

OPEN INNOVATION: THE PRECONDITIONS OF THEIR CREATION AND STRATEGIES



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IN INTERNATIONAL PRACTICE, THERE ARE TWO MODELS, BY WHICH THE INNOVATIONAL BUSINESS CAN DEVELOP: THE TRADITIONAL - A CLOSED INNOVATION AND A MODEL OF OPEN INNOVATION. LET US CONSIDER THESE MODELS. THE ESSENCE OF THE MODEL OF CLOSED INNOVATION IS SELF-DEVELOPMENT, FINANCING AND INTRODUCTION OF INNOVATIONS ON THE MARKET. HERE IS USED ONLY INTERNAL SOURCES OF THE ORGANIZATION - OWN RESEARCH AND DEVELOPMENT PIECES. THIS CONCEPT IS USED EFFICIENTLY BY LARGE TRANSNATIONAL COMPANIES THAT OVER THE PAST 80 YEARS CONTRIBUTED TO THE TECHNOLOGICAL PROGRESS OF MANKIND.

The main idea of the closed model of innovation is to increase profits by sharing developments with other companies and meet the needs of customers.

At the same the company receives large share of profit by selling licenses for its patented developments. In order to get the maximum profit from the developments they should be patented, used for needs of customers and sell licenses of their use. Thus, the concept of open innovation does not preclude patenting, and even contribute to it.

Characteristics of closed innovation model. Under open innovation within the company saves all value of innovation and ideas: technology remain inside the company to avoid losing its advantages. All activities are carried out within the company. Ide-

as cannot enter the company from the outside and go beyond boundaries of the firm. This model eliminates the information leakage from the system. The company keeps the flow of new ideas within their own R & D channel, transforming many of these ideas into new products and obtains through this value. Here, the company creates a special department, which aims only to develop of innovations.

Due to the closed model: the concentration of the best scientists in research centers of corporations like Intel, IBM, General Electric, 3M was introduced to the market using breakthrough innovations: the transistor, the laser unit and other.

Cons of closed innovation model:

- ✓ for a large number of tasks for which the company is spending huge resources, there are effective solutions, which can be accessed at very low prices;
- ✓ not all that has been patented, used by company (usually more than 80% of all patents are not profitable);
- ✓ many projects, which, according to the company, are not promising, is actually quite valuable, but are not applicable within the company, because they do not fit into the existing system. [5]

In the last decade it is manifested a number of trends - economic, institutional, social, that under-

mine the effectiveness of the “closed” innovation and make the actual search for alternatives.

The decrease in the effectiveness of innovation, based on the use of closed innovation processes affected: the growth of economic integration, the internationalization of economic activity, the development of globalization and the emergence of new information and communication capabilities significantly.

Characteristics of the open innovation model (Open Innovation).

The model of open innovation is the opposite of closed innovation model, which is used by most companies in the world today.

Today, open innovation has received increased attention by theorists and practitioners in many developed and developing economies. According to experts, open innovation - is one of the important ways of solving the problems of creation and promotion of new developments. Through the model of “open innovation” may be the best way to achieve long-term success in today’s dynamic market.

Open innovation - the new concept, appeared to change the approach to the development of new ideas and technologies. It is given a special attention to it in the literature of innovation management.

For the first time the concept open innovations was formulated by Henry Chesbrough in 2003. In that year at Harvard, he published his book “Open Innovation. A new way of creation and use of technologies, in which is considered most completely

the category of open innovation and the traditional (closed) innovation is opposed to open one. The concept of “open innovation”, introduced by Henry Chesbrough, becomes the subject of international conferences and the basis for scientific papers. In 2006, at Harvard was published a second book by Henry Chesbrough, “open business model. How to succeed in a new innovative environment”, also at Oxford issued the first collection of scientific papers” Open Innovation study of a new paradigm. The transition to the concept of open innovation it is evolutionary. Several factors contributed to the development of a global R & D environment [1].

