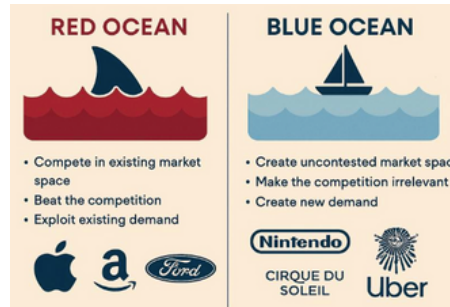
## Are US Industries Becoming More Concentrated?\*

Gustavo Grullon<sup>1</sup>, Yelena Larkin<sup>2</sup>, and Roni Michaely<sup>3</sup>

<sup>1</sup>Rice University, <sup>2</sup>York University, and <sup>3</sup>Geneva Finance Research Institute, University of Geneva

#### Abstract

Since the late 1990s, over 75% of US industries have experienced an increase in concentration levels. We find that firms in industries with the largest increases in product market concentration show higher profit margins and more profitable mergers and acquisitions deals. At the same time, we find no evidence for a significant increase in operational efficiency. Taken together, our results suggest that market power is becoming an important source of value. These findings are robust to the inclusion of (i) private firms; (ii) factors accounting for foreign competition; and (iii) the use of alternative measures of concentration. We also show that the higher profit margins associated with an increase in concentration are reflected in higher returns to shareholders. Overall, our results suggest that the US product markets have undergone a shift that has potentially weakened competition across the majority of industries.



### Blue vs red ocean

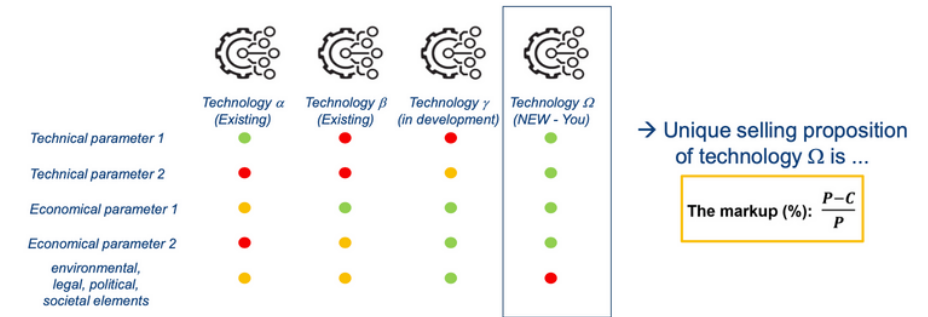
#### Blue Ocean Strategy

- Creates new, uncontested market space.
- Focuses on innovation and value creation, not direct competition.
- Generates new demand rather than fighting for existing customers.
- Breaks the trade-off between cost and differentiation.
- Aims for high growth and profitability by redefining industry boundaries.
- Example: Cirque du Soleil reinventing circus entertainment by blending theater and acrobatics.

#### Red Ocean Strategy

- Competes in existing markets.
- Focuses on beating competitors.
- Demand is limited and contested.
- Strategy emphasizes cost leadership or differentiation within current industry boundaries.
- Often leads to price wars and shrinking margins.
- Example: Competing among traditional airlines on ticket prices.

### Benchmark with market based view and resource based view



- Market-Based View:** Competitive advantage comes from positioning the firm effectively within its industry structure and external market forces (e.g. legal context, environment)
- Resource-Based View:** Competitive advantage arises from leveraging unique, valuable, and hard-to-imitate internal resources and capabilities within the firm (e.g. talent, tangible assets)

### Value chain analysis

- Who is your customer and why (USP - Willingness To Pay)
- Who are suppliers that we depend on for success?
- What are critical links in the chain on which we depend?
- What is the best and worst place to be in the value chain?

### Competitive benchmarking - Summary

- An industry analysis describes how the average business in the industry is doing and what the overall trends are. In competitive benchmarking you investigate the robustness of your position within a market, relative to others.
- Whether an industry is attractive, is an absolute statement at the level of the industry or market. The competitive benchmarking investigates the relative position of your new company within the industry, and results in a relative statement.
- Market power is a crucial measure for evaluating the attractiveness of your business
- Competitive benchmarking can be done in various ways, two often used approaches are:
  - The market based view, which is typically underlying an industry attractiveness analysis, and the resource based view, which is typically underlying a target market analysis.
  - A value chain analysis, in which you investigate your market power dependencies within the ecosystem you are active in

### From main class:

#### The window of opportunity

- Defines the time period in which a business can realistically enter a (new) market
- Once an opportunity is recognized, a window of opportunity opens and the market to fill the opportunity grows
- At some point, the market matures and becomes saturated with competitors, after which the window of opportunity closes

