INNOVATION THROUGH INTERACTION - THE CONCEPT OF OPEN INNOVATION IN THEORY AND IN PRACTICE

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Abstract

Open innovation is one of the most discussed topics connected to innovation, based not only on the search for new ideas and solutions but also on the emphasis for cooperation and the benefit of the diffusion of knowledge and dialogue. An innovative company should not construct an iron curtain separating it from the influence of the market and competition but participate in the exchange of ideas whether internal or external.

The concept of open innovation is the foundation of the above idea, meaning an innovation management strategy which benefits from both internal and external sources, the constant monitoring of the latest scientific achievements, investment in patents, competitor's licences and making unutilised research projects available to others.

This paper will show the characteristics and examples of the above strategy application, which prove that innovation processes, appropriately applied to market needs, may generate concrete benefits, both for worldwide corporations and small and medium-sized companies, as it is the consumer that significantly builds the market of innovations and therefore can be considered its co-constructor.

Key words: Open innovations

Introduction

"He who rejects change is the architect of decay." These words of Harold Wilson pinpoint the essence of innovation and its inevitability in the development process. Since the beginning of humanity innovation has been an inseparable factor of development, perceived as the drive for demand, stimulating economic growth and increasing a company's competitive advantage [Fagerberg, 2006; Wojnicka, 2003]. Innovative methods of production and supply were the basis of survival for social groups in a competitive environment, giving rise to social and industrial revolutions [Bruland & Mowery, 2006].

The World's economy is changing as we speak. Marketing strategies that were until recently perceived as beneficial, in the light of the crisis have become outdated. The change in our perception of innovation, as an interaction not only with other entrepreneurs but also among scientific

and consumer circles, is currently the challenge for entrepreneurs. Paradoxically, the crisis favours innovations, as entrepreneur's search for new solutions and cooperation methods. The aim of this paper is to present the model of innovation management- open innovations and their practical applications among not only the World players but also SMS's.

Innovation and innovation processes- theoretical background

I shall start the discussion on innovation by quoting a number of its definitions suggested by the classics on the subject. Joseph A. Schumpeter sees innovation as the introduction of new products or a new production method, the opening of a new market, accessing new sources of raw materials or, finally, the reorganisation of economic processes [Schumpeter, 1934]. However, P. F. Drucker determines innovation as a particular entrepreneurial tool by which a change is turned into an opportunity to commence new economic activity or provide a new service. He claims that innovation does not have to be technical, or even of a material nature [Drucker, 1992]. Following the definition suggested by the Main Statistical Office, an innovative activity is a sequence of activities of a scientific (research), organisational, technical, trade or financial nature, whose aim is to design and implement new or significantly improved products or processes. Moreover, the term innovation activity is inseparable from innovation which can be conducted by a company either internally or may involve the purchase of goods, services and knowledge from external sources [GUS, 2009].

Taking into account the above definitions, innovation should be regarded as a change conducted in order to obtain a new product, service or quality. What is more, we should not forget the fact that it is an integral part of a development and a drive by which we create, develop and introduce new products to the market and improve already existing solutions.

The literature on the subject of economics points to two main meanings of innovation- innovation as a product and innovation as a process [Cohen & Klepper 1996, Fagerberg 2006]. According to Schmookler's theory, the differentiation between these two terms is the key to understanding innovations. **Innovations perceived as a result** refer to the final selection of goods, services or ideas regarded by customers as new. However, **innovations treated as a process** refer to the creation and maturing of an idea, research and development and design activities, production, marketing and propagation and therefore innovation diffusion. The concluding element of the multi-faceted innovation process is product, technological, organisational or social change [Inauen & Schenker-Wicki,

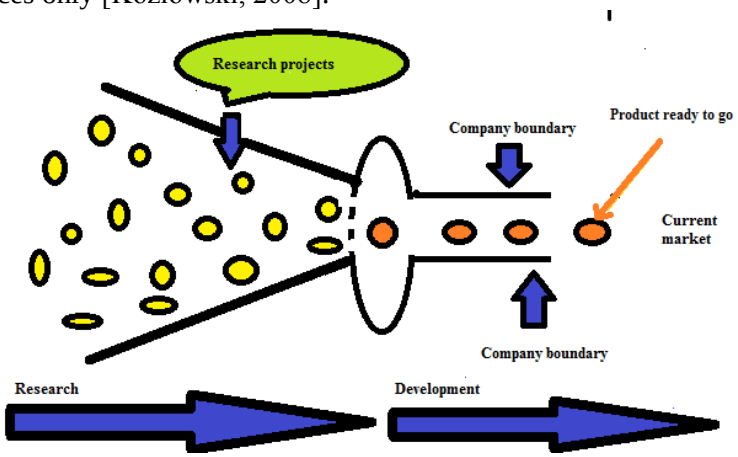
2011]. Andrzej H. Jasiński presents, in a visual manner, the essence of the innovative process as a two-legged body whose one foot stands in the research and development zone while the other stands in the production zone [Piekut, 2011].

