Technology
Management
Journal

Fusion & Innovation

January 2005

Open Innovation:
It's All About Technology Management

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Abstract

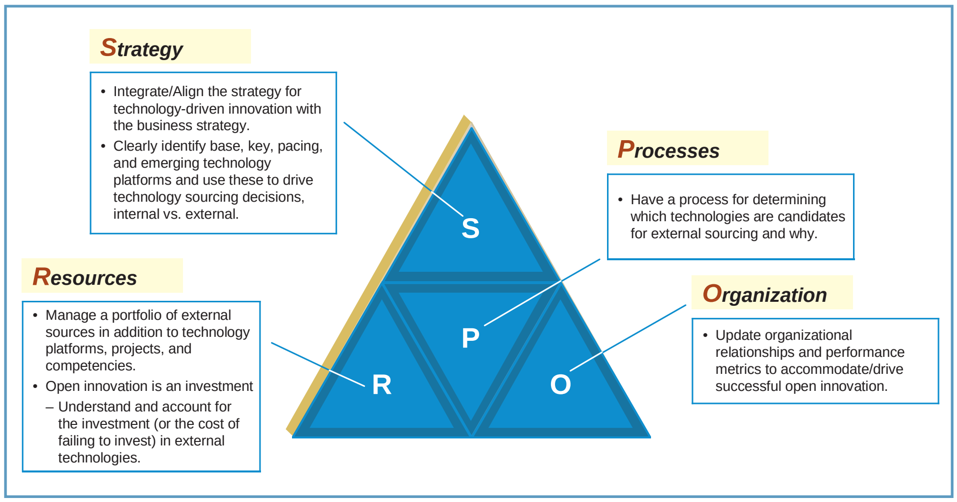
This is the second of two articles on "open innovation." In the previous piece, we explained the concept and how it is implemented by some companies, along with the potential rewards and challenges it presents to the management of technology. This article reviews some selected, classic principles of technology alliances management and shows the connection between these principles and successful open innovation.

Organizing Framework

Open innovation is both a philosophy and a practice. It involves reinventing R&D by building a portfolio of relationships and networks that provide access to technology, meet technology needs, and capture related opportunities. So, although "open innovation" is a comparatively new *term*, practicing it for business advantage is classic strategic technology management.

Figure 1 helps illustrate how successful open innovation can be enabled by fundamental principles of technology management. In this figure, we show the "SPRO" pyramid framework for the high performance business, as well as some selected corresponding practices applicable to open innovation.

Figure 1. High Performance "Open Innovation" Practices



Strategy

"Perception is strong and sight weak. In strategy it is important to see distant things as if they were close and to take on a distanced view of close things…"
—quote attributed to Miyamoto Musashi

Open innovation permits inwardly focused, self-sufficient companies to engage in external relationships that meet business-driven needs and exploit compelling opportunities. Among these needs and opportunities are:

- Acquiring technologies
- Influencing manufacturers/designers
- Building strategic suppliers
- Co-developing products/services
- Monitoring developments
- Building/acquiring competencies

What's included in this list, and the priority for each, is a function of corporate and/or business unit strategy. Assuming technology acquisition supports the business strategy, how would it be conducted? The approach presented in Figure 2 is one tested method.

Companies use the map in Figure 2 to assess and rate their own technologies, as well as candidate external technologies. An awareness of which technologies are strategic for business purposes and which are not lays the foundation upon which to explore other key issues associated with open innovation, namely intellectual property rights and the right balance between internal and external technologies.

Over the years, we have seen that the top performing companies concentrate their resources on strategic technologies ("key" and "pacing") that create market advantage. External resources, properly managed, are leveraged to provide less-competitive ("base") technologies.

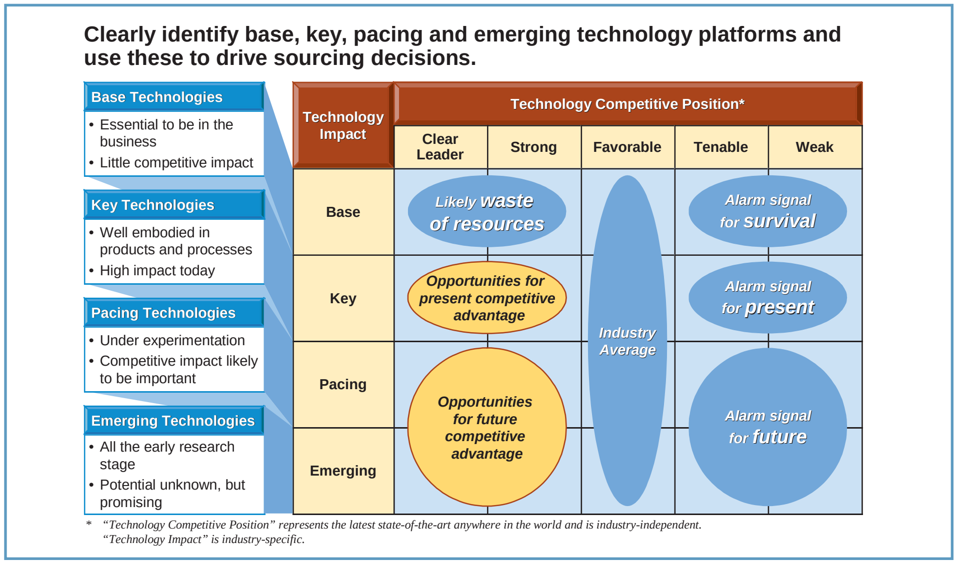
Figure 3 is a composite graph, illustrating the absolute and relative investment intensity between internal and external technologies as a function of technology impact and competitive positioning.