### Introduction

We define first-mover advantages in terms of the ability of pioneering firms to earn positive economic profits (i.e. profits in excess of the cost of capital)

### First movers

**3 key enablers for first mover advantages (Lieberman & Montgomery, 1988)**

#### 1. Technological leadership

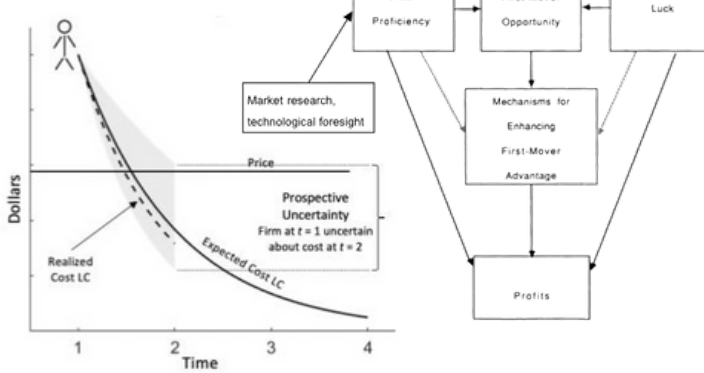
- a. Learning curve
- b. Success in patent or R&D races

#### 2. Preemption of scarce assets

- a. Preemption of input factors
- b. Preemption of location (geographic or product space)
- c. Preemption of plants and equipment

#### 3. Buyer switching costs and uncertainty

- a. Switching costs
- b. Buyer choice under uncertainty



### Second followers

History learns us that first movers are not always those that profit most

- Amazon was not the first to sell books online
  - Facebook followed Myspace
  - Uber followed Zimride (which later launched Lyft)
  - Couchsurfing came before Airbnb
  - The iPhone leapfrogged BlackBerry which in turn leapfrogged Nokia and Palm
  - Before Google, there was Yahoo and Altavista
- Fast fact: it costs approximately 60%-70% less to replicate a product than it costs to create a new product

### First mover vs second followers

Advantages of first movers	Advantages of second followers
<ul style="list-style-type: none"> <li>• Early market share</li> <li>• Higher margins due to low competition</li> <li>• Learning curve advantage</li> <li>• Strong brand equity and recognition (brand loyalty)</li> <li>• Economies of scale</li> </ul>	<ul style="list-style-type: none"> <li>• Free riding: reverse engineering (China)</li> <li>• Established market (~no need to convince the market on the usefulness of a product)                             <ul style="list-style-type: none"> <li>• Marketing</li> <li>• Product specifications</li> <li>• Mature market</li> </ul> </li> <li>• A fox is not taken twice in the same snare (~avoid mistakes by first movers)</li> </ul>

### Second followers

#### Nokia vs the Iphone

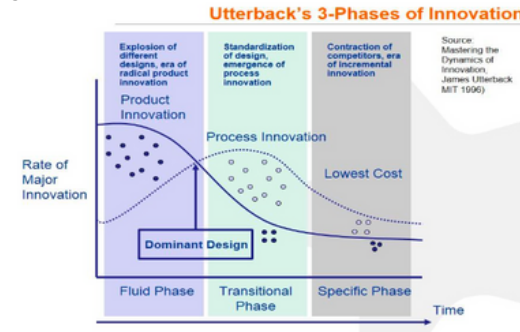
- Nokia in 2004 also rejected a design for an online application store – something that would later be popularized by the Apple's iTunes App Store
- Nokia apparently developed an internet-ready prototype phone with a large display and touchscreen in 2004 – three years before the iPhone debuted – but killed the concept for fear of it being a flop
- Nokia rejected plans for a 3D user interface in its Symbian operating system in 2002 – something that Samsung and LG introduced in 2009

### Industry life cycle

#### The innovation life cycle

Some patterns that occur in most industries

1. Fluid phase – Product innovation
  - a. Dominant design established
  - b. Uncertainty reduced
2. Transitional phase - Process innovation
  - a. Focus on cost reduction
  - b. Product diffuses in the market
3. Mature phase – Slowdown of innovation
  - a. Focus on incremental innovation
  - b. Until a new disruptive innovation...



