

THE CONSIDERATIONS ON INNOVATION MODELS

Ghimiși Stefan, “Constantin Brancusi” University of Targu Jiu, România

Abstract. In the full global crisis, innovation must play an active part in solving problems facing the countries of the world. Investing in research and development and production of innovations is a practical and efficient way to combat recession. The paper presents some models of innovation developed in economy, the choosing of optimal model innovation can lead to society development.

Keywords: innovation, research, models

1. Definitions and evolutions

In 1941, English economist Schumpeter [1] proposed the first definition, in technical-economical domain, innovation, definition with general character. He says that innovation is the action whose outcome is to produce anything or to produce otherwise. As Schumpeter's definition, it is recognized that the innovation in the following activities: a new product creation introduction of new manufacturing methods; entering a new market (creating a new market); appealing to a new material; new organization of the company; create a new image of the company.

The classic definitions of “innovation” include:

- “the process of making improvements by introducing something new”.
- “the act of introducing something new: something newly introduced”. (The American Heritage Dictionary of the English Language)
- “the introduction of something new”. (Merriam-Webster Online)
- “a new idea, method or device”. (Merriam-Webster Online)
- “the successful exploitation of new ideas”. (Department of Trade and Industry, UK)
- “change that creates a new dimension of performance”. Peter Drucker (Hesselbein, 2002)

- “a creative idea that is realized”. Frans Johansson (Harvard Business School Press, 2004)

2. Innovation Models

Many innovations result from seeking a new opportunity. Potential innovator must know that there are principles of innovation. These principles can be improved and allow people to innovate.

Thus:

1. Be oriented towards action, innovators always seek new ideas, new opportunities and new sources of innovation.
2. To make the product, process or service innovation, to be simple and understandable.
3. People have to easily understood how innovation function
4. To achieve product, process, service based on customer preferences.
5. To start with small-scale innovation.
6. Need for targeted high objectives. Successful innovators should aim at trying to find a niche market for innovative product.
7. Innovators must follow the rule: attempt, test, review.
8. Learn from mistakes. Innovation does not guarantee success. Analysis of fault may give rise to another innovation.
9. Need to develop a schedule of the innovative project with periodic inspections.
10. Need to be rewarded those involved heavily in innovation activity.

2.1 “Technology push” model

The "Technology push" model is a linear model suggests that the innovation process starts with an idea. Sometimes the process has the idea / invention only a single man who has knowledge and skills that would transform the idea / invention into innovation. Nowadays the starting point of the innovation process is the process of research and development in the enterprise. This process includes product design and development can be put into production with minimal costs and can be done at a good price. Thus the market is seen as a receiver of the proposed products from research and development process. Therefore an increase in research and development leads to increased innovation. In the past governments support innovation in many countries, this process was to support research and development through direct financing. A team of research and development implies that knows enough about the consumer needs to

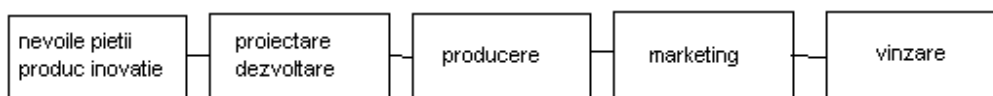
develop a new product without consumer participation.

Technology push model of innovation has not successful in all cases because sometimes the proposed innovations are not sufficiently appreciated by the customer and the product does not ensure expectations.

2.2.”Market pull“ model

Alternatively, the “market pull “model suggests that the need for innovation comes from consumers or market segment. These needs may be perceived by entrepreneurs or producers or consumers are clearly manifested. According to this model for a subsequent successful innovation is necessary first to investigate market needs, establishing the needs of both existing products and processes and how to meet the needs of new innovative product.

Therefore this model adds “Technology push “model research phase of market needs.



Market pull model

2.3. Model of innovation chain-link

It is a third generation model of innovation third and is proposed by SJ Kline, N. Rosenberg [2]. Following this model the innovation process is divided into five stages. In the first stage it is identified the consumers needs on a potential market. The second stage begins with an invention or / analytical project with the new product or process which as planned will meet the needs found. In the third stage takes place design and testing, and innovation process itself. In the fourth stage the project is growing and is introduced in series production. Fifth stage of innovation is to present the innovation on the market with the marketing process and distribution beginning .

