

# The theoretical approach to innovation business essay



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It is difficult to imagine nowadays business world without innovation. Many enterprises simply depend on their ability to be innovative for achieving and sustaining competitive advantage (Frishammar, Parida, Westerberg, 2012). Moreover, it is important to note that not only theoretical but also conceptual understanding of innovation has developed significantly since the early 1980s (Hong, Oxley, McCann, 2012). Hence, it is essential to understand the importance of linking innovation to new markets.

In this paper the following will be discussed:

Models of innovation;

Types of innovation;

The importance of anticipating market needs and connecting them with a new technological capability in the cases of radical and incremental innovations;

Ways to empower people to innovate.

## **Theoretical Approach to Innovation**

Innovation undoubtedly became the “engine” of the progress, competitive ability and economic growth. Baumol (2002) even regards innovation as a “life-and-death matter for a firm”. However, paradox is that still some difficulties remain in understanding what exactly the innovation is and how important it is in nowadays world.

Despite the fact that there are many definitions of processes of innovation, Gordon and McCann (2005) suggest that, generally, all innovations contain

three underlying elements: newness (1), improvement (2) and the overcoming of uncertainty (3). Newness is probably one of the most important parts of innovation, “ although such newness could be understood as something novel to the form or industry as a whole” (McCann, Oxley, 2013, p. 54). Improvement is related to the fact that firms need to find the superior quality to those products which currently exist in the market. Overcoming uncertainty means that such improvement is determined by the market and that market need have to be clarified. In addition, it is essential to remember that all these elements are driven by the technological advance. So it is clear that the process of innovation is complex, involving many different variables to consider.

## **Models of Innovation**

When talking about innovation and its importance it is substantial to understand the models, concepts and types of innovation. Many models have been developed throughout all these years. However, “ no model appears to be capable to being utilized as a generalised model of innovation” (Forrest, 1991). In this paper the following 5 models will be discussed:

Linear model – Technology push

Linear model – Market pull

Interactive

Network

System

## **Linear Models – Technology Push and Market Pull**

In 1960s and 1970s the new approach to the models of innovation has come. Concentration was focused on the idea that specific processes can generate new technologies and the learning involved in technological change (Shavinina, 2003). The first linear description of innovation was called “technology push”. The main idea of this model is that innovation is based on the advance in both science and technology because, at the same time, it can lead to the technological development and rise of new products in the market. The step sequence is as follows (Shavinina, 2003):

Basic Science → Applied Science and Engineering → Manufacturing → Marketing → Sales

Another linear model was developed afterwards the “technology push” model and was called “market pull”. The main focus in this model was orientated into the importance of marketplace and existing demand. Hence, innovation is the result of the demands of potential customers. The step sequence is as follows (Shavinina, 2003):

Market Place → Technology Development → Manufacturing → Sales

Both linear models were comparatively simple and rational so they were widely adopted until 1980s. However, the growing complexity of innovations and market made both models hardly adaptable to the future innovations.

## **Interactive Models**

After the linear models the need to create a more detailed model arose.

Interactive model was very important step in the progress of conceptualizing

innovation because it was an attempt to bring together the technology push and marketing pull approaches into a comprehensive model of innovation (Shavinina, 2003). Rothwell and Zegveld (1985, p. 50) suggest that “ the overall pattern of innovation process can be thought of as a complex net of communication paths, both intra-organisational and extra-organisational, linking together the various in-house functions and linking the firm to the broader scientific and technological community and to the marketplace”. The key fact in the interactive model is that the innovation is no longer the end product of a final stage of activity and the process is more circular than sequential. The interactive model is relevant even in nowadays as the original model has been extended to make it specific to particular situation.

## **System and Network Models**

As the process of innovation is getting more complex in the course of time, the importance of systematic approach to the innovation is growing. In addition, such complexity requires interaction not only from agents within the firm but also from cooperation amongst firms (Shavinina, 2003).

Synergy, interactions and crossing between organisational boundaries are the most descriptive features when talking about system and network models.

All the models described above are very important in understanding the process of innovation and its importance. One models lack of some important elements, others are more elaborate but still lacking some important points (e. g. taking into account the post-innovation stage, including different environmental variables or such external factors like trade unions, governments, social interest groups, etc.). Hence, it is clear that it is <https://assignbuster.com/the-theoretical-approach-to-innovation-business-essay/>

impossible to adjust only one particular model as the best one. The research and understanding of the particular innovation have to be included in every innovative organisation.