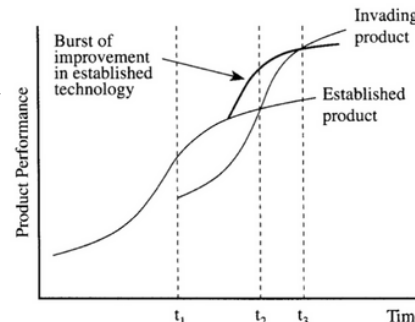
	Fluid phase	Transitional phase	Specific phase
Product	High variety	Dominant design	Incremental innovation
Process	Flexible and inefficient	More rigid	Rigid and efficient
Organisation	Informal and entrepreneurial	Project- and task groups	Mechanistic
Market	Fragmented and unstable	Stabilising and task groups	Homogeneous
Competition	Many small firms, broad variety	Intensifying with more similar products	Oligopoly and similar products
Basis of competition	Functional product performance	Fitness for use	Price and quality

### Technology life cycle

#### S-curves

Some patterns in most product life cycles

1. Between time 0- t1
  - a. Still learning about the technology and product
  - b. Progress is initially difficult but increases after some time
2. Between t1- t2
  - a. Established technology is mature – performance improvements become harder and more costly
  - b. New technologies occur with potential to outcompete established technologies
3. Between t2- t3
  - a. New technology disrupts the established technology



### Product life cycle

#### Introduction – growth – maturity – decline

Some patterns in most product life cycles

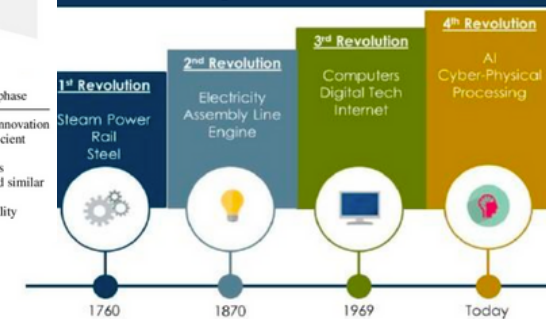
1. Introduction
  - a. Successful product innovation
  - b. Create product awareness: advertising and marketing
2. Growth
  - a. Product & market is established
  - b. Second followers probably appear, build brand equity & loyalty
3. Maturity
  - a. Focus on process innovation
  - b. Market saturation – maintain market share
4. Decline
  - a. Increased focus on price competition
  - b. New product innovations outperform your product

### PRODUCT LIFE CYCLE



### A look ahead...

### Four Stages of Industrial Revolution



### Technology life cycles - Summary

- Technological leadership, preemption of scarce assets and buyer switching costs and uncertainties are 3 key enablers to obtain first mover advantages
- Being a first mover is not a guarantee for financial success. There are advantages and disadvantages associated to being a first mover.
- Industry life cycles can be classified into a fluid stage, a transitional phase and a specific phase. The search for a dominant design is key throughout the industry life cycle.
- Technology life cycles typically consist of s-curves.
- Product life cycles exist of an introduction, growth, maturity and decline phase.
- Looking forward is typically harder than looking backwards.

# ROLE OF FINANCIAL STATEMENTS

1

## FINANCIAL STATEMENTS

### Pro forma balance sheet

	01/01/2019	2019	2020	2021
<b>Assets</b>				
<b>Current assets</b>				
Cash and cash equivalents	119.449,53	83.091,04	71.631,38	87.769,18
Financial assets	-	-	-	-
Trade and other receivables	-	-	-	-
Inventories	3.106,92	6.835,22	12.508,45	20.013,52
Deferred tax assets	-	-	-	-
Other assets (inc. prepaid expenses)	-	-	-	-
<b>Total current assets</b>	<b>122.556,45</b>	<b>89.926,25</b>	<b>84.139,83</b>	<b>107.782,70</b>
<b>Non-current assets</b>				
Long-term marketable securities	-	-	-	-
Property, plant and equipment	1.000,00	800,00	600,00	400,00
Goodwill	-	-	-	-
Acquired intangible assets	-	-	-	-
Trade and other receivables	-	-	-	-
Other non-current assets	6.343,55	5.074,84	3.806,13	2.537,42
<b>Total non-current assets</b>	<b>7.343,55</b>	<b>5.874,84</b>	<b>4.406,13</b>	<b>2.937,42</b>
<b>Total assets</b>	<b>129.900,00</b>	<b>95.801,09</b>	<b>88.545,96</b>	<b>110.720,12</b>
<b>Liabilities and equity</b>				
<b>Current liabilities</b>				
Bank loans and other financial liabilities	-	-	-	-
Trade and other payables	-	-	-	-
Tax liabilities	-	-	-	-
Provisions	-	-	-	-
Other non-financial liabilities (incl. accrued expenses)	-	-	-	-
<b>Total current liabilities</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Non-current liabilities</b>				
Long-term debt	20.000,00	20.000,00	20.000,00	20.000,00
Deferred tax	-	-	-	-
Post-employment benefit liabilities	-	-	-	-
<b>Total non-current liabilities</b>	<b>20.000,00</b>	<b>20.000,00</b>	<b>20.000,00</b>	<b>20.000,00</b>
<b>Total liabilities</b>	<b>20.000,00</b>	<b>20.000,00</b>	<b>20.000,00</b>	<b>20.000,00</b>
<b>Equity</b>				
Issued share capital	-	-	-	-
Share premium	-	-	-	-
Retained earnings	(50.100,00)	(84.198,91)	-	-
Shareholders' equity	160.000,00	160.000,00	-	-
Minority interest	-	-	-	-
<b>Total equity</b>	<b>109.900,00</b>	<b>75.801,09</b>	<b>-</b>	<b>-</b>
<b>Total liabilities and equity</b>	<b>129.900,00</b>	<b>95.801,09</b>	<b>88.545,96</b>	<b>110.720,12</b>