- ❖ that shortens the time between the invention and commercialization of innovations;
- ❖ the complexity of the developments;
- ❖ interdisciplinary nature of the new technologies;
- ❖ increasing mobility among highly qualified specialists;
- ❖ development of outsourcing;
- ❖ emergence of global scientific centers of excellence;
- ❖ active use of venture capital;
- ❖ numerous start-up companies;
- ❖ strengthening the role of universities, as well as a huge number of external ideas

Western scholars have identified three main objectives of open innovation systems: motivation, integration, innovation and efficient use of the four main strategies of open innovation (Figure 1):

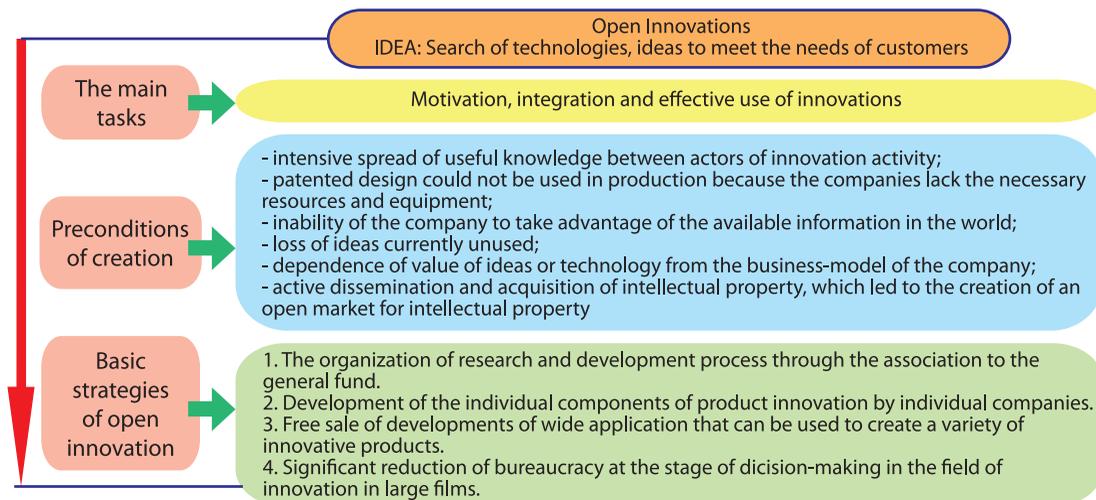


Figure 1. Open innovations: the creation of preconditions and their strategies

Source: developed by authors

Open innovations interpreted as targeted use of external and internal flow of knowledge between different organizations to enhance the effectiveness of both internal innovation processes, and therefore the market expansion of the external use of innovation [3, 4]

The theory of open innovation defines the process of research and development elaborations as an open system. Open innovations - is an approach to innovation, by state that enforced not only internal sources, but also external.

Open innovation theory suggests that the innovation process involves all members of external and internal environment of the organization. In this environment, there are a large number of ideas within the company and beyond. These ideas are available for use, and technicians can be hired by other organizations.

The main premise of the model of open innovation is that it becomes possible to use a large number of ideas and find these ideas quicker than at application of closed innovation. It includes:

- ❖ acquisition (purchase) of external knowledge (including the integration of external sources of knowledge in the internal knowledge data base of the company and the joint development of new ideas with other entities, including with competitors). Markets of technological knowledge are rapidly developing, and enterprises have more and more opportunities to use their technology assets.

- ❖ external use (sale) of this knowledge on different markets. This trade of technologies, intellectual property (patents and licenses) cooperation in order to get more profit further may be used to establish own technologies industry standards.

The main prerequisites for the creation of open innovation model are:

- intensive spread of useful knowledge between actors of innovation activity;
- the companies lacks the necessary resources, equipment, and as a result many patented developments could not be used in production;
 - inability of the company to take full advantage of the world's information;
 - loss of ideas, that companies cannot use at the moment
 - direct dependence of value of ideas or technologies on the type of business-model of the company;

- active dissemination and acquisition of intellectual property, which led to the creation of an open market for intellectual property.

The basic idea of open innovation model it is the search of technologies, ideas that can fully meet the current demand of customers. It is possible to license the technology that already exists in another country or sector. In the model of open innovation exists a risk of choosing a wrong partner, it is needed to properly find a trustworthy partner who would be interested in co-operation with the company.

The advantage of open business - model of innovations

First of all, it solves the problem of rising costs due to the use of external R & D resources. Through this in the process of innovations it is saved time and money.

Secondly, it stimulates new growth of incomes, since there is increase in the number markets where innovations are used.

Third, it changes the attitude concerning intellectual property. It does not need protection from competitors, actually it is considered as a product with witch should actively exchange on the subjects of innovation.

Fourth, it requires a clear strategy, a clear policy of financing and entrepreneurial culture, it is valued the experimentation and creativity.

