Capital Budgeting & Pricing

Week 8

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What is Capital Budgeting?

- Capital budgeting is a process that businesses use to evaluate the potential profitability of new projects or investments.

- It helps businesses decide whether a project or investment is worth pursuing.

- **Importance**
- Ensures efficient allocation of financial resources.
- Reduces risks of financial losses.
- Helps in strategic decision-making for business expansion.

- **Example:** A restaurant chain deciding whether to open a new outlet.

Steps in Capital Budgeting Process

- **Identify Investment Opportunities**
- Look for good projects: new store, new product, upgrading machines.
- Example: A coffee shop owner considers buying a coffee machine to speed up service.

- **Estimate Cash Flows**
- Predict how much money the project will bring in and how much it will cost.
- Example: If the coffee machine costs $10,000 but helps make $5,000 extra per month, is it worth it?

Steps in Capital Budgeting Process

- **Evaluate Investment Options**
- Use financial techniques (like Payback Period, NPV, IRR) to check which project is best.
- Example: Compare buying a new coffee machine vs. hiring more staff – which makes more money?

- **Select the Best Investment**
- Choose the most profitable and risk-free project.

- **Implement and Monitor**
- Start the project and check regularly if it’s making money.

Key Capital Budgeting Techniques

Traditional Methods

- Payback Period – How fast you get your money back.
- Accounting Rate of Return (ARR) – Measures profit made on investment.

Discounted Cash Flow Methods: estimates how much an investment is worth today by looking at its future cash earnings.

- Net Present Value (NPV) – Checks total profit adjusted for time.
- Internal Rate of Return (IRR) – Compares investment return to the cost of funding.
- Profitability Index (PI) – Measures how much profit per $1 invested.

Payback Period

- This method calculates how long it takes for a business to recover its initial investment.

$$PaybackPeriod = \frac{InitialInvestment}{AnnualCashFlow}$$

- Example
- A bakery buys a new oven for $30,000.

- The oven increases sales by $10,000 per year.
- Payback Period = $30,000 ÷ $10,000 = 3 years.
- Decision? If the bakery wants quick returns, it's a good investment.

Accounting Rate of Return (ARR)

- ARR checks how much profit an investment generates compared to its cost.
- Measures profitability by comparing annual net income to the initial investment.

$$ARR = \left(\frac{AnnualNetProfit}{InitialInvestment}\right) \times 100$$

- Example
- A clothing brand invests $50,000 in a new embroidery machine.

- The machine increases profit by $10,000 per year.
- ARR = (10,000 / 50,000) × 100 = 20%.
- Decision? If the company wants a 20% return, the investment is worth it.

Net Present Value (NPV) – Future Value of an Investment

- NPV tells you whether an investment is profitable by comparing the money you invest today with the money you expect to earn in the future, adjusted for time and risk.

- **How does it work?**
- Estimate future cash flows (how much money the investment will bring in).
- Discount those cash flows to today’s value (adjust for time and risk).
- Subtract the initial investment from the total present value of cash flows.

- **Decision Rule**
- ✅ If NPV > 0, the project is profitable → Accept it
- ❌ If NPV < 0, the project loses money → Reject it

Net Present Value (NPV) – Example

- Imagine you start a food truck business that costs $50,000. You expect to earn $20,000 per year for 3 years. If the discount rate is 10%, NPV helps you decide if this investment is worth it.

Step 1: Given Information

- **Initial Investment (C_0) = $50,000** (cost of starting the food truck)
- **Expected Cash Flows (C_1, C_2, C_3) = $20,000 per year** for **3 years**
- **Discount Rate (r) = 10%** (accounts for time value of money and risk)
- **Formula:**

$$NPV = \sum \frac{C_t}{(1+r)^t} - C_0$$

where:

- C_t = Cash inflow for year **t**
- r = Discount rate
- t = Year number
- C_0 = Initial investment

Net Present Value (NPV) – Example

Step 2: Discount Future Cash Flows

We discount each year's cash flow to its present value:

$$PV_1 = \frac{20,000}{(1.10)^1} = \frac{20,000}{1.10} = 18,182$$

$$PV_2 = \frac{20,000}{(1.10)^2} = \frac{20,000}{1.21} = 16,528$$

$$PV_3 = \frac{20,000}{(1.10)^3} = \frac{20,000}{1.331} = 15,026$$

Step 3: Sum of Present Values

$$TotalPV = 18,182 + 16,528 + 15,026 = 49,736$$

Step 4: Calculate NPV

$$NPV = 49,736 - 50,000 = -264$$

Net Present Value (NPV) – Example

- Since NPV is negative (-$264), this means the investment loses money when considering the time value of money.