### Pro forma cash flow statement

Year	01/01/2019	2019	2020	2021
<b>Cash flow from operating activities</b>				
Net income	(50.100,00)	(34.098,91)	(7.255,14)	22.174,16
Depreciation	-	1.468,71	1.468,71	1.468,71
Change in account receivable	-	-	-	-
Change in accrued expenses	-	-	-	-
Change in inventory	(3.106,92)	(3.728,30)	(5.673,23)	(7.505,07)
Change in accounts payable	-	-	-	-
<b>Total adjustments</b>	<b>(3.106,92)</b>	<b>(2.259,59)</b>	<b>(4.204,52)</b>	<b>(6.036,36)</b>
<b>Net cash provided by operating activities</b>	<b>(53.206,92)</b>	<b>(36.358,50)</b>	<b>(11.459,66)</b>	<b>16.137,80</b>
<b>Cash flow from investing activities</b>				
Purchase of building, equipment and other non-current assets	(7.343,55)	-	-	-
<b>Net cash flows provided by investing activities</b>	<b>(7.343,55)</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Cash flow from financing activities</b>				
Proceeds from increase in long-term debt	20.000,00	-	-	-
Principle reduction in long-term debt	-	-	-	-
Dividends	-	-	-	-
<b>Net cash flows provided by financing activities</b>	<b>20.000,00</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Increase in cash</b>	<b>(40.550,47)</b>	<b>(36.358,50)</b>	<b>(11.459,66)</b>	<b>16.137,80</b>
<b>Cash and cash equivalents at the beginning of the year</b>	<b>160.000,00</b>	<b>119.449,53</b>	<b>83.091,04</b>	<b>71.631,38</b>
<b>Cash and cash equivalents at the end of the year</b>	<b>119.449,53</b>	<b>83.091,04</b>	<b>71.631,38</b>	<b>87.769,18</b>

For entrepreneurs, financial statements serve as a critical tool to translate a vision into numbers: helping them demonstrate viability to investors and lenders, monitor whether the business is on track against its plan, and make timely adjustments in pricing, costs, and strategy during the startup phase.

- Turning vision into reality
- Numbers tell the story using common language
  - Income Statement → Are we creating value?
  - Balance Sheet → What do we own and owe?
  - Cash Flow → Can we pay the bills and grow?
- Build trust and ensure control
- Your entrepreneurial dashboard:
  - Early warning system
  - Decision support

### KEY FINANCIAL STATEMENTS



#### Income Statement

- Reports on financial performance over a period of time.
- Elements:
  - Revenues,
  - Expenses,
  - Gains and losses: from other transactions.



#### Balance Sheet

- Reports the firm's financial position at a point in time.
- Elements:
  - Assets: probable economic benefits,
  - Liabilities: probable economic costs,
  - Owners' equity: residual.
- **Assets = Liabilities + Owners' equity**



#### Cash Flow Statement

- Reports the firm's cash receipts and payments.
- Elements:
  - Operating CF: normal activity,
  - Investing CF: buying/selling of capital assets,
  - Financing CF: raising/payment of funds.

WHAT WILL YOU PRESENT TO INVESTORS: VIVIGATE EXAMPLE

### Pro forma income statement

	01/01/2019	2019	2020	2021
Units sold	0	276	608	1.113
Net sales	-	96.985,82	213.258,81	390.263,61
Cost of sales	-	74.566,02	164.045,23	300.202,78
<b>Gross profit</b>	<b>-</b>	<b>22.369,80</b>	<b>49.213,57</b>	<b>90.060,83</b>
<b>Operating expenses</b>				
Selling, general and administrative expenses	50.100,00	55.000,00	55.000,00	55.000,00
Depreciation	-	1.468,71	1.468,71	1.468,71
<b>Operating income</b>	<b>(50.100,00)</b>	<b>(34.098,91)</b>	<b>(7.255,14)</b>	<b>33.592,12</b>
<b>Other income</b>				
Interest income	-	-	-	-
Interest expense	-	-	-	-
Other income (expense), net	-	-	-	-
<b>Income before income taxes</b>	<b>(50.100,00)</b>	<b>(34.098,91)</b>	<b>(7.255,14)</b>	<b>33.592,12</b>
Income tax expense	-	-	-	11.417,96
<b>Net income</b>	<b>(50.100,00)</b>	<b>(34.098,91)</b>	<b>(7.255,14)</b>	<b>22.174,16</b>

