

Strategic Innovation Management



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Lecture 7. Choosing innovation projects - part I

- ▶ 1. Overview
- ▶ 2. Qualitative methods of choosing innovation projects

- ▶ The main **objective** of this lecture is to understand how to choose the most suitable innovation projects for an organization and consider qualitative methods for selecting.

Overview

Developing innovative new products and services is expensive and time-consuming. It is also extremely risky—most studies have indicated that the vast majority of development projects fail. Firms have to make difficult choices about which projects are worth the investment, and then they have to make sure those projects are pursued with a rigorous and well-thought-out development process. In this lecture, we will explore the various methods used to evaluate and choose innovation projects. The methods range from informal to highly structured, and from entirely qualitative to strictly quantitative. We will start by considering the role of **capital rationing** in the R&D investment decision, and then we will cover various methods used to evaluate projects including strictly quantitative methods, qualitative methods, and approaches that combine quantitative and qualitative techniques.

QUALITATIVE METHODS FOR CHOOSING PROJECTS

- ▶ **Screening Questions**
- ▶ As a starting point, a management team is likely to discuss the potential costs and benefits of a project, and the team may create a list of screening questions that are used to structure this discussion. These questions might be organized into categories such as the role of the customer, the role of the firm's capabilities, and the project's timing and cost.

Sample questions

Role of Customer Market

- ▶ · Who are the most likely customers of the new product?
- ▶ · How big is this market? Are there other likely markets for the product?
- ▶ · What type of marketing will be required to create customer awareness? Use
- ▶ · How will customers use the product?
- ▶ · What new benefits will the product provide the customer?
- ▶ · What other products are customers likely to consider as substitutes for this product?

Compatibility and Ease of Use

- ▶ · Will the product be compatible with the customer's existing complements?
- ▶ · Will the product require significant new learning on the part of the customer?
- ▶ · How will the customer perceive the product's ease of use?
- ▶ · Will the product require the customer to bear other costs?

Distribution and Pricing

- ▶ · Where will the customer buy the product?
- ▶ · Will the product require installation or assembly?
- ▶ · How much are customers likely to be willing to pay for the product?

Role of Capabilities Existing Capabilities

- Does the new project leverage the firm's core competencies or sources of sustainable competitive advantage?
- Will the project render some of the firm's existing competencies obsolete or cannibalize existing products? If so, does the firm have a transition strategy to handle possible cash-flow implications?
- Does the firm have the necessary manufacturing capabilities, and if not, will those capabilities be developed in-house or acquired externally (e.g., outsourcing)?
- Will the firm need to hire employees with new skills?

Competitors' Capabilities

- ▶ · Do one or more competitors have better capabilities for developing this project?
- ▶ · If the company does not develop this technology, are competitors likely to?
- ▶ · Will the company be able to protect its intellectual property through patents, copyright, trademarks, or trade secrets?
- ▶ · Should the firm seek to form a collaboration with a potential competitor?

Future Capabilities

- ▶ · Will the project help the firm build new capabilities that will allow it to achieve its strategic intent?
- ▶ · What other products/markets will the new capabilities enable the firm to develop?
- ▶ · Is this project a platform that will lead to a family of new products

Project Timing and Cost Timing

- ▶ · How long will the project take to complete?
- ▶ · Is the firm likely to be first to market? Is pioneering the technology a desirable strategy?
- ▶ · Is the market ready for the product? (For example, are enabling and complementary technologies well developed? Will customers perceive the value of the technology?)
- ▶ · If the firm misses its target deadlines, what impact will this have on the potential value of the project?
- ▶ · Are there already appropriate suppliers and distribution channels? Cost Factors
- ▶ · How much will the project cost? What is the potential variability in these costs?
- ▶ · What will the manufacturing costs be? At what rate are these costs expected to decline with experience?
- ▶ · Will the firm need to bear other costs related to customer adoption (e.g., production of complements, installation, technical support, etc.)?

Screening questions

- ▶ After creating a list of questions, managers can use the questions to structure debate about a project, or they can create a scoring mechanism (such as a scaled response to each question such as “Project fits closely with existing competencies” to “Project fits poorly with existing competencies”) that can then be weighted according to importance and used in subsequent analysis.
- ▶ While screening questions such as the one above do not always provide concrete answers about whether or not to fund a project, they enable a firm to consider a wider range of issues that may be important in the firm’s development decisions. Consider Boeing’s development of the Sonic Cruiser, a supersonic jet that was designed by Boeing, but never made it off the drawing board. Boeing continued designing the aircraft even after it became clear that the jet would not be profitable because Boeing considered the project necessary for preserving the company’s development capabilities.
- ▶ As noted by Walt Gillette, Boeing’s development program manager, “If the company doesn’t create a new airplane every 12 to 15 years, the needed skills and experience will be gone. Too many of the people who created the last new airplane will have retired or moved on to other companies, and their skills and experience will not have been passed on to the next generation of Boeing employees.” Thus, Boeing’s development of the Sonic Cruiser is expected to be valuable to the firm even if the only return from the project is the enhancement of the firm’s development capabilities. Such value would be difficult to assess via quantitative methods, but is revealed clearly by qualitative analysis.

The Aggregate Project Planning Framework

- ▶ Many companies find it valuable to map their R&D portfolio according to levels of risk, resource commitment, and timing of cash flows. Managers can use this map to compare their desired balance of projects with their actual balance of projects.¹⁶ It can also help them to identify capacity constraints and better allocate resources.
- ▶ Companies may use a project map (similar to that depicted in Figure 7.6) to aid this process. Four types of development projects commonly appear on this map—advanced R&D, breakthrough, platform, and derivative projects. Over time, a particular technology may migrate through these different types of projects.
- ▶ Advanced R&D projects are the precursor to commercial development projects and are necessary to develop cutting-edge strategic technologies. Breakthrough projects involve development of products that incorporate revolutionary new product and process technologies. For example, while Honda's work on hydrogen fuel cells might be considered an advanced R&D project since it is still a significant distance from a commercial application, the company's development of its original hybridelectric vehicle, the Insight, would be considered a breakthrough project. The Honda Insight incorporated revolutionary new technology in a commercialized application.

Q-Sort

- ▶ Q-sort is a simple method for ranking objects or ideas on a number of different dimensions.
- ▶ The Q-sort method has been used for purposes as diverse as identifying personality disorders to establishing scales of customer preferences. Individuals in a group are each given a stack of cards with an object or idea on each card. In the case of new product development, each card could identify a potential project.
- ▶ Then a series of project selection criteria are presented (e.g., technical feasibility, market impact, fit with strategic intent), and for each criterion, the individuals sort their cards in rank order (e.g., best fit with strategic intent) or in categories (e.g., technically feasible versus infeasible) according to that criterion. Individuals then compare their rank orderings and use these comparisons to structure a debate about the projects. After several rounds of sorting and debating, the group is expected to arrive at a consensus about the best projects.

Questions:

- ▶ 1. What should we do to choose the most suitable innovation project for an organizations?
- ▶ 2. Why might a firm use both qualitative and quantitative assessments of a project?
- ▶ 3. Explain qualitative methods of choosing projects using a relevant example.

- ▶ **Literature:**
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Thank you for your attention!