## **Types of Innovation**

The same important is to consider the different types of innovation.

Generally, innovations are classified according to the market that the innovations are aimed at (product innovations; process innovations) or according to the technical knowledge and investment to the development.

Mainly, there are 4 types of innovations:

Type of Innovation

Explanation

Incremental innovation

The intention of incremental innovation is to use the insights from customers or others to develop better solutions that are attractive and would add to the profits from the existing products (Pavitt 1998; Xin, Yeung, and Cheng 2008).

Radical innovation

The core idea of the radical innovation is the development of a completely new technology, which can provide a product which has never been available before (Nasirpourosgoei, Coles, 2006).

Product innovation

A product innovation is the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses (OECD, 2005).

#### Process innovation

A process innovation is the implementation of a new or significantly improved production or delivery method (OECD, 2005).

#### Table 1. The Types of Innovations.

Source: Authors' Construction. The data was taken from OECD and research papers.

In this paper the incremental and radical innovations will be discussed in greater detail.

Radical and incremental innovations are fundamentally different. In the main, radical innovation represents the ability to develop products that are completely new to the world or particular industry, while incremental innovation refers to the ability to develop products that are new to the firm (Frishammar, Parida, Westerberg, 2012). In other words, incremental innovations are usually thought to enhance the capabilities of the firm, whereas radical ones are thought to undermine it (Holck, Mahnke, Zicari, 2008). Moreover, radical innovations are ground-breaking development that requires significant resources to materialize. For that reason, such innovation has longer time lags to profitability compared with incremental innovations (Chaney, Devinney, and Winer 1991; Veryzer 1998).

Radical innovations, in comparison with incremental innovations, are more noticeable and visible. What is more, radical innovations are more likely to arise in large corporate or networked ventures. Hence, there is a long list of radical innovation examples that have changed the market, its structure and understanding: penicillin, X-rays, computerized tomography, magnetic resonance imaging, personal computer, cell phones, laser, etc (Ruben, Slocum 2008).

### **Example of Radical Innovation. The Case of Amazon. com**

One of the latest examples of radical innovation is the case of amazon. com and its approach to sell books via the Internet. Amazon successfully emerged from the dot-com bubble and demonstrated significant results of growth – from \$4 billion in 2002 to \$20 billion in 2008. One of the main reason why Amazon successfully survived the Internet bubble was the firms' ability to anticipate the changing market needs and customer values. Amazon started to sell wide range of books that upended the staid book industry that led to a number of the traditional book stores going out of business. A few years later, the company offered another completely new field – a commission-based brokerage service to buyers and sellers of used books. Then Amazon moved forward again developing a model to serve an entirely different customer: third-party sellers (Johnson, 2010).

Jeffrey Preston, the founder and CEO of Amazon. com, Inc., says: “ If you want to continuously revitalize the service that you offer to your customers, you cannot stop at what you are good at. You have to ask what your customers need and want, and then, no matter how hard it is, you better get good at those things” (Johnson, 2010). It is obvious, that Amazon. com, Inc. <https://assignbuster.com/the-theoretical-approach-to-innovation-business-essay/>



is one of the best examples how important is to understand and anticipate market needs and connect them with a new technological capability.

### **Example of Incremental Innovation. The Case of MySQL**

All the differences between radical and incremental innovations has shaped the common belief that only radical innovations can bring more tangible results and recognition. However, the following example of the incremental innovation can break that stereotype.

Jesper Holck, Volker Mahnke, and Roberto Zicari (2008) presents the case of the MySQL AB as a proof that it is possible to win and succeed through the incremental innovation.