Authors of numerous scientific publications on the topic of open innovation, provide a variety of forms and practice of active use of this new business model [4]. These include:

- strategic alliances and partnerships;
- subcontracting and outsourcing contracts;
- different types of technology licensing;
- creation of joint ventures;
- creation of autonomous companies at universities;
- sharing production equipment and facilities;
- inter-firm cooperation in the field of technology standardization;
- innovations implemented by means of end-users;
- cooperative venture investments, etc.

Comparative analysis of closed and open models of innovations

The principal difference between open innovations from closed it is use of open approach to the dissemination of knowledge outside the company (firm). This allows significantly expanding its innovation potential and boosting internal innovation.

Table 1

Comparative characteristics of “closed” and “open” innovations

Closed innovation	Open innovations
Use of closed approach to the dissemination of knowledge outside the company. This prevents the increase of innovation capacity and internal activity of innovation.	Use of open approach to the dissemination of knowledge outside the company. This allows significantly expanding its innovation potential and boosting internal innovation.
The majority of qualified individuals in the industry work for the company	Not all qualified people work for the company, so it needs to find and use the knowledge and expertise of people from outside
For a sustainable business discoveries, development and production of products are made only by own forces	External research and development may have a greater value than its own
The constant and strict control of its intellectual property (IP) of not receiving it by its competitors so they wouldn't benefit from the ideas of the company	Insist on the profit from the use of IP by other companies and through the acquisition of a foreign IP required for business development
Mentality: When we first commercialize developments, we win. If we create the best idea in the industry, we will win.	Mentality: A successful business model is better than entering on the market first. If we can better use our own and external ideas, we will win

Source: Developed by the authors based on [7]

In the closed model innovations market the leaders are companies with the highest volume of investment in R & D; of commercialization of innovative developments gives them a competitive advantage on the market and allows to displace competitors; the main tool against the diversion of information - protection of intellectual property.

The basic idea of open innovations model is not the creation of a new invention, which can provide a competitive advantage, but it is search of technologies, ideas that will satisfy the existing demand of customers. It is not necessary to create something, but it can be licensed already existing in other countries or sectors of technology.

In the process of transition to open innovation model begins to occur active cooperation with external developers. An example of a successful and smooth transition from closed innovation model to open innovations model is multinational corporation IBM, which since beginning of 1990's was actively used the model of closed innovation for business development. On it basis of it was a control of technology solutions, development and innovation within the corporation. The close relationship with the customer does not allow to the client to switch to the technological solutions offered by competitors. The companies - clients during the implementation of joint project with IBM provides a large number of confidential information. This confirms

the high credibility of the company and the lack of confidence of information leakage. An important role in the transition to an open model plays construction of a new business model at the intersection of technological and economic environment of the company.

Experts in the field of open innovation is considered that the construction of a new business model is necessary to focus on six key components [1,5]:

1. Description of the value of the product for the end user.

In the process of describing of the value of the product it is necessary to answer two basic questions: What is the customer's that problem you want to solve? Is it a significant problem for consumers? [2]

2. Identification of market niche.

In order to determine the value of the product for the end user, should always be selected a target audience of the product. Generally, consumers consider the value of the technology that offers them by the manufacturer, based on its capabilities. If a company knows its target audience, it receives not only the benefits of a successful market entry, but also understanding the direction of the further development of its proposed product.

3. Creation of value chain. According to the definition of the value of the product and the main constituent elements of the value for the end user

within a defined market niche, it is necessary to move to the creation of value chain. For creation of effective of the value chain it is necessary to solve two problems:

- the chain should create value of the product throughout its length and at the end to bring it to the consumer;
- the chain should allow the company to qualify for the sufficient amount of value to justify the framework of the closed model of innovation

4. Determination of the level of profitability and cost structure and revenues of the project.

Here it is necessary to identify the cost structure, the ratio of value creation between consumers, producers and suppliers to determine the real need of industrial and financial resources for entering of a product on market.

5. Creation of an effective partner's network.

Building long-term mutually beneficial relations with all participants of the project will promote the maximum use of the potential of new technology on the market on the side of consumers and will reduce the cost of the project.

6. Development of competitive strategy.

There are different strategies of competition on the market. In traditional sectors producers maximally optimize business processes to reduce costs and offer consumers an attractive price. On the high-tech sectors in particular ICT) it is - creation of conditions within the company for the formation of product's value for the consumer, as well as technology and copy protection from competitors.

The main prerequisite for the transition to a model of open innovation in key sectors of the economy is the construction of an innovative system that includes the following elements.