- Conclusion: The food truck business is not profitable based on these assumptions, so you should reject the investment unless you can increase future earnings or lower costs.

Internal Rate of Return (IRR) – Investment's Growth Rate

- IRR is the annual percentage return a business expects to earn from an investment.
- It is the rate at which an investment breaks even and it tells you the expected percentage return on a project.
- It tells us the maximum interest rate we can afford to pay for financing before an investment becomes unprofitable.

IRR is the **discount rate (r)** that makes this equation **true**:

$$NPV = \sum \frac{CashFlow_t}{(1+r)^t} - InitialInvestment = 0$$

Since IRR is the rate where **NPV = 0**, we find IRR by solving for **r**.

- In simple terms, IRR tells us:

✓ How profitable an investment is, expressed as a percentage

✓ The higher the IRR, the better the investment

✓ If IRR is greater than the cost of borrowing (interest rate), the investment is good.

Internal Rate of Return (IRR)

- **Why is IRR Important?**
- Helps compare different investment opportunities.
- If IRR is higher than the required return (cost of capital) → Accept the project ✅
- If IRR is lower than the required return → Reject the project ❌

- **Example**
- You invest $10,000 in a small business, expecting to earn $4,000 per year for 3 years.
- If the IRR is 15%, this means the investment gives an average return of 15% per year.
- If your bank offers a 10% return on savings, investing in the business is better than saving.

Profitability Index (PI) – Value per Dollar Invested

- PI tells you how much value you get for every \$1 invested in a project. It helps compare different investment opportunities.

$$PI = \frac{\text{Present Value of Future Cash Flows}}{\text{Initial Investment}}$$

How to Use PI?

- PI > 1 → The project is profitable ✅ (Accept)
- PI < 1 → The project loses money ❌ (Reject)
- PI = 1 → The project breaks even

Profitability Index (PI) – Value per Dollar Invested

- A company invests \$50,000 in a new product. The present value of future cash flows is \$65,000.

$$PI = \frac{65,000}{50,000} = 1.3$$

- Since PI = 1.3, this means the project returns \$1.30 for every \$1 invested, so it's a good investment ✅.
- If PI = 0.9, it means you get back only \$0.90 per \$1 invested → Bad investment ❌.

Pricing

- Pricing is the process of setting the selling price of a product or service.
- It determines how much customers will pay and directly affects profits, demand, and competition. In other words, it determines how much revenue a business will generate from customers.
- Pricing is more of a short-term, operational decision, whereas capital budgeting is a long-term investment decision.

How to Price a Product or Service in Entrepreneurial Projects?

1. Understand Your Costs (Cost-Based Pricing)

- The first step in pricing is knowing how much it costs to produce your product or service.
- You need to consider Fixed Costs and Variable Costs.

📌Example – Handmade Candles Business

- Fixed Costs: Rent: $500 per month, Marketing: $200 per month
- Variable Costs: Wax & wicks: $2 per candle, Packaging: $1 per candle
- If you make 100 candles per month, the total cost per candle is:
- Fixed Cost per Candle = ($500 + $200) ÷ 100 = $7 per candle
- Variable Cost per Candle = $2 + $1 = $3 per candle
- Total Cost per Candle = $7 + $3 = $10

🚀If you sell each candle for $10, you break even (no profit).

🚀If you sell for $15, you earn $5 profit per candle.

How to Price a Product or Service in Entrepreneurial Projects?

2. Research Your Competitors (Competitive Pricing)

✓ Look at what similar products are selling for.

✓ If you charge too much, customers may go to competitors.

✓ If you charge too little, customers may think your product is low quality.

📌Example – Coffee Shop Pricing

✓ You open a coffee shop.

✓ Competitors charge $4 per cup.

✓ If you price at $3.50, you might attract more customers.

