HACKTEX VIRTUAL TRAINING MATERIALS

VIRTUAL GUIDE
Learning unit 4
Lesson 3

Important Issues for entrepreneurship

HACKTEX

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Virtual Guide, Lesson 4.3: Project Management through the Concept of Games, Market Positioning in two Steps & The BCG Matrix Approach

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Introduction

The game theory is a field of study that offers valuable insights into human behavior within strategic scenarios and partnerships. Game theory digs in the complexity of decision-making by analyzing how individuals and organizations make choices, taking into account the potential responses and reactions of others involved in the same situation. The game theory equips project managers with a powerful toolset to anticipate and influence outcomes in complex project environments.

Beyond game theory, this lesson explains the concept of market positioning, breaking it down into a systematic, two-step process. This approach enables project managers to not only understand the competitive landscape but also to strategically position their projects for success.

Additionally, the BCG Matrix Approach, a strategic framework designed to assist in resource allocation and decision-making within the project management context is described. By exploiting the power of the BCG Matrix, project managers can optimize their project portfolios, maximize profitability, and ensure long-term sustainability.

1. Project management through the concept of games

A game is the strategic interaction between two or more players. Each player has a set of possible strategies. For each strategy players pick, they receive a payoff, which is usually represented by a number. That payoff depends on the strategies of all players in the game. Payoffs can also have different meanings. For example, they can signify an amount of money or the number of years of happiness. Game theory presumes that players act rationally—that is, that they seek to maximise their own payoffs (Sarwat & Mahmud, 2015).

Game theory has been used to analyse market power and how to regulate monopolies to protect consumers (Sarwat & Mahmud, 2015). Game theory has also revolutionized the field of information economics by studying games in which some players have more information than others. Three economists earned the Nobel Prize jointly in 2001 for their seminal work on games with asymmetric information: George Akerlof on the market for used cars, Michael Spence on signalling in labour markets through education, and Joseph Stiglitz on self-screening in insurance markets. Game theory has even been applied in evolutionary biology, where the players (in this case animals) are not necessarily rational beings (Sarwat & Mahmud, 2015). The hawk-dove game developed by John Maynard Smith in 1982 involves aggressive and nonaggressive behaviour and provides insight into the survival of species. Game theory is being used by some to forecast the fate of the European Union. As long as there are interactive decisions to be made, game theory will be applied to inform them (Sarwat & Mahmud, 2015).

The game theory study speculates on how people behave in strategic situations and partnerships by examining the decisions they made based on the consideration of how other might respond to these actions. In an oligopolistic market for example, one must examine and act strategically because of the small number of firms. This drives the firm's knowledge not only on how much it produces but also on how much other firms produce. ''The earliest example of a formal game-theoretic analysis was by Antoine Cournot in 1838, when he studied the business behaviour of two firms (a duopoly in economic parlance) with identical costs producing the same products but buying for maximum profits in a limited market'' (Sarwat & Mahmud, 2015).

2. The prisoner's dilemma

The prisoners' dilemma provides insight into the difficulty in maintaining cooperation.

Often firms fail to cooperate with one another even when cooperation would make them better off. The prisoners' dilemma is a particular "game" between two captured prisoners that illustrates why cooperation is difficult to maintain even when it is mutually beneficial.

There are two ''players'', Bonnie and Clyde, who are prisoners. They both have two choices, and to make either one. One is to confess and the other is to remain silent. If one takes Bonnie's place, and:

- Chooses to confess and Clyde chooses to confess also, they both get 8 years.
- Chooses to confess but Clyde chooses to remain silent, then Bonnie goes free while Clyde gets 20 years in prison.
- Chooses to remain silent and Clyde also chooses to remain silent, they both get 1 year each.
- Chooses to remain silent but Clyde chooses to confess, then Clyde will be set free, and Bonnie will be prisoned for 20 years

The same goes if we switch places in the above choices. The penalties and the results remain the same.

The dominant strategy is the best strategy for a player to follow regardless of the strategies chosen by the other players. Cooperation is difficult to maintain, because cooperation is not in the best interest of the individual player.

Taking the prisoner's dilemma and integrating to the oligopoly market, we have Marlboro and Camel advertising game explained. These two companies are examined in whether both, and without communicating their strategies with each other; they would advertise or not their product. The outcomes are different and come into categories, according to the nature of the decisions. Even though cooperation is hard to maintain by putting aside personal interests, the best outcome is for both to not advertise.