MySQL is a SQL[1]database management system. Despite the fact that the genesis of this system is dated in the late 80s the most important advance has been made with the beginning of 21st century when www. MySQL. com was formed to maintain the database. MySQL gained a sound position in the Web service community. Another advantageous feature was the fact that MySQL understood and anticipated the market need in the late 1990s when business and new ventures were trying to join the Internet and exploit the WWW revolution. The key point why MySQL was successful in that was the firm's strategy to to follow the " 15 minute rule", " stating that it should be possible to get MySQL up and running in less than 15 minutes" (Holck, Mahnke, Zicari, 2008). This was very attractive, especially for the Internet start-ups, because it was simple, quick and reliable way to use Relational DataBase Management Systems. Moreover, MySQL databases did not require any specific IT education to install those systems, the users were less

considered with the missing features of MySQL and they needed the basic functionality of MySQL as a data store for customers, goods, etc. MySQL was attractive even for the great enterprises, because of the free availability and possibility for the computer departments to test it without asking for financial resources to do this (Holck, Mahnke, Zicari, 2008). In addition, MySQL had a strong superiority in demanding comparatively very little computer resources and can run efficiently even on inexpensive PCs.

After the burst of the Internet bubble, MySQL AB consisted of 20 people who were focusing on technology and the managerial issues played secondary role in the firm. To enhance organisational efficiency a number of highly professional people for the top management were recruited. Therefore, MySQL AB showed significant results in the growth of employees, operating income and profits (Holck, Mahnke, Zicari, 2008). Another important issue that was faced was the “ battle of the storage engines” (Holck, Mahnke, Zicari, 2008). Storage engine is the program that handles how data are read from and written to the files etc. where the data are stored. MySQL AB chose the InnoDB as a promising and competitive storage engine. However, afterwards one of the MySQL competitors, Oracle, made a strategically important movement and bought Innobase OY, the company behind InnoDB. MySQL felt a pressure and increasing competitors’. In response, in 2007 MySQL released its first “ own” open source storage engine: Falcon (Holck, Mahnke, Zicari, 2008).

So what strategy has empowered MySQL AB to achieve significant results and become serious competitor to “ giant” companies like IBM, Microsoft, Oracle? Jesper Holck, Volker Mahnke, and Roberto Zicari (2008) suggest that <https://assignbuster.com/the-theoretical-approach-to-innovation-business-essay/>

success was determined by small incremental innovations and ability to anticipate the market. The following 7 principles of MySQL strategy were the basis of the firms' strategy (Holck, Mahnke, Zicari, 2008):

Commitment to existing standards. MySQL chose to rely on existing application programming interface and data storage technology. That enabled users of to easily switch to MySQL and so the switching costs were reduced.

Ability to distinguish and prioritize must-to-have features from nice-to-have features. MySQL concentrated on a key features of the product, like speed, simplicity to install and size of the memory footprint.

Ability to link the development of both commercial and non-commercial product versions. “ MySQL chose to let both the Community and the Enterprise version build on the same code base, i. e. the exact same source code files” (Holck, Mahnke, Zicari, 2008). The most important thing by linking the development of both commercial and non-commercial product versions was the fact that it helped to realize the economies of scale.

“ Upbringing” and coordination of user communities. MySQL understood the importance of paying attention to various groups of users that are involved in the development process, e. g. MySQL employees, developer community (active users, contributing with interfaces, forum answers, blog entries, etc.), user community. MySQL created a coherent community that are interested in the product. Such cohesiveness enables not only to understand users, collect the feedback but also to motivate community members to develop the product.

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Product testing with communities. Despite the fact that majority of MySQL's open source development community do not generate revenue directly, community members are great supporters. In other words, they provide valuable testing, error-reporting, and bug-fixing information that allows to reduce the costs of testing and even marketing.

Implementation of dual-licensing strategy. MySQL offers different licensing arrangements for different user groups. Jesper Holck, Volker Mahnke, and Roberto Zicari (2008) note that " Dual licensing is an important element in benefiting from an incremental innovation based business model for software products that are embedded in other products".

Linking the power of market and communities. One of the main reasons why MySQL was successful in incremental innovation is the fact that the firm was capable to combine community and markets. Important feature is that MySQL can offer enterprise customers extra value, like more functionality, better performance, new features and fewer errors, while community users provide very valuable testing and feedback that delivers error-reporting and bug-fixing.