Furthermore, the theory and literature on the subject includes two competing definitions of the innovation process: That of J. A. Schumpeter's supply definition and P. F. Drucker's demand definition. From the point of view of supply, the innovation process consists of a sequence of events: creation (idea), innovation (invention) and diffusion (propagation). The process occurs as if independent of the industrial process and it is necessary to find an entrepreneur to apply the innovation in the production process. However, from a demand point of view, the innovation process is a sequence of undertaken events guided by market processes which gives the foundation for innovation implementation, allowing an entrepreneur to gain a competitive advantage. Diffusion of innovation is a key element in the innovation process, without which innovation would make no economic sense. The Oslo Manual defines innovation as the propagation of innovations through market and non-market channels starting from its initial implementation anywhere in the World, as well as being the manner in which innovations are propagated through market and non-market channels, from the moment of product implementation to contact with the consumer. Knowledge of diffusion mechanisms and their effectiveness is a valuable tool in the hands of managers, as without it, it would be difficult to determine that a new product has been successful introduced to the market. The main objective of diffusion is to make an innovation accepted by the highest number of purchasers, which is why the success of the innovation diffusion process, namely a positive acceptance by the market, determines the success of the whole venture [Klincewicz, 2011]. Thus, it shows that each link in the process of innovation implementation and the necessity to skilfully manage an innovation from the idea stage to implementation, play a crucial role in the innovation's success [Antoszkiewicz, 2008].

Evolution of an innovation process

The 20th century was dominated by the closed model of innovation strategy (Graph 1), in which the innovation process occurred within a company and was based on the conviction that innovations required monitoring which entailed a strict protection of intellectual property and the close guarding of trade secrets. By this we can understand that both R&D

activities and marketing were carried out within a company utilising their own resources only [Kozłowski, 2008].



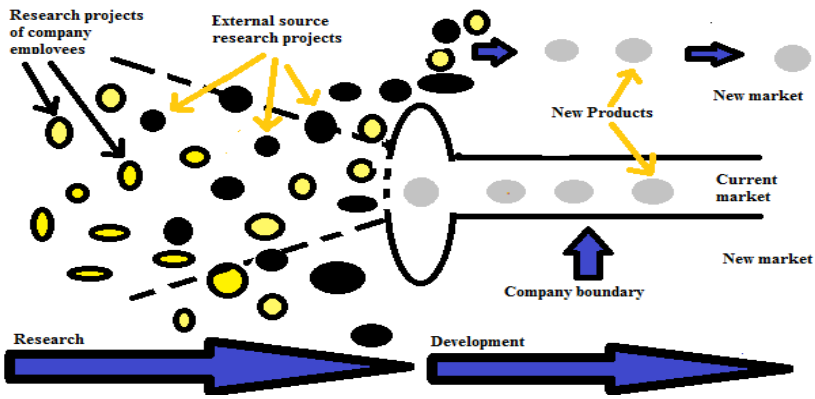
Graph 1. Model of the closed innovation process

Source: Own work based on: Henry W. Chesbrough, *Open Innovation. The New Imperative for Creating and Profiting from Technology*, Harvard Business School Press, Boston, 2003.

This traditional approach becomes less important when confronted with the growing mobility of employees, who transfer previously gained knowledge and experience to a new workplace. The research conducted by the consulting company Booz Allen Hamilton in companies across a variety of sectors points to the fact that there is no correlation between expenditure on R&D and successfully completed innovations [Mierzejewska, 2008].