Disclose more

Plus:

- An assumptions sheet/tab
- 2 additional sets of statements for alternative scenarios
- Statement of Sources and Uses of Funds

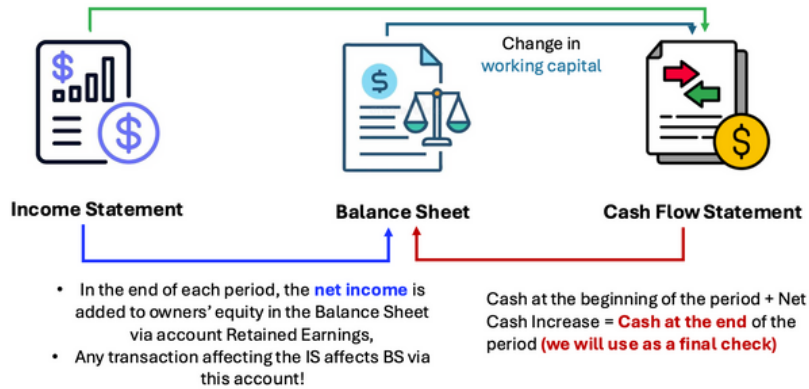
# ROLE OF FINANCIAL STATEMENTS

1

## FINANCIAL STATEMENTS

### CONNECTIONS AMONG THE STATEMENTS

- **Net Income** and adjustment for **Depreciation** are the starting point for the Cash Flow Statement



### DOUBLE ENTRY PRINCIPLE

$$\text{Assets} = \text{Liabilities} + \text{Owners' Equity}$$

$$\text{Assets} = \text{Liabilities} + \text{Contributed Capital} + \text{Cumulative Retained Earnings}$$

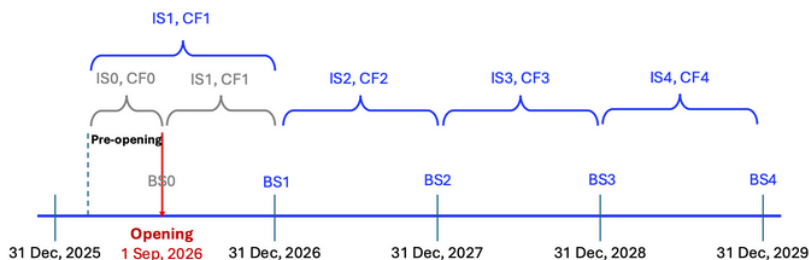
$$\text{Assets} = \text{Liabilities} + \text{Contributed Capital} + \text{Beginning Retained Earnings} + \text{Revenue} - \text{Expenses} - \text{Dividends}$$

Keeping the accounting equation in balance requires a transaction to be recorded in at least two accounts. An increase in an asset account must be balanced by a decrease in another asset account or by an increase in a liability or owners' equity account.

Examples (ignoring effects of taxes):

- Purchase equipment for \$10,000 cash: PPE increases by \$10,000, cash decreases by \$10,000.
- Borrow \$10,000 to purchase equipment: PPE increases by \$10,000, notes payable increase by \$10,000.
- Buy office supplies for \$100 cash: cash decreases by \$100, operating expenses increase by \$100 (expense reduces retained earnings by \$100).
- Buy inventory for \$8,000 and sell for \$10,000: decrease cash by \$8,000, increase inventory by \$8,000, sale increases cash by \$10,000 and decrease inventory by \$8,000, so net increase in assets is \$2,000. Sales increase by \$10,000 and COGS by \$8,000, net difference (\$2,000) is increase in net income and therefore in retained earnings and owners' equity.