## **Empowering People to Innovate**

Talking about the need for innovation and the main " drivers" of innovation, there are many factors that can determine it. According to the Canadian Innovation Centre (Canadian Dairy Commission, 2010), these factors can be divided into both internal and external " drivers":

### Internal Factors

## External Factors

Competition

Improve Profitability

Lower Costs

Improve Return on Investment

New Entrants

Improve the Cash Flow

Market drivers:

Demand

Economic Forces

Social Changes

Demographics

Improve Quality

Table 2. External and Internal “ Drivers” of Innovation

Source: Authors’ Construction. The data was taken from Canadian Dairy Commission

However, this list of factors is not limited and could be expanded. For example, Canadian firms (Canadian Dairy Commission, 2010) from the food

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industry responded that they were engaging in innovation projects because they wanted:

To introduce new products to the existing line of products;

To increase market share;

To meet buyers' standards and requirements;

To improve productivity;

To reduce production costs.

Innovation seems to be an engine of every organisation and its progress.

However, some companies are not successful in innovating. In 2010

Strategyn, an innovation management consulting firm, conducted an

independent study to measure the success rate of traditional innovation

processes. The study averaged the success rates cited in 12 sources,

including the Harvard Business Review, the consulting firm Frost & Sullivan,

the professional services firm PricewaterhouseCoopers, the Product

Development Management Association and the Corporate Strategy Board.

The results were surprisingly low – innovation success rate was calculated

at only 17 percent (Strategyn, 2010). Hence, it is extremely important to

know, how encourage people to participate in innovation. OECD (2010)

suggests that there are 7 determinants which can influence people's

capabilities to innovate:

Basic scientific skills. Education is very important factor in supporting

innovation because “ knowledge-based societies rely on a highly qualified

and flexible labour force in all sectors of the economy and society.

Innovation requires the capacity to continually learn and upgrade skills” (OECD, 2010, p. 46).

Tertiary education. Well-developed higher education system is another important factor. High graduation rates in universities can foster the development of a highly skilled workforce.

Doctorate holders. Doctoral graduates are the most promising innovators. “ They have been specifically trained to conduct research and are considered best qualified to create and diffuse knowledge” (OECD, 2010, p. 48).

International mobility. It plays an important role in creating and diffusing knowledge, especially tacit knowledge.

Entrepreneurial talent. It provides with a broader skill development, employment opportunities as well as greater possibility to innovate.

Innovative workplace. Effective management is a crucial factor. It is highly important to ensure that the talents of individuals are being tapped. Ability to motivate and organisational culture can also determine the success of innovation.

Consumers’ demand for innovation. Users and consumers play inevitable role in the innovation process. Hence, it is extremely important for companies to understand and anticipate market needs and connect them with a new technological capability. Users and consumers have a power to stimulate and encourage the process of development.

It is visible that despite the list of benefits and “ drivers” of innovation, some firms might be reluctant to innovate. For that reason, it is extremely important to know how to empower people to be more innovative.

Considering the OECD research, it is obvious that probably the most important role goes to the educational system, consumers’ demand and workplace.

## **Conclusion**

There are many different models of innovation (linear, interactive, network, system, etc.). However, the complexity of the process of innovation determines that it is impossible to adjust only one particular model as the best one. For that reason, the success of the firm highly depends on its ability to find and adapt the best model according to the nature of the company, its strategy, product, size, etc.

The types of innovation can also vary. However, the general types are as follows: incremental innovation, radical innovation, product innovation and process innovation. The common belief that incremental innovation can be less tangible than radical innovation is disproved by the example of the case of MySQL AB. The set of incremental innovations became a reason of success and enabled company to gain a competitive advantage amongst the market leaders.

The cases of Amazon. com and MySQL AB proved the importance of anticipating the market needs. Both companies were successful in understanding its costumers: Amazon. com found a completely new niche, while MySQL paid high attention to user communities, tried to gather



feedback and nurture its potential customers. Understanding the market needs was successfully connected with the new technological capabilities in both Amazon. com and MySQL cases. Hence, despite the fact that both firms used different type of innovation, they achieved significant results by understanding the consumers' need and developing new technological approach.

Innovation is extremely important for every company that seeks to achieve the progress. Hence, there are list of external and internal " drivers" that have a power to motivate firms to innovate. However, even in nowadays business world, some companies remain reluctant to be innovative. For that reason Organisation for Economic Co-operation and Development identified a need to give some indications about what can actually empower people to innovate. The most important factors that can determine people's willingness to innovate are educational system, consumers' demand and workplace.

All in all, innovation is an endless process. Companies need to have a clear strategy and vision, undersand the market and pay attention to the processes of research and development. However, despite its complexity, innovation is the key to the success and continuous progress.