Processes

"No sensible decision can be made any longer without taking into account not only the world as it is, but the world as it will be…"
—Isaac Asimov

Companies that have adequate internal strength in key and pacing technologies today, and can sustain that strength in the future, may be self-sufficient enough to rely on internal sourcing for all their needs. Other companies, however, need a process for deciding if a given technology is a candidate for internal or external sourcing. Figure 4 presents a process, in question-and-answer format, that assists in making these decisions.

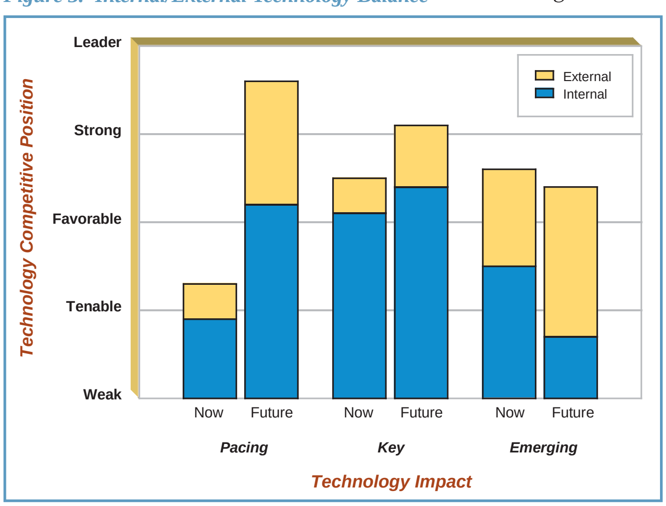
Figure 2. Technology Acquisition Strategy



The process presented in Figure 4 reflects the technology acquisition strategy approach introduced in Figure 2. Figure 2 is a snapshot of a situation at a fixed point in time. The questions in Figure 4 introduce the important dimension of time, as well as technology/business *dynamics*. The *change characteristics* of a given technology are an important consideration in deciding internal vs. external sourcing. Other characteristics that should be factored into the sourcing decision process include:

- *Complexity*—Technologies requiring multi-disciplinary input offer greater opportunities for selective outsourcing
- *Codifiability*—The more difficult the technology is to document, the more attractive it is to retain in-house
- *Competitors' ability to access*—The easier it is for others to appropriate the benefits of a technology, the greater the attractiveness of collaborative research

Figure 3. Internal/External Technology Balance



Resources

"There are risks and costs to a program of action. But they are far less than the long-range risks and costs of comfortable inaction."
—John F. Kennedy

Viewing the resources required to implement open innovation—from concept through commercialization—as an investment puts the spotlight on the associated risks and returns. Open innovation can be accomplished through various kinds of collaboration models/relationships. Investment risk and level of collaboration are independent variables that influence both management complexity and the expected value of the outcome. Figure 5 is a qualitative representation of that inter-relationship.

Note that "Partnership" occupies an attractive position on this map and includes relationships that range from "arms-length" to "virtual JV." At the highest value level (the "trusting partnership" level), the partnership relationship can be characterized by:

- Full risk and reward sharing
- Open IP exchange
- Full service systems integrator/supplier

Organization

"Man's mind, once stretched by a new idea, never regains its original dimensions."
—Oliver Wendell Holmes

At a time when corporate management is still searching for innovation-related performance metrics correlated to desired business outcomes, along comes open innovation to stress performance metric systems further! Not only must organizations be outwardly focused on their markets, but also outwardly focused on potential sources of technologies that will enable them to continue to succeed in target markets. Not only must organizations manage customer and vendor interfaces, they now must establish and manage interfaces with external technology "partners."

Open innovation, as practiced in and by US companies, is still too new for there to be anything beyond anecdotal evidence of emerging "best practices" for organizational issues related to its successful implementation. One thing is certain, however: legacy metrics from organizations historically inward-focused and self-sufficient technologically will not accommodate, let alone drive, successful open innovation. Corporate management's ongoing search for innovation-related performance metrics that correlate to desired business outcomes will only become more critical as open innovation, which stresses these very same metric systems, gains momentum. Organizations must be outwardly focused not only on their markets, but also on potential sources of technologies that will enable them to continue to succeed in these markets. Not only must organizations manage customer and vendor interfaces, they must also now establish and manage interfaces with external technology partners.