✓ If you price at $4.50, you need to offer better quality or a unique feature (e.g., organic beans).

How to Price a Product or Service in Entrepreneurial Projects?

3. Consider Perceived Value (Value-Based Pricing)

✓ Some customers pay more for premium or unique products.

✓ If your product solves a big problem, people will pay more.

📌Example – Apple iPhones vs. Budget Phones

✓ A budget Android phone costs $300.

✓ An iPhone costs $1,000.

✓ Apple justifies the high price through brand reputation, premium design, and ecosystem benefits.

How to Price a Product or Service in Entrepreneurial Projects?

4. Psychological Pricing Strategies

- ✓ Psychological pricing is a strategy where businesses set prices in a way that influences customer behavior and perception.
- ✓ The goal is to make products seem cheaper, more valuable, or more appealing by playing on human psychology.
- ✓ These pricing tactics don't change the actual cost of the product but make people feel like they are getting a better deal.

How to Price a Product or Service in Entrepreneurial Projects?

4.1 Types of Psychological Pricing Strategies

1. Charm Pricing ($9.99 Instead of $10)

✓ What It Is?

✓ Setting prices just below a round number (e.g., $9.99 instead of $10).

✓ The brain sees the leftmost digit first and perceives $9.99 as closer to $9 than $10.

✓ Why It Works?

✓ People focus on the first number and ignore the cents.

✓ Makes the price seem lower, even if the difference is just one cent.

📌Example

✓ Apple sells apps for $0.99 instead of $1.00 to make them feel cheaper.

✓ Walmart prices T-shirts at $9.97 instead of $10.

💡Best Used For: Retail stores, online shopping, fast food, and consumer goods.

How to Price a Product or Service in Entrepreneurial Projects?

4.1 Types of Psychological Pricing Strategies

2. Prestige Pricing (High Price = High Quality)

✓ What It Is?

✓ The opposite of charm pricing! Instead of using .99, businesses round prices up to whole numbers (e.g., $500 instead of $499.99).

✓ This gives the impression that the product is premium and luxurious.

✓ Why It Works?

✓ Customers associate higher prices with better quality.

✓ Rounded numbers feel clean, simple, and prestigious.

✓ 📌Example

✓ Luxury brands (Gucci, Rolex, Tesla) avoid .99 pricing because they want customers to focus on quality, not affordability.

✓ A spa charges $100 for a massage instead of $99.99 to give a premium feel.

💡 Best Used For: Luxury goods, high-end restaurants, hotels, and premium services.

How to Price a Product or Service in Entrepreneurial Projects?

4.1 Types of Psychological Pricing Strategies

3. Odd-Even Pricing (Odd = Discount, Even = Premium)

✓ What It Is

✓ Prices ending in odd numbers (like $7, $9, or $99) feel like a bargain.

✓ Prices ending in even numbers (like $50, $100, or $200) feel premium and high-quality.

✓ Why It Works

✓ Odd prices trigger "discount" thinking – people see them as deals.

✓ Even prices trigger "premium" thinking – they feel solid and reliable.

📌Example

✓ $49.99 → Feels like a discount.

✓ $50.00 → Feels premium and stable.

💡 Best Used For: Discount retailers, grocery stores, and premium brands.

How to Price a Product or Service in Entrepreneurial Projects?

4.1 Types of Psychological Pricing Strategies

4. Buy One, Get One Free (BOGO)

✓ What It Is

✓ Instead of offering a 50% discount, businesses offer "Buy One, Get One Free" (BOGO) to make customers feel like they are getting more value.

✓ Why It Works

✓ Customers feel like they are getting something for free, which increases the likelihood of purchase.

✓ Works better than a straight discount because "free" is more powerful than "cheap."

Example

✓ Nike: "Buy one pair of shoes, get socks free."

✓ Burger King: "Buy one burger, get another free."

Best Used For: Clothing stores, fast food, cosmetics, and supermarkets.

How to Price a Product or Service in Entrepreneurial Projects?

4.1 Types of Psychological Pricing Strategies

5. Decoy Pricing (Making One Option Look Like a Better Deal)

✓ What It Is

✓ A business adds a third "useless" pricing option to push customers toward the most profitable choice.

✓ Why It Works

✓ The middle-priced item looks like the best deal when compared to the other two.

