Strategic Innovation Management

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Lecture 9. Collaboration strategies

- 1. Reasons of going solo
- 2. Advantages of collaborating
- 3. Types of collaborative arrangements

- The main **objective** of this lecture is to understand reasons that a firm might choose to engage in collaborative development or might choose to avoid it. Then review some of the most common types of collaborative arrangements and their specific advantages and disadvantages.

Overview

Firms frequently face difficult decisions about the scope of activities to perform in-house, and whether to perform them alone as a solo venture or to perform them collaboratively with one or more partners.

As mentioned previously, a significant portion of innovation arises not from any single individual or organization, but instead from the collaborative efforts of multiple individuals or organizations.

Collaboration can often enable firms to achieve more, at a faster rate, and with less cost or risk than they can achieve alone. However, collaboration also often entails relinquishing some degree of control over development and some share of the expected rewards of innovation, plus it can expose the firm to risk of malfeasance by its partner(s). In this lecture, we will first consider the reasons that a firm might choose to engage in collaborative development or might choose to avoid it. We will then review some of the most common types of collaborative arrangements and their specific advantages and disadvantages.

REASONS FOR GOING SOLO

A firm might choose to engage in **solo development** of a project for a number of **reasons**.

First, the firm may perceive no need to collaborate with other organizations—it may possess all the necessary capabilities and resources for a particular development project in-house.

Alternatively, the firm may prefer to obtain complementary skills or resources from a partner, but there may be no available partner that is appropriate or willing to collaborate.

A firm might also choose to develop a project as a solo venture if it is concerned that collaborating would put its proprietary technologies at risk, or if it seeks to have full control over the project's development and returns.

Furthermore, a firm's solo development of a technological innovation might give it more opportunities to build and renew its capabilities.

1. Availability of Capabilities

- Whether a firm chooses to partner on a project is largely determined by the degree to which it possesses all of the **necessary capabilities** in-house and the degree to which one or more potential partners have necessary capabilities.
- If a firm has all of the necessary capabilities for a project, it may have little need to collaborate with others and may opt to go it alone. Furthermore, if a firm finds that it lacks certain required capabilities but there are also no potential partners with such capabilities, it may be forced to develop the capabilities on its own.
- Let's consider example of Monsanto's Roundup.

Roundup Ready®
SOYBEANS

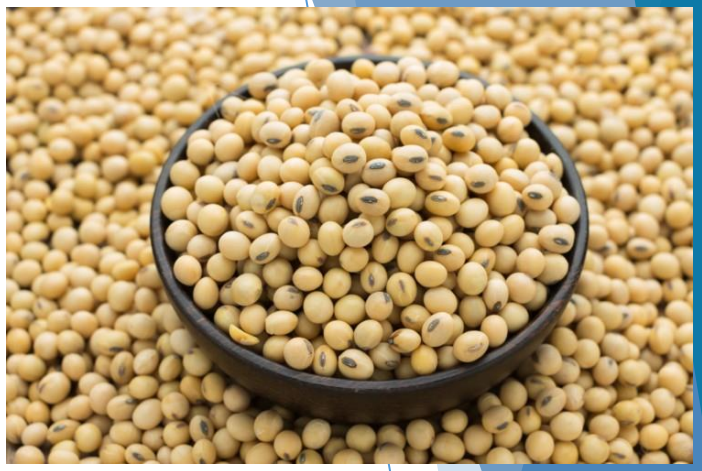
Example:

In the late 1970s Monsanto was interested in developing food crop seeds that were genetically modified to survive strong herbicides. Monsanto's Roundup, a powerful herbicide, had been introduced in 1974 and had been remarkably successful. However, Roundup killed almost all plants that it came into contact with and thus had to be applied with great care.

If crops could be developed that were genetically modified to resist Roundup, the herbicide could be used more easily and in larger quantities. The biotechnology industry was still quite young, so there were no appropriate partners from which to acquire the necessary technologies.

Monsanto decided to pursue the opportunity as a solo internal venture and declared that biotechnology was its new strategic focus.

In 1983, Monsanto successfully developed its first transgenic plant, but it would not be until 1995 that it would have its first genetically modified crop seed, Roundup Ready soybeans, approved for commercialization. Though many environmental groups opposed both Roundup and the genetically modified Roundup Ready crops, the combination was enormously successful. By 2002, more than 130 million acres worldwide were planted with Monsanto's Roundup Ready soybean, corn, cotton, and canola seed.