Open innovation, as practiced in and by US companies, is still too new to have anything beyond anecdotal evidence of emerging best practices for organizational issues related to its successful implementation. One thing is certain, however: legacy metrics from organizations historically inward-focused and technologically self-sufficient will not accommodate, let alone drive, successful open innovation.

Perhaps the emergence of open innovation and the interest in performance metrics will converge to focus management attention on identifying, measuring, and managing as much by "leading" indicators (i.e., inputs to the process) as by "lagging" indicators (i.e., outputs from the process). For example, each figure in this article can be viewed as a template for capturing business-specific inputs to the process of open innovation–inputs that can be generated and tracked over time and that can collectively serve as a measure (metric) of the extent and direction of progress.

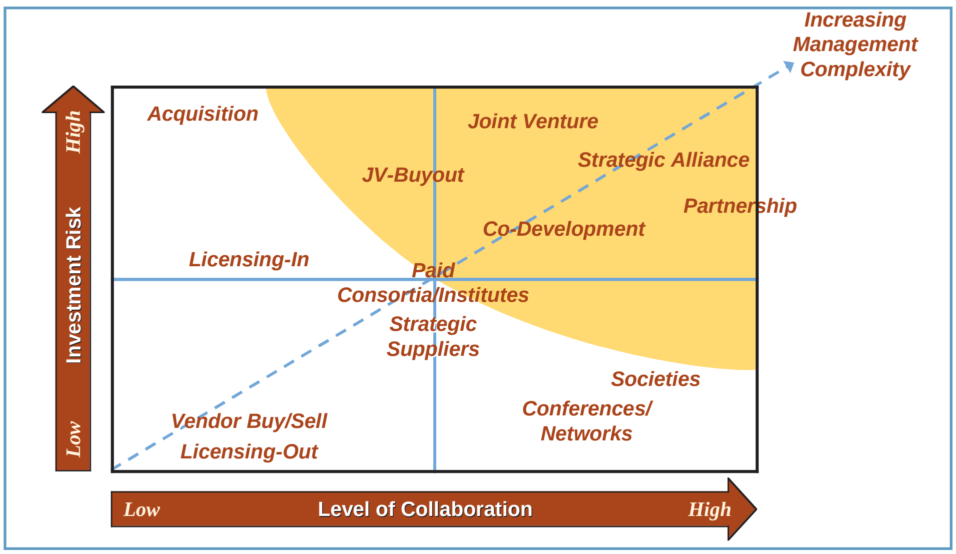
Finally, beyond metrics, other organizational-related characteristics are likely to be key to excellence in open innovation. Here are the "Seven C's":

- **Compatibility** of inter-organizational goals—establish a shared understanding and commitment with each partner
- **Complementarity** (between in-house skills and external partners)–ensure in-house skills exist to absorb and exploit the new technology
- **Champions**—establish someone as personally committed to ensuring uptake of new technology
- **Common language**—develop a shared understanding of terminology and assumptions between staff in both companies
- **Challenging internal constraints**—encourage staff to view use of external technologies as good practice rather than as competition to internal R&D
- **Customer pull**—involve potential users of the external technology early and often
- **Charter for innovation**—articulate top management's views on the role and importance of technology in achieving business success

Figure 4. Internal vs. External Sourcing: Beginnings of a Decision Tree

Question	Implication of Answer	
	"Yes"	"No"
1. Is this technology powerful in differentiating our products today, by performance or cost?	Candidate for internal sourcing to keep control and maintain competitive advantage.	Candidate for outsourcing. Internal resources may be better used elsewhere.
2. Is this technology, once a powerful differentiator for us, now becoming widely available and so losing its differentiating power?	Candidate for outsourcing. Continued internal sourcing may waste resources which could be better used elsewhere.	Candidate for internal sourcing, to maintain competitive advantage.
3. Is there another technology, new to us but well-known to someone else, which would enable us to do a lot more with one of our existing technologies?	Candidate for outsourcing. The combination of technologies could lead to major new product opportunities and get us to market fast.	No action.
4. Is this differentiating technology so expensive that sharing development costs with a partner is attractive?	Candidate for outsourcing, at least partially. The savings in cost and time may justify the partial loss of control.	Candidate for internal sourcing. We can afford to retain complete control and business benefit may justify doing so.
5. Is this technology also available from external specialists, who will always be stronger than us?	Candidate for outsourcing. Access to best technology may be more important than control.	Candidate for internal sourcing. Business benefit may justify using internal resources to maintain our own strength.
6. Is this technology, which is new to us, already mastered by someone else?	Candidate for outsourcing. Cost and time savings may be more important than control.	Candidate for internal sourcing. Developing our own strength may be more attractive than having someone else develop the technology for us.

Figure 5. Technology Sourcing Relationships, Investment Risk, and Level of Collaboration



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Reprinted from Technology Management Journal.
Published by Fusion & Innovation, Inc. Tokyo, Japan.