📌Example – Popcorn at the Movies

✓ Small popcorn: $5

✓ Medium popcorn: $7 (Best value)

✓ Large popcorn: $9

✓ Most customers choose the medium size because the small seems too small, and the large is too expensive.

💡Best Used For: Movie theaters, subscription plans, fast food combos.

How to Price a Product or Service in Entrepreneurial Projects?

4.1 Types of Psychological Pricing Strategies

6. Bundle Pricing (More Items, Less Cost)

- ✓ What It Is
- ✓ Selling multiple products together for a lower price than buying each separately.
- ✓ Why It Works
- ✓ Customers feel like they are saving money, even if they spend more overall.
- ✓ 📌Example
- ✓ McDonald's Meal Deals: A burger, fries, and drink cost $10 together, but separately they cost $12 total.
- ✓ Microsoft Office: Buying Word, Excel, and PowerPoint separately costs more than getting the Office Suite.

💡Best Used For: Fast food, software, beauty products, and electronics.

How to Price a Product or Service in Entrepreneurial Projects?

4.1 Types of Psychological Pricing Strategies

7. Limited-Time Discounts (Urgency & Scarcity)

- ✓ What It Is
- ✓ Creating a sense of urgency by offering a discount for a short time only.
- ✓ Why It Works
- ✓ Customers fear missing out (FOMO) and buy before the deal ends.
- ✓ 📌Example
- ✓ Amazon: "Limited-time deal – 30% off for 24 hours only!"
- ✓ Black Friday Sales: Only available for one day!

💡Best Used For: E-commerce, seasonal sales, and flash deals.

How to Price a Product or Service in Entrepreneurial Projects?

4.1 Types of Psychological Pricing Strategies

8. Price Anchoring (Showing a Fake Original Price)

What It Is

Listing a "regular price" that's higher than the discounted price to make it seem like a huge bargain.

Why It Works

The original price acts as a reference point.

Customers feel like they are saving a lot, even if the real value is lower.

Example

Zara: "Was $100, Now $50!" (But the item was always meant to be sold for $50.)

Amazon: Shows "original" price crossed out, with a "deal price" below it.

Best Used For: Online shopping, retail stores, and holiday sales.

How to Price a Product or Service in Entrepreneurial Projects?

5. Choose a Pricing Model

Before choosing a pricing model, an entrepreneur should consider:

- ✓ Costs – The price must cover production, operational, and marketing costs.
- ✓ Market Demand – If a product is highly demanded, customers may be willing to pay more.
- ✓ Competitor Pricing – Prices should be competitive without undervaluing the product.
- ✓ Customer Perception – Higher prices may signal premium quality, while lower prices may attract budget-conscious customers.
- ✓ Business Goals – Is the goal fast market entry, premium positioning, or long-term customer retention?

📌Example

A startup selling organic skincare products may charge higher prices if they emphasize eco-friendly ingredients and sustainability. However, a budget skincare brand might choose lower prices to attract more customers quickly.

Pricing Model	Definition	Example
Cost-Plus Pricing	Adding a fixed percentage (markup) to the cost of production to determine the selling price.	A clothing brand produces a T-shirt for $10 and adds a 50% markup, selling it for $15.
Competitive Pricing	Setting prices based on what competitors are charging for similar products.	A new coffee shop checks that competitors charge $4 per cup and sets its price at $3.80 to attract customers.
Penetration Pricing	Starting with a low price to attract customers quickly, then increasing the price later.	Netflix initially charged low prices to attract users from cable TV, then increased prices gradually.
Skimming Pricing	Starting with a high price and gradually lowering it over time to maximize early profits.	Apple launches new iPhones at $1,200 and reduces the price over time as newer models are released.
Subscription Pricing	Charging customers a recurring fee (monthly or yearly) for continued access to a product or service.	Spotify charges $9.99 per month for premium music streaming instead of a one-time purchase.
Freemium Pricing	Offering a free basic version of a product while charging for premium features or upgrades.	Canva offers a free version of its design tools but charges for premium templates and extra features.
Value-Based Pricing	Setting prices based on the perceived value to customers rather than production cost.	Starbucks charges $5 for a coffee, while local competitors charge $2, due to perceived premium experience.

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