GMO Foods

For more information go to
olmag.co/gmo-foods

Tomato

Tomatoes have been genetically modified, but they are not being grown commerically at thia time

Rice

GMO rice has been approved but is not yet being used commercially

Sweet Corn

More than 70 percent of corn grown in the United States has been genetically engineered

Summer Squash

Farmers don't like GMO squash but some experts say GM squash have blended with wild squash

Salmon

GMO salmon has not been approved by the FDA, but it will be very soon

Canola Oil

87% of canola grown commercially, and 80% of wild canlola is GMO

Yeast

GMO yeast for wine has been approved

Alfalfa

GMO alfalfa is contaminating non GMO alfalfa crops at a rapid rate

Wheat

Unapproved GMO has contaminated wheat fields, and we don't yet know the extent of it

Sugar Beets

90% of Sugar Beets (used to make 50% of our sugar) are GMO

Soy

More than 93% of soybeans the United States produces are genetically modified

Peas

Peas have been genetically modified but are not approved or availlable

Hawaiian Papaya

Most Hawaiian papaya is GMO, even many organic crops are contaminated

Cotton

At least half of cotton grown in the world is GMO

organic lifestyle MAGAZINE

2. Protecting Proprietary Technologies

Firms sometimes avoid collaboration for fear of giving up proprietary technologies. Working closely with a partner might expose the company's existing proprietary technologies to the prying eyes of a would-be competitor. Furthermore, the firm may wish to have exclusive control over any proprietary technologies created during the development project.

Example.

Case of Sangamo.

Sangamo's decision about whether to collaborate in its development of a gene editing approach to curing HIV is described in the case. While collaborating would give Sangamo needed cash and access to valuable testing, manufacturing, and marketing capabilities, it did not possess, collaborating also meant that it would have to share the profit, control, and reputational effects from developing the treatment.

3. Controlling Technology Development and Use

Sometimes firms choose not to collaborate because they desire to have complete control over their development processes and the use of any resulting new technologies. This desire might be for pragmatic reasons (e.g., the new technology is expected to yield high margins and the firm does not wish to share rents with collaborators) or cultural reasons (e.g., a company's culture may emphasize independence and selfreliance).

Example. Both of these reasons are demonstrated by Honda in the development of its hybrid-electric vehicle, the Insight. While other auto manufacturers were enthusiastically forming **alliances** to collaborate on automobile design and the development of more efficient manufacturing processes, **Honda** was very cautious about forming collaborative relationships. Honda's decision not to join the Alliance of Automobile Manufacturers, the industry trade group that leads the fight against tougher fuel and emissions standards, had both pragmatic and cultural reasons. From a pragmatic standpoint, Honda worried that participating in the trade group would limit its discretion over its development of environmentally friendly automobiles, an area where Honda intended to be the market leader. This decision was reinforced by Honda's culture that emphasized retaining complete control over the firm's technology development and direction. This is illustrated by Honda President Hiroyuki Yoshino's statement, "It's better for a person to decide about his own life rather than having it decided by others."

4. Building and Renewing Capabilities

Firms may also choose to engage in solo development even when partnering could save time or money because they believe that development efforts are key to building and renewing their capabilities. Solo development of a technological innovation challenges the firm to develop new skills, resources, and market knowledge.

The potential for creating and enhancing the organization's capabilities may be more valuable than the innovation itself.

This is aptly demonstrated in a quote from Walt Gillette of **Boeing** about the development of the Sonic Cruiser: "Industry experience indicates that 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."

ADVANTAGES OF COLLABORATING

Collaborating on development projects can offer a firm a number of advantages.

First, collaborating can enable a firm to obtain necessary skills or resources more quickly than developing them in-house. It is not unusual for a company to lack some of the complementary assets required to transform a body of technological knowledge into a commercial product. Given time, the company can develop such complementary assets internally. However, doing so extends cycle time. Instead, a company may be able to gain rapid access to important complementary assets by entering into strategic alliances or licensing arrangements.