The prisoner's dilemma is a standard example of a game analyzed in game theory that shows why two completely **intelligent** individuals might not cooperate, even if it appears that it is in their best interests. A typical scenario in marketing or advertising might look something like this:

Marlboro and **Camel** are two large cigarette companies. In order to be more appealing to consumers, they both decide to reduce their advertising efforts, which would **simultaneously** decrease their costs and limit the exposure of non-smokers to cigarette advertisements. In this scenario, both will see an increase in their profits if they stick to this agreement (Kenkel et al., 2018). This is their cooperative outcome.

However, if one company (say Marlboro) keeps on advertising while Camel does not, Marlboro will likely see an increase in market share and consequently, profits. This is Marlboro's temptation to defect from the agreement. Similarly, Camel has the same incentive to defect (Kenkel et al., 2018).

So, the prisoner's dilemma here for both companies is whether to stick to the agreement and reap shared benefits or defect from the agreement and potentially gain more, running the risk that the other company may also defect leading to a situation where both are worse off. In the context of Marlboro and Camel, the prisoner's dilemma can be shown in their agreement to reduce advertising efforts to decrease their costs (Kenkel et al., 2018).

Game theory is the study of strategic decision-making and is sourced from studies of mathematical models, such as Nash's Equilibrium. Can also be sourced out of conflict and cooperation between intelligent rational decision makers (Hayes, 2023). Whereas decision theory is concerned with an individual decision-maker who tries to make the best decision based on their understanding of the world, game theory is concerned with the interaction between different decision-makers (Hayes, 2023).

3. Market positioning according to Porter

There three different approaches of generic strategies that were first set by Michael Porter in 1985. One must first start with making a decision that will set the rest of the project management process. Either select an attractive industry to operate in or chose one of the three possible generic strategies. This will the set the start for positioning the firm into the market (Porter, 1985). Porter coined the terms "Cost Leadership" (minimalistic approach), "Differentiation" (crafting distinctively appealing offerings), and "Focus" (providing specialized services within a specific market segment). Within the Focus strategy, he further categorized it into "Cost Focus" and "Differentiation Focus." Porter's generic strategies represent approaches to attain a competitive edge, essentially securing sales and outpacing competitors. Within a Cost Leadership strategy, there are two primary avenues for achieving this:

1. Enhancing profitability by minimizing expenses while maintaining prices in line with industry norms.
2. Expanding market share by offering lower prices while still maintaining a profitable margin on each sale due to cost reduction measures (Porter, 1985).

The Cost Leadership strategy entails establishing dominance in cost within your industry or market. Mere inclusion among the ranks of low-cost producers is insufficient, as it exposes you to potential challenges from other cost-conscious competitors who could undercut your prices, thwarting your efforts to expand market share (Porter, 1985). Hence, it's imperative to possess the confidence that you can secure and sustain the topmost cost position before opting for the Cost Leadership approach.

The primary risk associated with pursuing a Cost Leadership strategy is the potential lack of uniqueness in your cost-cutting sources, leading competitors to emulate your cost reduction strategies. Therefore, it is vital to continually seek avenues for reducing every conceivable cost.

Differentiation revolves around the art of rendering your products or services distinct and more appealing than those offered by your competitors (Porter, 1985). The specific methods for achieving this distinction vary depending on your industry, as well as the inherent characteristics of your products and services. Typically, this differentiation encompasses aspects such as features, functionality, durability, customer support, and the overall brand image that your customers find valuable (Porter, 1985).

For a Differentiation strategy to thrive, organizations must possess:

1. Strong research, development, and innovation capabilities.
2. The capacity to deliver products or services of exceptional quality.
3. Effective sales and marketing efforts to convey the advantages presented by these distinctive offerings to the market (Porter, 1985).

In the case of larger organizations pursuing a Differentiation strategy, it's crucial to maintain agility in their new product development processes. This precaution is necessary to guard against potential challenges posed by competitors who may be pursuing Focus Differentiation strategies in various market segments (Porter, 1985).

Companies employing Focus strategies dedicate their efforts to specific niche markets. By comprehending the dynamics of these markets and the distinct requirements of their customers, they create products that are uniquely cost-effective or tailored to the niche's specifications. Their exceptional service within these markets fosters strong brand loyalty among their customers, making their particular market segment less enticing to potential competitors (Porter, 1985).

However, as with broad market strategies, it remains crucial to determine whether you will adopt either Cost Leadership or Differentiation once you've chosen a Focus strategy as your primary approach. Focus alone typically isn't sufficient (Porter, 1985).

4. Porter’s model of 5 strategic forces

Porter’s Five Forces are Threat of new entrants, Bargaining power of buyers, Bargaining power of suppliers, Threat of new substitutes, and Competitive rivalry. This framework helps strategists understand what makes an industry profitable and provides insights needed to make strategic choices (Porter, 1985).