### STATEMENTS TIMELINE



### INCOME STATEMENT

	For the year ended Dec 31, 202X
(1) Net Sales	\$ -
(2) Cost of Goods Sold (COGS)	\$ -
(3) Gross Profit = (1) - (2)	\$ -
<b>Operating Expenses</b>	
Salary (Office & Overhead)	-
Payroll (taxes etc.)	-
Outside Services	-
Repairs/ Maintenance	-
Advertising	-
Car, Delivery and Travel	-
Accounting and Legal	-
Rent & Related Costs	-
Telephone	-
Utilities	-
Insurance	-
Taxes (real estate etc.)	-
Interest	-
Depreciation	-
Other expenses	-
(4) Total Operating Expenses	\$ -
(5) Operating Income Before Taxes = (3) - (4)	\$ -
(6) Income Taxes	\$ -
(7) Net (Operating) Income = (5) - (6)	\$ -

**Net Sales (Revenues)** – amounts from the sale of goods and services from main operations (less returns and discounts)

**COGS** – sum of all costs directly related to the production and selling of goods/services

**Operating expenses** – the costs of running the business that are not directly tied to making a product/providing service. Can be grouped into:  
 - Selling, general, and administrative expenses),  
 - Depreciation expenses, and  
 - Interest expenses

(\* Only includes expenses that cannot be capitalized into Assets!

\*After Operating Income Before Taxes (but before calculating taxes), can also include Other Income and Expenses not related to the main business (e.g., foreign exchange gains/losses, gains/losses from investments).

**Income Tax** – estimated as a percentage of Income Before Taxes (if positive). Losses are carried forward to decrease taxable profits.

### ADDITIONAL NOTES ABOUT INCOME STATEMENT

- “Accrual” method of accounting for Income Statement:
  - Revenues recognised when earned (e.g., product delivered) and expenses when incurred (e.g., order is placed),
  - Does not necessarily coincide with the receipt and payment of cash! Cash received before product delivery goes to liabilities and payments made before supplies received goes to assets.
  - This mismatch is the reason to have a separate Cash Flow statement.
- “Matching principle” requires that firms match revenues recognised in a period with expenses required to generate them:
  - Ex: Inventory bought in 4Q 2025 but sold in 1Q 2026 will be added to COGS in 1Q 2026.
- Depreciation – the allocation of costs over the assets useful life.
  - This is done because the cost of long-lived asset have to be matched with revenues.
  - They are expected to provide economic benefits beyond the specific accounting period when they were purchased.
  - If you prepare an income statement at year-end and the asset has only been used part of the year, you record only that proportion of depreciation.
- Amortization – allocation of the cost of an intangible asset (e.g., patents, licenses, software).

**FINANCIAL STATEMENTS**

**BALANCE SHEET**

	As of 31/12/2025
<b>Assets</b>	
<b>Current Assets</b>	
Cash in bank	\$ -
Accounts receivable	-
Inventory	-
Prepaid expenses	-
Other current assets	-
<b>Total Current Assets</b>	\$ -
<b>Non-current Assets</b>	
<b>Fixed Assets</b>	
Machinery & equipment	\$ -
Furniture & fixtures	-
Leasehold improvements	-
Land & buildings	-
Other fixed assets	-
(LESS accumulated depreciation on all fixed assets)	-
<b>Total Fixed Assets (net of depreciation)</b>	\$ -
<b>Other Assets</b>	
Intangibles	\$ -
Other	-
<b>Total Other Assets</b>	\$ -
<b>TOTAL Assets</b>	\$ -

**Current Assets** – cash + assets likely to be converted into cash (or used up) within 1 year (most liquid presented first)

**Accounts receivable** – amounts expected to be collected from the sale of goods/services. Ex: recognised revenue before cash is received

**Inventory** – items held for sale or used in the manufacturing of goods to be sold

**Prepaid expenses** – cash paid in advance of recognising the expense (e.g., insurance, rent paid in advance)

**Non-current Assets** – provide information about firm's investing activities forming the foundation of firm's operating activities

**Fixed assets** – typically reported at historical cost (purchase price) + cost needed to get the asset ready for use (e.g., installation cost) less accumulated depreciation (here, presented in a separate line)  
(\* Land is not depreciated!)

(\* R&D: Research costs are reported as expenses in Income Statement, while Development costs (plan and design of products) – can be capitalized as fixed/intangible assets.

