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Review of Innovation Value Chain Components

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Abstract

Through an overview to the studied performed in innovation domain, one would find out that most of them have studied the impact of innovation on development or success of organizations. While, it should be stated that innovation does only affect a company or owner of innovation, but also it affects a chain of different components of innovation. Innovation value chain describes how innovation affects three other components of this chain (complementary innovation, consumers, and suppliers) beside new product manufacturer. The present study tries to indicate how innovation affects the components of value chain, and how the weakness or inefficiency of each component affects an innovation process.

Keywords: Innovation, Innovation Value Chain, Innovation Models

Introduction

During the past one decade, we have been witnessed increasing attentions of both academic and non-academic articles to innovation as a key factor for creation of competitive advantage. Innovation is known as a fundamental component of entrepreneurship and success in business. Companies such as IBM, General Motors, and Sears are placed in first, fourth and sixth places of Fortune`s 500 top companies. However in 1992, they could barely stand on their feet and they descended to below 25 place in Fortune`s list. Why this happened? This failure pattern has repeated in majority of companies. Most of such failures are related to inability of top management in managing innovation (Tushman and O'Reilly, 1997).

Innovation is one of the main factors of survival in business world, and better recognition of innovation helps companies to increase innovation. This article tries to review a small part of innovation subject. It means that we reviewed the components of innovation value chain. At first, a general overview has been made on innovation concept and related definitions. Then, innovation value chain, its components, and their mutual impacts have been studied (Hurley et.al., 2004).

Innovation: Concepts and Definitions

The word innovation is originated from a Latin word “Innovare” which means to make something new. An economist named Joseph Schumpeter presented the first managerial definition for Innovation:“Commercial or industrial applications of something new (product, production process or method, new market, and new job)”. In general, innovation can be defined as successful implementation of creative ideas in organizations. The important point

is to differentiate between innovation and concepts of invention and creativity (Johannessen, 2001).

Invention is a concept which is often used wrongly instead of innovation. Invention is usually a result of research activities, while innovation is defined as products which possess "commercialization potential". An invention can be assumed as an idea or concept which is created by R&D section. But this invention changes into an innovation when it changes into an applicable and useful product for society. In other words: innovation= invention+ utilization, or innovation is a process in which an invention change into a salable product, service or process for the first time (Rite, 2004).

To change an invention into an innovation, a company usually needs a combination of science, capabilities, skills and resources (production knowledge, skills and facilities, market knowledge, financial sources, etc.), but in invention they are not required. In general, it can be stated that the difference between innovation and invention is mainly related to commercialization potential (Hult and Hurley, 2003).

"Creativity" is another concept which sometimes is used instead of innovation, while creativity pay attention to creation of new ideas, but innovation pays attention to make the ideas applicable. In fact, innovation is an attempt to change the creative ideas into products or processes, which subsequently results in improvement in services, decrease in costs or creation of new incomes for organizations. Therefore, design and suggestion of new ideas are defined as creativity and implementation of such ideas is defined as innovation (Soltani, 1999).

Innovation Value Chain

However majority of innovation researches have only paid attention to the main manufacturer, but three other components (consumer, supplier, and complementary innovator) which intensely affect the innovation process or are affected by it, are not sufficiently reviewed. In the following, we have illustrated this issue through a simple example (Afuah, 2003).

In traditional innovation models, presented before value chain model, all were studying the positive and negative impacts of manufacturing of electric cars on car manufacturing companies such as Ford or Iran Khodro. But as mentioned before, this innovation has some impacts on suppliers, customers and complementary innovators as well. For example in electric cars case, this innovation affects the fuel injection suppliers and complementary innovators such as gas stations and oil companies. But it should be mentioned that the innovation impact level is not the same for all above-mentioned groups. While this innovation is considered as a "gradual innovation for customers because the car nature is not changed and they do not need any special training, but it is assumed as a "radical or revolutionary innovation" for suppliers and manufacturers (fig 1):