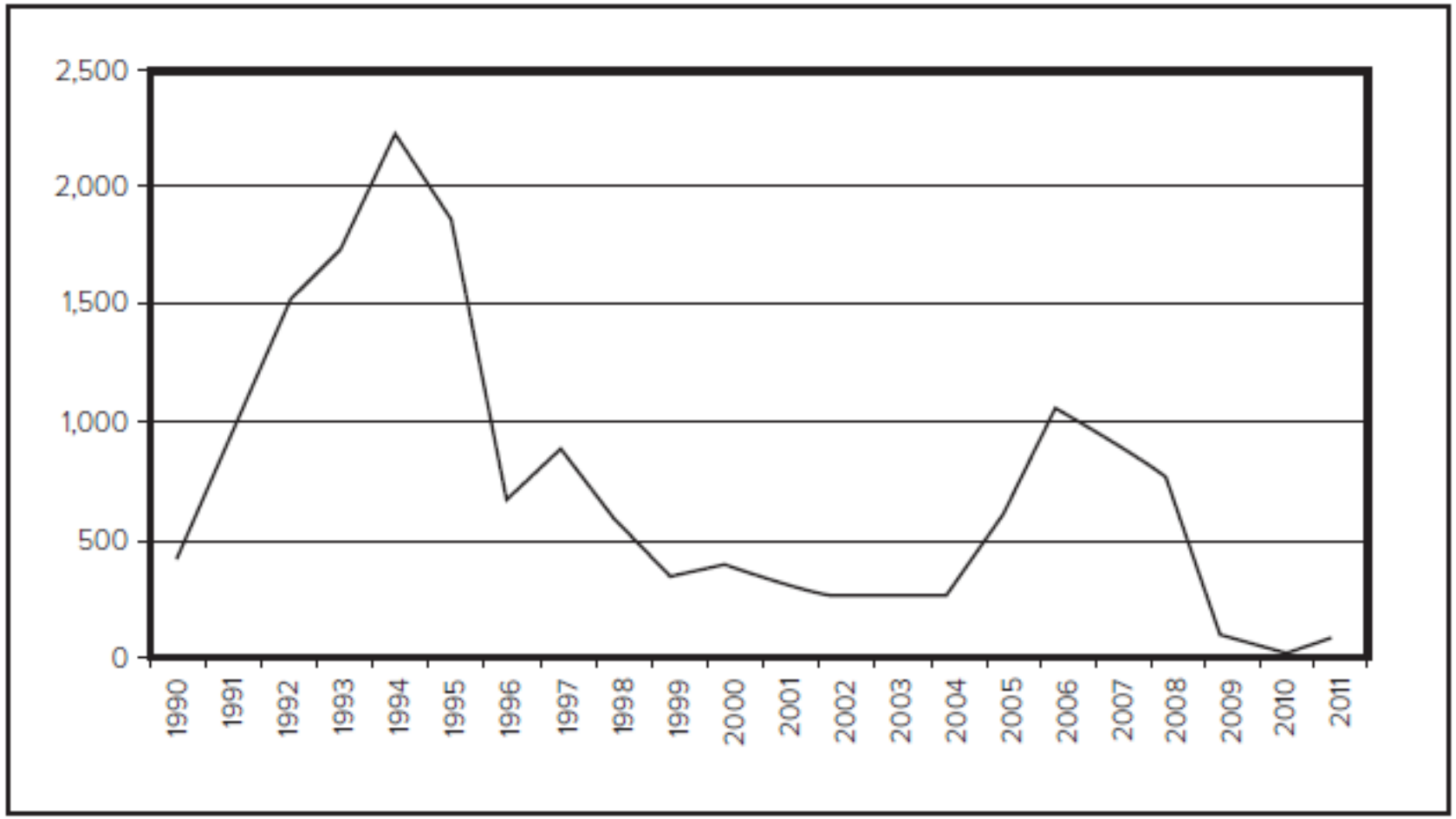
For example, when **Apple** was developing its LaserWriter, a high-resolution laser printer, it did not possess the technological expertise to produce the printer's engine, and developing such capabilities in-house would have taken a long time. Apple persuaded Canon, the market leader in printer engines, to collaborate on the project.With Canon's help, Apple was able to bring the high quality printer to market quickly.

Second, obtaining some of the necessary capabilities or resources from a partner rather than building them in-house can help a firm reduce its asset commitment and enhance its flexibility. This can be particularly important in markets characterized by rapid technological change. High-speed technological change causes product markets to rapidly transform. Product life cycles shorten, and innovation becomes the primary driver of competition. When technology is progressing rapidly, firms may seek to avoid committing themselves to fixed assets that may rapidly become obsolete. They may choose to become more narrowly specialized and to use linkages with other specialized firms to access resources they do not possess in-house.

Third, collaboration with partners can be an important source of learning for the firm. Close contact with other firms can facilitate both the transfer of knowledge between firms and the creation of new knowledge that individual firms could not have created alone. By pooling their technological resources and capabilities, firms may be able to expand their knowledge bases and do so more quickly than they could without collaboration. Fourth, one primary reason firms collaborate on a development project is to share the costs and risks of the project. This can be particularly important when a project is very expensive or its outcome highly uncertain.