**BALANCE SHEET**

	As of 31/12/2025
<b>Liabilities and Equity</b>	
<b>Current Liabilities</b>	
Accounts payable	\$ -
Interest payable	-
Taxes payable	-
Notes payable, short-term (due within 12 months)	-
Current part, long-term debt	-
Other current liabilities	-
<b>Total Current Liabilities</b>	\$ -
<b>Non-current Liabilities</b>	
Bank loans payable	\$ -
LESS: Short-term portion	-
Other long term debt	-
<b>Total Non-current Liabilities</b>	\$ -
<b>Total Liabilities</b>	\$ -
<b>Owners' Equity</b>	
Invested capital	\$ -
Retained earnings (beginning + current)	-
<b>Total Owners' Equity</b>	\$ -
<b>Total Liabilities &amp; Equity</b>	\$ -

**Current Liabilities** – obligations that will be satisfied within 1 year

**Accounts Payable** – amounts owed to suppliers for goods/services purchased on credit

**Interest payable** - accrued interest payments - %% due at some future date

**Tax Payable** – taxes recognised in the IS but not yet paid

**Notes Payable** – promissory notes owed to creditors

**Current Portion of LT Debt** – principal of the debt due within 1 year

**Other current liabilities** – e.g., **Unearned Revenue** – cash collected in advance of providing goods/services

**Non-current Liabilities** – provide information about firm's long-term financing activities.

(\* Current Assets – Current Liabilities = **Working Capital** (low WC – potential liquidity problem, too much – inefficient use of resources)

**CASH FLOW STATEMENT**

	Period 0
<b>Operating Cash Flow</b>	
Net Income	\$ -
(+) Depreciation & Amortization	-
Changes in Working Capital:	
(-) Increase in Accounts Receivable	-
(-) Increase in Inventory	-
(-) Increase in Other Current Assets	-
(+) Increase in Accounts Payable	-
(+) Increase in Taxes Payable	-
(+) Increase in Other Current Liabilities	-
<b>(1) Net Cash from Operating Activities</b>	-
<b>Cash Flow from Investing Activities</b>	
(-) Purchase of Property, Plant, Equipment	-
(+) Proceeds from sale of equipment	-
(+) Interest received	-
(+) Dividends received	-
<b>(2) Net Cash from Investing Activities</b>	-
<b>Cash from Financing Activities</b>	\$ -
(+) Proceeds from issue of shares/loan	-
(-) Repayment loans, dividends	-
<b>(3) Net Cash from Financing Activities</b>	-
<b>Net Cash Increase = (1) + (2) + (3)</b>	-

This way of presentation is called "**Indirect method**" of CF Statement presentation

**CFO** – inflows and outflows of cash resulting from transactions that affect net income.

Note a **negative relationship between changes in assets and changes in cash flows**: an increase in asset is a use of cash, and a decrease in an asset account is a source of cash (vice versa for liabilities).

**Payment of Loan Interest** – classified in CFO (part of change in Other current liabilities), while the loan principal is reported in CFF.

**CFI** – inflows and outflows of cash resulting from acquisitions or disposal of long-term assets and certain investments (depreciation is ignored here – we use gross asset accounts for the estimation of CFI).

**CFF** – inflows and outflows of cash resulting from transactions affecting a firm's capital structure.

**Cash at the beginning of the period + Net Cash Increase = Cash at the end of the period**

This way of presentation is called "**Direct method**" of CF Statement presentation. The **CFO is the same** under both methods, calculation of CFI and CFF is exactly the same in both methods.

No need to account for depreciation and other non-cash operations within this method.

Net income based on accrual accounting is not the same as cash earnings.

Profit represents the increase in net assets in a business during an accounting period. This increase can be in cash or it may be "tied up" in other assets:

- Noncurrent assets may have been purchased,
- There may be an increased amount of receivables (when revenues > cash collection),
- There may be increased investment in inventory,
- The liabilities of the business may have decreased (when cash payments > purchases).

Cash Flow statement helps to show whether:

- Regular operations generate enough cash to sustain the business,
- Enough cash is generated to pay off existing debts as they mature,
- The firm is likely to need additional financing,
- Unexpected obligations can be met,
- The firm can take advantage of new business opportunities as they arise.

CF Statement items come from IS and changes in BS items.

**NOTES ON LONG-LIVED ASSETS**

- When a firm makes an expenditure, it can either capitalize the cost as an asset on the balance sheet or expense the cost in the income statement in the period incurred.
- An expenditure that is expected to provide a future economic benefit over multiple accounting periods is capitalized, except when the future economic benefit is unlikely or highly uncertain.
  - Examples: cost incurred to deliver and install equipment and prepare it for use; major rebuilding of the asset (that would extend the use of the asset).
  - Costs of training for employees to use the equipment or regular maintenance not improving the equipment are expensed.
- Such allocation process decreases the variability of net income by spreading expenses over multiple periods.
  - Over the life of an asset, the total net income is identical whether the asset's cost is capitalized or expensed.
  - Timing of expense recognition in the income statement is the only difference.
- Capitalized expenditure is reported in CF Statement as an outflow from investing activities. If immediately expensed, it is reflected as outflow from operating activities.