Socio-economic changes and widespread access to information contributed to the change in the perception of innovations. The market was

gradually saturated as the competition grew, therefore demand models of innovations appeared which focussed on consumer preference, determining the market success of a product. Slowly, innovation became the answer to the market expectations. Currently, innovation processes combine in one model both demand and supply factors, thanks to which, the demands of the market are compatable with the technological capabilities of a company [Rothwell, Zegvelt, 1982]. The most advanced model of innovation management is the concept of open innovation (Graph 2) presented in 2003 by Professor Henry Chesbrough, executive director of the Centre for Open Innovation at the University of Berkley.



Graph 2. Model of open innovation process

Source: Own work based on: Henry W. Chesbrough, *Open Innovation. The New Imperative for Creating and Profiting from Technology*, Harvard Business School Press, Boston, 2003.

The concept of open innovation

Open innovation is a paradigm which assumes that firms can and should use external ideas as well as internal ones starting from the research stage of the innovation process and finishing with the commercialisation of the product. It is necessary to constantly monitor the latest scientific achievements, invest in patents or licences from competitors and make a company's own unutilised solutions available, according to the concept- "not all specialists work for us" [Chesbrough, 2003]. The above business model utilises both internal ideas and external paths to acquire innovative solutions without the fear that taking the project outside

a company's boundary will curtail profitability. In the closed business model, projects which were rejected by the company at their initial stage, frequently did not get a second chance to be implemented.

According to the comparison below, (Table 1), one of the basic difference between closed and open innovation models is the approach towards cooperation with specialists. The first model focuses on the employment of the most renowned specialists, whereas the latter accentuates the value of accessing knowledge from external sources. Thanks to the fact that projects can be utilised by various organisations, the opportunity for a higher number of ideas to be implemented is opened up. The concept of open innovation places emphasis on the advantage of business model effectiveness over the priority of product introduction to the market. Instead of strict monitoring and closing of an innovation process, the above concept suggests benefitting from open access to ideas through solution acquisition from external sources and disposing of a company's own unutilised ideas [Andrejczuk, 2013].

Table 1. Comparison of closed and open innovation principles

PRINCIPLES OF CLOSED INNOVATION	**PRINCIPLES OF OPEN INNOVATION**
Employment of renowned specialists in their field.	Establishment of cooperation including with specialists in a given field from outside the company.
In order for R&D to be beneficial an innovative process has to be worked on from start to finish through our own means.	External ideas and solutions are utilised in a company, which, through research, contribute to added value.
In order to achieve success a product must be launched on the market before competitors.	Launching a product on the market before competitors does not necessarily guarantee success. A business model is of far greater importance than leading the way
Our aim is to introduce the highest number of best products.	If we use both internal and external research and ideas we will succeed.
We closely guard our intellectual property from competitors' access.	Intellectual property rights are a company's assets. We acquire new external ideas and sell our own unutilised ones.

Source: H. W. Chesbrough, Open innovation, Harvard Business School Press, Boston, Massachusetts 2001, p. XXVI.

The crucial element of open innovation is the previously mentioned commercialisation of intellectual property rights. The main aim of patent protection is protection of the idea against its illegal application, however, Professor Chesbrough gives it an added role recognising the subject of patent protection as a company asset. He does not perceive patents as a barrier but as a product of trade between entrepreneurs, particularly when they do not possess their own laboratories or scientific personnel [Chesbrough 2003].

Open innovation in practice

The above method was successfully implemented by one major international company, Procter and Gamble, which, in 1999, decided to shift from a closed business strategy to open innovation [Sakkab, 2002]. Despite the fact that the P&G team consists of 8,600 researchers, there are still 1.5 million specialists beyond the company's boundaries who it would be worthwhile establishing cooperation with. A new post was created, external innovation manager, whose target was to produce 50% of the new products within 5 years drawing upon external ideas- by 2000 the rate stood at 10% [Kozłowski, 2008]. Thanks to the implemented changes, one of P&G's best sellers, an electrical toothbrush, was produced according to the design of four businessmen from Cleveland Ohio, based on the research results conducted by P&G. Moreover, following the firms open innovation policy, projects created within the company (but not implemented) are openly accessible even to its direct competitors [Sakkab, 2002]. Other successful examples of open innovation strategy are the activities of Boeing and IBM which set up departments responsible for the commercialisation of intellectual property, making it a source of income. Thanks to the above operations, IBM has become the biggest World patent owner in the biotechnology sector [Gassmann, 2006].