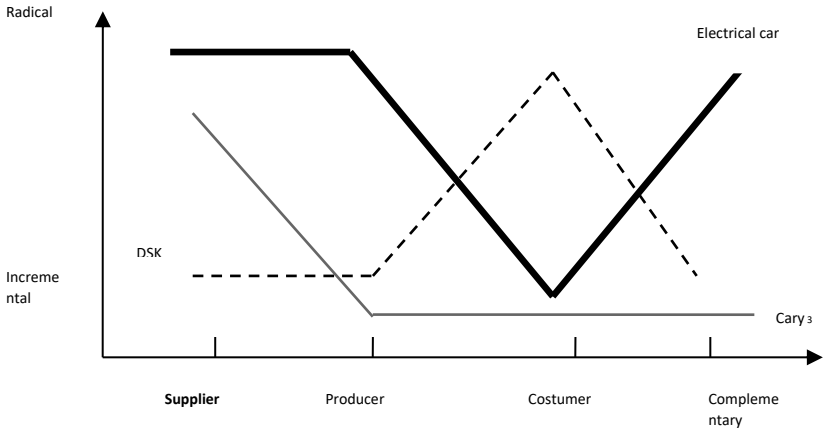

Fig 1: different types of innovation and value chain

For example in fig 1, DSK is a kind of computer keyboard in which key orders are completely different with previously designed keyboards (QWERTY). Here, there is a special kind of standard which does not need many changes in technology, and it has no significant impact on manufacturer, supplier or complementary innovators, but what about customer? It is obvious that from customer`s point of view this change is a radical innovation, because the customer`s previous knowledge is useless anymore and he should obtain new knowledge in working with keyboard (Allan, 1994).

Another example relates to a specific type of computer with high speed processors (Cary3). In this case, for whom the innovation would be a radical one? And for whom this innovation is a gradual one? Obviously consumer, complementary innovator (for instance, Microsoft Company) and even the manufacturer would not be affected by this innovation, because processor`s speed has no significant impact on product`s nature, and the innovation is a gradual one, But what about suppliers? Chip manufacturing suppliers such as Intel would not be affected significantly? The answer is negative. This innovation is assumed to be a radical one for suppliers, because they should change chip manufacturing technology and method to achieve higher processing speed. The important point is that how the components of innovation value chain affect the innovation process. Refer to the previous example to describe this issue. If supplier fails in producing fuel injection system for this kind of automobiles, innovation process would be affected significantly, and it postpones the innovation. In Cary3 computers case, if chip manufacturers on “Silicon Valley” fails in producing this specific type of chips, innovation process would slows down. As it is obvious in examples, appropriate performance of suppliers, manufacturers and complementary innovators is essential for success of innovation. If each of these components fails, the chain would be torn.

But what is the impact of consumer on innovation? Less attention has been made on consumer as a member of value chain. While informed and tasteful consumer has a significant impact on innovations performed in each industry or specific market. We can mention food market in Iran for an instance. As foreign food products entered to the market, consumers` expectations increased significantly, and they had no intention to buy domestic products which were not good in packaging and diversity. As the consumers` intension to buy foreign products increased, domestic manufacturer were enforced to revise in their packaging and diversity, so that they can compete with foreign products.

In fact, the presence of informed and demanding consumers motivates the innovation in a specific industry. Therefore, the presence of such consumers is essential for increasing the innovation capability of companies. It can be stated that lack of awareness of consumers and their low expectations, are the reasons for weakness of manufactures in third world countries. It causes that manufacturers produce products without innovation for many years. However at first look it may be beneficial for the manufacturer (since all of its products regardless of their quality are sold), but it will lose its competitive capability as the new competitors enter the market and consumers` knowledge grows.

Conclusion

As mentioned earlier, formation of innovation is not only dependent to the main manufacturer; it is also dependent to three other members of value chain (Deshpande and Farley, 2003). The presence of complementary innovators, powerful suppliers and demanding consumers increases the innovation speed and prepares the environment for radical innovations, as the weakness and inefficiency of each component will postpone the innovation. The awareness of consumers about modern standards and products causes that they make more pressure on manufacturer to meet their needs, and they enforce manufacturer to make innovation. Therefore, to pay attention to this issue (to inform the consumer) not only has no disadvantages for manufacturer, but also it would increase the competitive capability and creation of innovation culture in long term.

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