**SOFTWARE DEVELOPMENT**

- Costs incurred to develop software are expensed until the product's technological feasibility is established, after which the costs are capitalised (same whether software is developed for sale or for internal use under IFRS).
  - Research / planning stage → costs are expensed immediately (e.g., brainstorming, feasibility studies, prototyping),
  - Development stage (once feasibility is established) → certain costs (programmers' salaries, direct costs of coding, testing, implementation) can be capitalised as an intangible asset,
  - Post-implementation / maintenance → ongoing fixes, training, or support are expensed.
- In the financial statements:
  - BS: capitalised development costs go to intangible assets, (appear at cost, then reduced by accumulated amortisation over time).
  - IS: amortisation expense (spread over useful life, typically 3–7 years) in operating expenses, research expenses that couldn't be capitalised show up as R&D expense.
  - CF: the capitalised portion shows up as an investing cash outflow (since it creates a long-term asset), amortisation as a non-cash expense added back in the operating cash flow section.

## Learning objectives (whole course)

At the end of the course, you should be able to:

- Explain and illustrate the unique qualities of the entrepreneurial decision-making process;
- Understand the role that business planning may have on the entrepreneurial process;
- Understand the significance and dangers of business plan writing;
- Appreciate the different purposes and audiences for business plans;
- Evaluate the attractiveness of product and service ideas;
- Evaluate the feasibility of business models (with a special emphasis on high tech/emerging industries);
- Retrieve (sufficiently reliable) primary data as input to a business planning process;
- Apprehend the essential components of effective business plans;
- Develop and evaluate a sophisticated business plan for an identified or given opportunity (situated within high tech industries);
- Adequately present a business idea.

### Chapter 1: Introduction to entrepreneurship

- Explain what entrepreneurship is and discuss its importance
- Shed light on the main reasons why people decide to become entrepreneurs
- Identify the main characteristics of successful entrepreneurs
- Explain some common myths regarding entrepreneurship

### Chapter 2: Recognizing opportunities and generating ideas

- Explain the concept of the “window of opportunity”
- Shed light on the difference between an opportunity and an idea
- Describe different approaches to identify opportunities
- Identify trends that are instrumental in creating opportunities

### Chapter 3: Feasibility analysis

- Explain what a feasibility analysis is
- Implement a concept statement and a buying intentions survey
- Describe the purpose of a product/service feasibility analysis, an industry/market feasibility analysis and an organizational feasibility analysis
- Discuss the characteristics of an attractive industry
- Explain the importance of a financial feasibility analysis

### Chapter 4: Writing a business plan

- Explain the purpose of a business plan
- Describe the different types of business plans
- Shed light on the different sections of a business plan
- Understand how milestones are used in business planning

### Chapter 5 – Part I: Analyzing the industry

- **Explain** the purpose of both industry and market analysis
- Analyze the size, growth rate and sales projections of an industry
- Understand how industry performance affects business performance
- Identify the five competitive forces in an industry
- Identify industry critical success factors (CSFs)

### Chapter 5 – Part II: Target market analysis

- Understand what a market is and how it differs from an industry
- Know how to segment an industry
- Explain how a market analysis is different from a marketing plan
- Identify direct, indirect and future competitors
- Use competitive intelligence to set up a competitive analysis grid
- Estimate annual sales and anticipated market share

### Chapter 11: Marketing a product or service

- Explain why it is important for a new business to establish a unique position in its market
- Distinguish different (price) strategies a business can adopt
- Contrast cost-based pricing and value-based pricing
- Explain the difference between advertising and public relations
- Shed light on the value of appropriate distribution processes

### Chapter 6a: Product (or service) development plan

- Shed light on the status of a business’ development efforts by means of milestones
- Identify risks and challenges involved in bringing a product of service to market
- Set up a detailed risk mitigation plan

### Chapter 6b: Developing effective business models

- Visualize how a business will compete and produce its product(s) or service(s)
- Develop an appropriate business model
- Define a business’ location together with its facilities and equipment
- Execute a value chain analysis

### Chapter 9: Building a new venture team

- Identify the primary components of a new venture team
- Explain the term “liabilities of newness”
- Discuss team heterogeneity and homogeneity
- Construct a skills profile
- Assess the role of (a) board(s) of advisors in new businesses

### Chapter 8: Financial projections

- Identify the main financial objectives that new businesses should live up to
- Set up a pro forma income statement
- Set up a pro forma balance sheet
- Set up a pro forma cash flow statement
- Discuss the use of ratio analysis

### Chapter 10: Getting funding or financing

- Shed light on why most new businesses need to raise money
- Understand how entrepreneurs may apply bootstrapping to avoid having to raise money
- Discuss the differences between equity funding and debt financing
- Differentiate business angels from venture capitalists