Following their own slogan advertising the InnoCentive platform, '*A breakthrough idea may come from anywhere in the World'*, this internet portal has become an innovation platform attracting entrepreneurs, non-governmental organisations and state institutions. Companies looking for innovations within their sector avail of this service by placing their offers there, which, apart from a detailed description of a problem, include information of the financial rewards which will be given for the most interesting solution. In this way, the Internet has become a platform for innovative solution exchange and a tool for the entrepreneur to establish cooperation with specialists from across the World. InnoCentive

is an opportunity for smaller companies, as the advice of the registered specialists will help them to be not only a step ahead of their competitors but also to find ever better solutions [Garski, 2010].

The Philips Group Corporation is yet another successful example of open innovation strategy. Nowadays, when almost everyone owns a HDTV, very few people remember that the first HDTV device was created by Philips in the 1980s. However, the project was a success only after the establishment of cooperation with companies producing HD cameras and those that could ensure high resolution transmission. Therefore Phillips, concentrating on its own innovation, lost 2.5 billion dollars as it failed to create cooperation with companies which could facilitate a wide application of HD technology [Adner, 2012]. Having learnt their lesson, the Phillips Group Corporation built an R&D centre in Eindhoven which was transformed into an innovation and business centre where 80 start-up companies, academic institutions, consultants and investors cooperate with a group of 8,000 employees on innovative technologies. While R&D expenditure remained unchanged, the number of patents registered doubled [Viskari, 2007]. The campus offers state-of-the-art infrastructure that facilitates the creation and exchange of ideas. The cooperation between Phillips' employees and industrial design architects has resulted in the creation of light installations based on the latest OLED technologies. This is how an original light illumination was created, commissioned by Aston Martin One-77, according to the project by Jason Bruge Studio utilising the light solutions of Philips Lumiblade OLED [Lombardi, Harris, 2012].

Consumer as a co-builder of innovation

According to the report *The Future of Innovation Management: The Next 10 Years* by the consulting company Arthur D. Little, understanding users' expectations is the most valuable capital nowadays. An in-depth understanding of customers' needs still remains the most crucial area for innovation investment. Innovation through customer interaction means not only spending huge sums on market research but also listening to clients' needs and adjusting products accordingly. Open innovation changes the entrepreneur's approach towards their customers, who become not only a recipient of a product or service but are also a significant element of the adaptation process. Entrepreneurs have a natural advantage in this as share capital is information coming from clients. Apple drew on this knowledge in a brilliant way combining new technologies and product aesthetics, which proves that success is measured not only through product launch but also customer enticement [Peppers, M. Rogers, 2006].

The example that shows the necessity of an open outlook on the innovation process with a special emphasis on the customer is Motorola, which faced a waning importance on the mobile phone market. Despite its great success in introducing the first slimline phone in 2004, Motorola's market share fell as it did not offer any new innovative products. According to the theory of Henry Chesbrough, Motorola's weakness lay in its focus on just the product in their outlook on the innovation process. Motorola, in their strive to offer new innovative products, overlooked customer experience with its current range and their desire for a greater range of services, which mobile phone users had come to expect [Wojnicka, 2011].

Chesbrough claims that cooperation with consumers can strengthen a business model, draw the attention of technology designers to the practical application of a product and reinforce customer emotional product attachment. Making customers and users co-builders of innovations allows us to eliminate the weak points of a concept, which can be updated by ready solutions coming from customers.

Summary

Innovation through interaction is the basis of open innovation, focussed on a dialogue with entrepreneurs, consumers and even competitors. The methods of cooperation are multifarious, as it is the entrepreneur who decides which elements of the innovation process should be made available to others and which elements should be acquired from external sources. Skilful management of intellectual property protection rights becomes a crucial aspect when implementing projects. However, the benefits of open innovation include the rapid expansion of the new product market, lowering access costs to technologies while having the possibility of benefitting from frozen assets (e.g. patents).

Entrepreneurs face the challenge of creating and implementing a coherent business model based on communication which would entail a free exchange of ideas. It is impossible to establish competitive innovation without a creative business strategy. Opening a company up to cooperation and not drawing only from internal sources is key to building a company's competitive advantage. In the face of structural changes in the World economy, survival is ensured only for those companies geared towards operation in a state of permanent change. Innovation occurs where an idea occurs, however business and economic growth occurs where it can be successfully launched on the market. You cannot be competitive when lacking creativity and intelligent development cannot exist without a creative economy.

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