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Open innovation: A shift to new intellectual property models?

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“The value of an idea lies in the using of it.”

This was said by Thomas Edison, known as one of the most outstanding inventors of the last century. Though he fervently used intellectual property protections and filed more than 1,000 patents in his lifetime, Edison understood the importance of using his external contacts to foster innovation and pave the way for his inventions to yield their full potential. In particular, he worked with a network of experts to develop the first direct current electrical circuit, without which his light bulb invention would have been virtually useless.

Open innovation refers to a mode of innovation that bucks the traditional research and development process, which normally takes place in secrecy within a company. A company that innovates openly will entrust part of the R&D processes for its products or services, or its research work, to external stakeholders, such as suppliers, customers, universities, competitors, etc.

A more academic definition of open innovation, developed by Professor Henry Chesbrough at UC Berkeley, reads as follows: “Open innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively.”[1]

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Possible approaches: collaboration vs. competition

A company wishing to use open innovation will have to decide which innovation "ecosystem" to join: should it favour membership in a collaborative community or a competitive market?

Joining a collaborative community

In this case, intellectual property protections are limited and the object is more focused on developing knowledge through sharing. Many IT companies or consortia of universities join together in collaborative groups to develop skills and knowledge with a view to pursuing a common research goal.

Joining a competitive market

In this case, intellectual property protections are robust and there is hardly any exchange of information. The ultimate goal is profit maximization. Unlike the collaborative approach, relationships translate into exclusivity agreements, technology sales and licensing. This competitive approach is particularly pervasive in the field of video games, for example.

Ownership of intellectual property rights as a requisite condition to use open innovation

The success of open innovation lies primarily in the notion that sharing knowledge can be profitable. Secondly, a company has to strike a balance between what it can reveal to those involved (suppliers, competitors, specialized third-party companies, the public, etc.) and what it can gain from its relationships with them. It also has to anticipate its partners' actions in order to control its risks before engaging in information sharing.

At first glance, resorting to open innovation may seem to be an imprudent use of intellectual property assets. Intellectual property rights generally involve a monopoly attributed to the owner, allowing it to prevent third parties from copying the protected technology. However, studies have shown that the imitation of a technology by a competitor can be beneficial.[2] Other research has also shown that a market with strong intellectual property protections increases the momentum of technological advances.[3]

Ownership of intellectual property rights is therefore a prerequisite for any company that innovates or wants to innovate openly. Because open innovation methods bring companies to rethink their R&D strategies, they also have to manage their intellectual property portfolios differently. However, a company has to keep in mind that it must properly manage its relations with the various external stakeholders it plans to do business with in order to avoid unwanted distribution of confidential information relating to its intellectual property, and, in turn, profit from this innovation method without giving up its rights.

Where does one get innovation?

In an open innovation approach, intellectual property can be brought into a company from an external source, or the transfer can occur the other way around.

In the first scenario, a company will reduce its control over its research and development process and go elsewhere for intellectual property or expertise that it does not have in-house. In such a case, the product innovation process can be considerably accelerated by the contributions made by

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external partners, and can result in:

- The integration of technologies from specialized third-party partners into the product under development;
- The forging of strategic partnerships;
- The granting of licences to use a technology belonging to a third-party competitor or supplier to the company;
- The search for external ideas (research partnerships, consortia, idea competitions, etc.).

In the second scenario, a company will make its intellectual property available to stakeholders in its external environment, particularly through licensing agreements with strategic partners or secondary market players. In this case, a company can even go so far as to make one of its technologies public, for example by publishing the code of software under an open-source license, or even assign its intellectual property rights for a technology that it owns, but for which it has no use.

Some examples

Examples of open innovation success stories are many. For example, Google made its automated learning tool Tensorflow available to the public under an open-source license (Apache 2.0) in 2015. As a result, Google allowed third-party developers to use and modify its technology's code under the terms of the license while controlling the risk: any interesting discovery made externally could quickly be turned into a product by Google. This strategy, common in the IT field, has made it possible for the market to benefit from interesting technology and Google to position itself as a major player in the field of artificial intelligence.

The example of SoftSoap liquid soap illustrates the ingenuity of American entrepreneur Robert Taylor, who developed and marketed his product without strong intellectual property protection by relying on external suppliers. In 1978, Taylor was the first to think of bottling liquid soap. In order for his invention to be feasible, he had to purchase plastic pumps from external manufacturers because his company had no expertise in manufacturing this component. These pumps were indispensable, because they had to be screwed onto the bottles to pump the soap. At that time, the patent on liquid soap had already been filed and Mr. Taylor's invention could not be patented. To prevent his competitors from copying his invention, Taylor placed a $12 million order with the two sole plastic pump manufacturers. This had the effect of saturating the market for nearly 18 months, giving Mr. Taylor an edge over his competitors who were then unable to compete because of the lack of availability of soap pumps from manufacturers.

ARM processors are a good example of the use of open innovation in a context of maximizing intellectual property. ARM Ltd. benefited from reduced control over the development and manufacturing process of tech giants such as Samsung and Apple, which are increasingly integrating externally developed technologies into their products. The particularity of ARM processors lies in their marketing method: ARM Ltd. does not sell its processors as finished processors fused in silicon. Rather, it grants licenses to independent manufacturers for them to use the architecture it has developed. This makes ARM Ltd. different from other processor manufacturers and has allowed it to gain a foothold in the IT parts supplier market, offering a highly flexible technology that can be adapted to various needs depending on the type of product (phone, tablet, calculator, etc.) in which the processor will be integrated.

Conclusion

The use of open innovation can help a company significantly accelerate its research and development process while limiting costs, either by using the intellectual property of others or sharing its own intellectual property.

Although there is no magic formula, it is certain that to succeed in an open innovation process, a

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company must have a clear understanding of the competitors and partners it plans to collaborate with and manage its relations with its partners accordingly, so as to not jeopardize its intellectual property.

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1. Henry Chesbrough, Win Vanhaverbeke and Joel West, *Open Innovation: Researching a New Paradigm*, Oxford University Press, 2006, p. 1
2. Silvana Krasteva, "Imperfect Patent Protection and Innovation," Department of Economics, Texas A&M University, December 23, 2012.
3. Jennifer F. Reinganum, "A Dynamic Game of R and D: Patent Protection and Competitive Behavior," *Econometrica*, The Econometric Society, Vol. 50, No. 3, May, 1982; Ryo Horii and Tatsuro Iwaisako, "Economic Growth with Imperfect Protection of Intellectual Property Rights," *Discussion Papers In Economics And Business*, Graduate School of Economics and Osaka School of International Public Policy (OSIPP), Osaka University, Toyonaka, Osaka 560-0043, Japan.

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