- **Finally**, firms may also collaborate on a development project when such collaboration would facilitate the creation of a shared standard. Collaboration at the development stage can be an important way of ensuring cooperation in the commercialization stage of a technology, and such cooperation may be crucial for technologies in which compatibility and complementary goods are important.
- **For example**, in 1997 **Nokia, Motorola, and Ericsson** formed a nonprofit corporation called the WAP Forum to establish a common wireless telecommunication format. WAP stands for Wireless Application Protocol. It is an open, global communication standard that is intended to enable users of mobile devices such as cell phones, pagers, and smart phones to easily and quickly access information from the Internet. By establishing the WAP Forum, the companies hoped to prevent the emergence of multiple competing standards. In 2002, the WAP Forum merged with the Open Mobile Architecture initiative to form the Open Mobile Alliance (OMA). By early 2003, more than 200 mobile operators, equipment producers, and software developers had signed on to the standard.

Worldwide Formation of New Technology or Research Alliances, 1990-2011



TYPES OF COLLABORATIVE ARRANGEMENTS

- Strategic Alliances
- Joint Ventures
- Licensing
- Outsourcing
- Collective Research Organizations

Summary of Trade-offs between Different Modes of Development

	Speed	Cost	Control	Potential for Leveraging Existing Competencies	Potential for Developing New Competencies	Potential for Accessing Other Firms' Competencies
Solo Internal Development	Low	High	High	Yes	Yes	No
Strategic Alliances	Varies	Varies	Low	Yes	Yes	Sometimes
Joint Ventures	Low	Shared	Shared	Yes	Yes	Yes
Licensing In	High	Medium	Low	Sometimes	Sometimes	Sometimes
Licensing Out	High	Low	Medium	Yes	No	Sometimes
Outsourcing	Medium/High	Medium	Medium	Sometimes	No	Yes
Collective Research Organizations	Low	Varies	Varies	Yes	Yes	Yes

CHOOSING AND MONITORING PARTNERS

Gaining access to another firm's skills or resources through collaboration is not without risks. It may be difficult to determine if the resources provided by the partner are a good fit, particularly when the resource gained through the collaboration is something as difficult to assess as experience or knowledge. It is also possible that a collaboration partner will exploit the relationship, expropriating the company's knowledge while giving little in return. Furthermore, since managers can monitor and effectively manage only a limited number of collaborations, the firm's effectiveness at managing its collaborations will decline with the number of collaborations to which it is committed.

This raises the possibility of not only diminishing returns to the number of collaborations, but also negative returns as the number of collaborations grows too large. These risks can be minimized if the company limits the number of collaborations in which it engages, chooses its partners very carefully, and establishes appropriate monitoring and governance mechanisms to limit opportunism

Partner Selection

- Number of factors can influence how well suited partners are to each other, including their relative size and strength, the complementarity of their resources, the alignment of their objectives, and the similarity of their values and culture.
- ***Resource fit*** refers to the degree to which potential partners have resources that can be effectively integrated into a strategy that creates value. Such resources may be either complementary or supplementary. Most collaborations are motivated by the need to access resources the firm does not possess; such collaborations are based on the combination of complementary resources.
- ***Strategic fit*** refers to the degree to which partners have compatible objectives and styles. The objectives of the partners need not be the same as long as the objectives can be achieved without harming the alliance or the partners. Not knowing a partner's true objectives or forging an alliance with a partner with incompatible objectives can result in conflict, wasted resources, and forfeited opportunities.

- Firms can also evaluate potential partners using many of the same tools used to evaluate the firm's own position and strategic direction. **This includes assessing how collaboration with the partner is likely to impact the firm's opportunities and threats in its external environment; its internal strengths, weaknesses, or potential for sustainable competitive advantage; and the firm's ability to achieve its strategic intent.**

Impact on Opportunities and Threats in the External Environment

Assessing the collaboration's impact on the firm's opportunities and threats includes asking such questions as:

- How would the collaboration change the bargaining power of customers or suppliers?
- Would the collaboration impact the threat of entry? For example, is the partner likely to become a new competitor? Does the partnership raise barriers to entry for other potential entrants?
- Would the collaboration impact the firm's position vis-à-vis its rivals?
- Would the collaboration influence the availability of complementary goods or the threat of substitutes?

Impact on Internal Strengths and Weaknesses

Assessing the collaboration's impact on the firm's strengths and weaknesses includes asking such questions as:

- How would the collaboration leverage or enhance the firm's strengths? Does the collaboration put any of those strengths at risk?
- How would the collaboration help the firm overcome its weaknesses?
- Is the collaboration likely to yield a position of competitive advantage that is difficult for competitors to imitate? Is such a competitive advantage achievable without collaborating?
- Would the collaboration leverage or enhance the firm's core capabilities?
- Is the collaboration likely to impact the firm's financial strengths or weaknesses?