Characteristic of this model is the presence of five relations of the innovation process, describing the different origins of

innovation and knowledge to enter, related to the innovation process. Main link with the index denoted by arrow C (Central Chain) make a process generalization which occur as a response to market needs, invention or analytical design, development and production to the marketing process. The second link of the innovation process reflects feedback during the duration of the main link. The most important part of feedback, represented by F (feedback), comes from the consumer or user of the future customer of the innovation. This link reminds us that innovation is the source of consumer, or that they are consumer-oriented innovation processes. The second link shows the occurred feedback in the enterprise, noted f (feedback), and presents the company work to solve / skip issues that may arise at

different stages of innovation, or the source innovation which is to learn from the experience (learning by doing).

The third link in the main link connecting the innovation process with knowledge. This link between innovation and fundamental research is denoted by D (discoveries), so for example many innovations are directly related to scientific research process appearing like enterprise and universities cooperation.

The fourth link in the process of innovation denoted by K (knowledge) as the first source innovation evidences the existing knowledge and in the second place the new emerging knowledge if the existing knowledge can not meet needs. The fifth link, denoted by I (Innovation) reflects the possibilities open by the innovation for scientific progress. This means the utilization of innovations to make scientific research that will give new inventions.

on knowledge. Definition given by Henry Etzkowitz (2002) [3] mentions that "triple helix is a spiral type innovation model which describes the mutual relations in many different points of the accumulation of knowledge process." This concept has been approached by some Romanian authors, such as Miron, D. (2008) [4] N. FG Filip and Vasiliu (2009). [5] VINNOVA Swedish Agency for Innovation adopted triple helix model in order to provide efficient solutions to the problems of generation, technology transfer and use of new knowledge

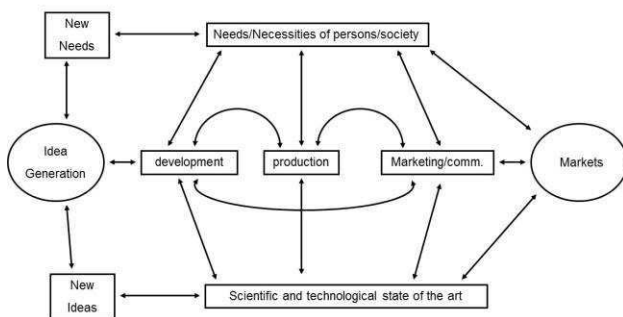
Triple helix model is characterized by three dimensions. The first on is the internal transformation in each of the helix, such as developing lateral linkages between companies, through strategic alliances or undertaking by some universities of the economic development mission. The second dimension is the influence of mutual interactions of a propeller on each other. The third dimension is a new network overlaps trilateral

The third dimension is a new trilateral and overlapping network of organizations, the interaction of the three helix formed in order to arrive at new ideas and formats for developing the "High-tech."

The model integrates the three "institutional spheres: research, industry and state. The first category is composed of researchers involved in the application of new concepts, designs and tools that they develop and universities which create educational programs focused on new vocational skills for future graduates. The second category consists of decisional factors in industry (entrepreneurs, investors, managers, executives). The third category consists of decisional factors in legislative and executive institutions of the state, which legally regulates the conditions for the functioning of industry, research centers and universities, public funds allocated to R & D and education.

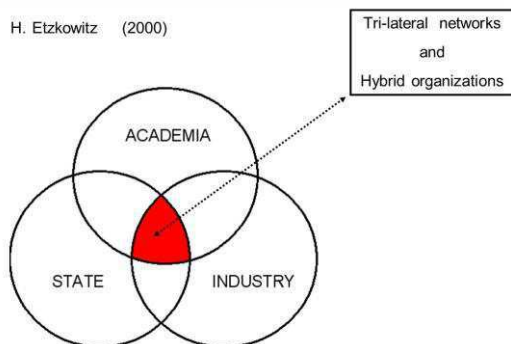
There were three main forms of triple helix model. In the model "triple helix I", three spheres (university, industry and government) are institutionally defined. Interactions realized across the borders

Chain-linked model



Triple Helix model

H. Etzkowitz (2000)



2.4 The triple helix model

The "triple helix" of university-industry-government relations is a neo-evolutionary model of innovation process is a model for analyzing innovation in the economy based

spheres are mediated by organizations as the industry liaison offices, centers of technology transfer and contract offices. In "Triple II helix", the helix are defined as different communications systems, consisting by markets operation, technological innovation and control on the interfaces. The model "Helix Triple III" the institutional spheres (university, industry, government) assume each others roles, universities taking a quasi-governmental role as organizer of regional or local innovation.

Triple helix model has been criticized as abstract [6].

3. Conclusion

In the actual situation, a solution to get out from the crisis is the state investment in research-development and stimulation of innovative work. The choosing of the appropriate model innovation can lead to the stimulation of creativity and development of innovative products and services in the economy. The triple helix model and the implication of universities in innovative activity can be a solution for getting out of crisis.

4. References

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