The first element of the system - state support of innovations.

A second element - the state as a regulator of innovative development. The main task is to provide movement of innovative elevator, in order to find at each stage - from idea to launching into series - the proper tools of support.

The third element - increasing of innovative potential of state companies, which play a significant role in the economy. It needs to be created a program for development of innovations so it could be used actively by companies.

The fourth element - the creation of an additional factor of demand for innovations through public procurement.

The fifth element - launching of new major cross-sectored projects in which will be combined effort of the state, science and business. The main form of development would be a public-private partnership.

The sixth element - the territorial dimension of innovation policy. The development should be supported by creation regional centers of innovation.

The seventh element - qualified specialists that will form the basis of the innovation system. The ideas and projects that involve increase cooperation between universities and industry also the accessibility of global education should be implemented.

Conclusions

Theoretical and practical studies allowed developing our series of proposals to the "openness" of innovations of Moldovan companies, which are as follows:

1. In determination of the purpose of the Moldova's innovation economy, on the basis of open innovation, the following strategies should be used, operating separately or in various combinations, depending on the circumstances:

- providing of aggressive leadership position and the investment attractiveness of the region;
- defensive, stability is preserved position achieved by borrowing innovation and making some changes;
- simulation – following of the leader by repeating all their actions, and without performing the high cost of innovation;
- opportunistic - the achievement of partial benefits by unreasonable measures by habitual use of traditional technologies.

2. The need external expertise to the internal process of research and development may be found by participating in the annual international conferences, small meetings, and dissemination of technologies specifically required.

3. It is necessary, that external knowledge to complement the results of research and development, brand, distribution channels, which belong exclusively to the company and are not for „selling.“ For creation of a unique product the ideas must be combined with a strong brand. In Moldova there

is a low percentage of transparency in the field of „sale” of knowledge, therefore it is necessary to determine what kind of business model for the sale of innovations is applicable in business industry.

4. For the implementation of the open model of innovation in the economy entrepreneurs need to pay special attention to adjusting their business - models for the adaptation of successful experience of its application by transnational corporations and start of active interaction with the venture capital market, which should be formed in the coming years in the Republic of Moldova

5. The preconditions of transformation the activity of Moldovan companies towards a model of open innovation can be:

- intense dissemination of knowledge between subjects of innovation;
- rapid growth of the number of new developments in this field;
- patented design failed to be used due to lack of equipment, training, knowledge

BIBLIOGRAPHY

1. CHESBROUGH, H.W. *Open Innovation. The New Imperative for Creating and Profiting from Technology*, Cambridge, M.A. Harvard Business School Publishing, 2003.
2. CHESBROUGH, H.W. *The era of open innovation*: // Sloan Management Review, 44 (3), 35-41, 2003.
3. CHESBROUGH, H.W. *The logic on open innovation: managing intellectual property* // California management Review, 45 (3): 33-58, 2003.
4. GERASIMOVA, N.N. *„Open innovations: a review of theory and practice based on the analysis of literature of 2003-2010.”* Innovation №3 (149) 2011.
5. CHESBORO, G. *Open innovations. Creation of profitable technology* / First. With England. V.N. Egorova. M. : Generation 2007.

ABSTRACT

Open Innovation: the preconditions of their creation and strategies. This article explores the theoretical basis of open innovations, it reveals the concept of open innovation and their principles. It is given a comparison of public and private innovations and benefits of the implementation of the open innovation model and the possibility of its application for the Republic of Moldova.

Keywords: open innovations, closed innovation, essential elements of the model of open innovation

REZUMAT

Inovațiile deschise: condițiile apariției și strategiile acestora. În acest articol se cercetează bazele teoretice ale inovațiilor deschise, se dezvoltă noțiunea și principiile inovațiilor deschise. Se oferă compararea inovațiilor deschise și închise, precum și beneficiile utilizării modelului inovațiilor deschise și posibilitatea utilizării acestora pentru Republica Moldova.

Cuvinte cheie: inovații deschise, inovații închise, elemente esențiale ale modelului inovațiilor deschise

РЕФЕРАТ

Открытые инновации: предпосылки их создания и стратегии. В данной статье рассматриваются теоретические основы открытых инноваций, раскрывается понятие открытых инноваций и их принципы. Дается сравнение открытых и закрытых инноваций, а также преимущества использования модели открытых инноваций и возможность их использования в Республике Молдова.

Ключевые слова: открытые инновации, закрытые инновации, основные элементы модели открытых инноваций