The Five Competitive Forces are commonly characterized as follows:

Bargaining Power of Suppliers: The concept of "suppliers" encompasses all sources providing necessary inputs for goods or services (Goyal, 2021). Supplier bargaining power tends to be substantial under the following conditions:

- The market is dominated by a few major suppliers, rather than a diverse range of sources.
- There are no viable substitutes for the specific input.
- The supplier's customers are fragmented, resulting in diminished bargaining power.
- Switching from one supplier to another incurs high costs.
- There's a potential for the supplier to integrate forward to command higher prices and margins (Goyal, 2021)

Bargaining Power of Customers: Similarly, the bargaining power of customers influences their ability to exert pressure on pricing and sales volumes. Customer bargaining power tends to be robust when:

- Customers purchase large volumes, and there's a concentration of buyers (Goyal, 2021).
- The supplying industry consists of numerous small operators.
- The supplying industry carries high fixed costs.
- The product lacks differentiation and can be easily substituted.
- Transitioning to an alternative product is straightforward and cost-effective.
- Customers have thin profit margins and are price-sensitive.
- Customers possess the capability to produce the product themselves.
- The product holds no strategic importance for the customer.
- Customers are well-informed about the production costs of the product.
- There's the potential for customers to integrate backward into production (Goyal, 2021).

Threat of New Entrants: Competition within an industry intensifies when it becomes easier for new companies to enter. New entrants can alter critical market factors (e.g., market shares, prices, customer loyalty) at any time, creating an ongoing need for existing players to react and adapt (Goyal, 2021). The threat of new entrants hinges on the presence of entry barriers, typically encompassing:

- Economies of scale (requiring a minimum size for profitable operations).
- High initial investments and fixed costs.
- Cost advantages held by existing players due to experience curve effects from operating with fully depreciated assets.
- Customer brand loyalty.
- Protected intellectual property like patents and licenses.
- Scarcity of essential resources (e.g., qualified expert staff).
- Controlled access to raw materials by existing players.
- Dominance of distribution channels by existing players.

- Strong customer relationships fostered by existing players (e.g., long-term service contracts).
- High switching costs for customers.
- Influence of legislation and government actions (Goyal, 2021)

Threat of Substitutes: A threat from substitutes emerges when alternative products offer lower prices or better performance for the same purpose, potentially diverting a significant portion of the market volume and reducing sales potential for existing players (Goyal, 2021). This threat also extends to complementary products. Factors influencing the threat of substitutes include:

- Customer brand loyalty.
- Close customer relationships.
- Switching costs for customers.
- Relative price-to-performance ratios of substitutes.
- Current market trends (Goyal, 2021)

Competitive Rivalry between Existing Players: This force assesses the level of competition between existing companies in an industry. Elevated competitive pressure can lead to price and margin pressures, affecting the profitability of all industry players (Goyal, 2021). Competitive rivalry among existing players is more likely to be intense when:

- Numerous companies of similar size operate in the industry.
- Companies pursue similar strategies.
- There is limited differentiation between companies and their products, resulting in substantial price competition.
- Market growth rates are low, making it possible for a company's growth to occur only at the expense of competitors.
- Exit barriers are high, often due to expensive and highly specialized equipment (Goyal, 2021).

5. The BCG Matrix approach

The BCG Matrix, also known as the Boston Consulting Group Matrix, is a strategic management tool used to analyze a company's portfolio of products or business units. It was developed by the Boston Consulting Group in the early 1970s. The BCG Matrix categorizes a company's offerings into four main categories based on two dimensions: market growth rate and relative market share. These four categories are:

1. Stars:
    - These are products or business units with a high relative market share in a rapidly growing market.
    - Stars typically require significant investments to maintain their growth and market position.
    - Companies should invest in stars to further expand their market presence and potentially turn them into cash cows.

2. Cash Cows:
    - Cash cows are products or business units with a high relative market share in a slow-growing or mature market.
    - They generate a steady stream of income with relatively low investment requirements.
    - Companies should milk cash cows by extracting profits to finance other parts of their portfolio, including stars and question marks.
3. Question Marks (or Problem Children):
    - Question marks are products or business units with a low relative market share in a high-growth market.
    - They have the potential to become stars if they can gain market share, but they also require substantial investments.
    - Companies face a decision here: they can either invest to turn question marks into stars or consider divestment if the potential for growth is limited.
4. Dogs:
    - Dogs are products or business units with a low relative market share in a slow-growing or declining market.
    - They neither generate substantial profits nor require significant investments.
    - Companies should carefully evaluate dogs and consider divestment if there are no viable strategies to turn them into more profitable units.

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Partnership

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