Impact on Strategic Direction

Assessing the fit of the collaboration with the firm's strategic direction includes asking such questions as:

- How does this collaboration fit with the firm's statement of strategic intent?
- Is the collaboration likely to help the firm close any resource or technology gap between where it is now and where it would like to be?
- Are the objectives of the collaboration likely to change over time? How are such changes likely to be compatible or incompatible with the firm's strategic direction?

Partner Monitoring and Governance

- Successful collaboration agreements typically have clear, yet flexible, monitoring and **governance** mechanisms. Not surprisingly, the more resources put at risk by the collaboration (for example, the greater the upfront investment or the more valuable the intellectual property contributed to the collaboration), the more governance structure partner firms are likely to impose on the relationship.
- There are **three main types of governance mechanisms** organizations use to manage their collaborative relationships:
- alliance contracts
- equity ownership
- relational governance

Alliance contracts - Legally binding contractual arrangements to ensure that partners (a) are fully aware of their rights and obligations in the collaboration and (b) have legal remedies available if a partner should violate the agreement.

Equity ownership - When each partner contributes capital and owns a specified right to a percentage of the proceeds from the alliance.

Relational governance - Self-enforcing norms based on goodwill, trust, and reputation of the partners. These typically emerge over time through repeated experiences of working together.

Summary

1. A **number of factors** will influence whether a firm chooses to collaborate on an innovation. Some of the most important include whether the firm (or a potential partner) has the required capabilities or other resources, the degree to which collaboration would make proprietary technologies vulnerable to expropriation by a potential competitor, the importance the firm places on controlling the development process and any innovation produced, and the role of the development project in building the firm's own capabilities or permitting it to access another firm's capabilities.

- 2. Firms may choose to **avoid collaboration** when they already possess the necessary capabilities and other resources in-house, they are worried about protecting proprietary technologies and controlling the development process, or they prefer to build capabilities in-house rather than access a partner firm's capabilities.

- 3. Some of the **advantages of collaboration** include sharing costs and risks of development, combining complementary skills and resources, enabling the transfer of knowledge between firms and the joint creation of new knowledge, and facilitating the creation of shared standards.

4. The term **strategic alliances** refers to a broad class of collaboration activities that may range from highly structured (e.g., joint ventures) to informal. Strategic alliances can enable simple pooling of complementary resources for a particular project, or they may enable the transfer of capabilities between partners. The transfer of capabilities often requires extensive coordination and cooperation.

5. A **joint venture** is a partnership between firms that entails a significant equity investment and often results in the creation of a new separate entity. Joint ventures are usually designed to enable partners to share the costs and risks of a project, and they have great potential for pooling or transferring capabilities between firms.

6. **Licensing** involves the selling of rights to use a particular technology (or other resource) from a licensor to a licensee. Licensing is a fast way of accessing (for the licensee) or leveraging (for the licensor) a technology, but offers little opportunity for the development of new capabilities.

7. **Outsourcing** enables a firm to rapidly access another firm's expertise, scale, or other advantages. Firms might outsource particular activities so that they can avoid the fixed asset commitment of performing those activities in-house. Outsourcing can give a firm more flexibility and enable it to focus on its core competencies. Overreliance on outsourcing, however, can make the firm hollow.

8. Groups of organizations may form **collective research organizations** to jointly work on advanced research projects that are particularly large or risky.

9. Each form of collaboration mode poses a **different set of trade-offs** in terms of speed, cost, control, potential for leveraging existing competencies, potential for developing new competencies, or potential for accessing another firm's competencies. An organization should evaluate these trade-offs in formulating a collaboration strategy.

10. Successful collaboration requires choosing partners that have both a **resource fit and a strategic fit.**

11. Successful collaboration also requires developing clear and flexible **monitoring and governance mechanisms** to ensure that partners understand their rights and obligations, and have methods of evaluating and enforcing each partner's adherence to these rights and obligations.

Questions:

1. What are some advantages and disadvantages of collaborating on a development project?

2. How does the mode of collaborating (e.g., strategic alliance, joint venture, licensing,

outsourcing, collective research organization) influence the success of a collaboration?

3. Identify an example of collaboration between two or more organizations. What were the advantages and disadvantages of collaboration versus solo development?

What collaboration mode did the partners choose? What were the advantages and disadvantages of the collaboration mode?

4. If a firm decides it is in its best interest to collaborate on a development project, how would you recommend the firm choose a partner, a collaboration mode, and governance structure for the relationship?

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Thank you for your attention!