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## Article

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# THE USE OF MARKETING INDICATORS TO MEASURE AND MONITOR THE EFFECTS OF IMPLEMENTING THE CONCEPT OF USER-DRIVEN INNOVATION<sup>1</sup>

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## Abstract

The importance of users as a source of information for company innovation activity was raised in the 1980s by von Hippel. Today, a concept of a similar basis is known and developed in Europe under the name of User-Driven Innovation (UDI). The UDI is based on the belief that enterprises which are able to create, often in close cooperation with customers, products and services with features desired by users will survive in the market. In order to achieve the above, companies are trying to identify the hidden, often unconscious, needs of users, in order to try to meet these needs (UDI - Consumer Voice) or implement ready-made innovative solutions attributed to consumers (UDI - Consumer Leadership) (Warzybok, et al., 2008; NORDEN, 2006).

Due to the growing significance of users as a source of information for innovation activities it is important to find measures which could assess the impact of this source on company innovativeness (Krawczyk, 2013b).

The aim of this paper is to show that marketing indicators focused on measuring the relationship with customers can be used to measure the effects of implementation of UDI in innovative companies.

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**Keywords:** User-Driven Innovation, marketing indicators, measurement.

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## INTRODUCTION

In one of its communications the European Commission pointed out that innovation depends largely on the demand for new and innovative products proposed by customers and citizens. For the process of creating innovations and for their success in the market, important are, in addition to politics, legal framework, and technological capabilities, an innovation-friendly market and demand for innovative products and services. Thus, the introduction of innovation requires monitoring and immediate response to the current needs and preferences of customers and offering what users expect (COM 502, 2006).

This philosophy is not new. Eric von Hippel of MIT, back in the 1980s, demonstrated by his research that customers are instigators motivating companies to try to create innovations and prototypes which in turn

results in companies' innovative behaviour (Tidd & Bessant, 2009). Often the customers themselves are innovators and create solutions which companies later commercialize (von Hippel, 1988). Today, particularly in northern Europe, the concept based on similar assumptions is being developed under the name of the User-Driven Innovation (UDI).

The growing importance of consumers in the process of creation of innovation and their direct or indirect involvement in innovation activities requires a new approach to users, and often a redefinition of enterprise strategy, and in particular its focus on innovation and customers' involvement. To achieve this it becomes necessary to constantly monitor and measure customer relationships. Marketing indicators, in particular those used in the Balanced Scorecard, can be useful in this respect (Krawczyk, 2013a).

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This paper indicates the possible use of selected marketing indicators to measure results of implementation by innovative businesses the User - Driven Innovation concept as well as evaluation of the information the indicators provide.

### **THE IMPORTANT ROLE OF THE CONSUMER IN THE PROCESS OF INNOVATION**

User-created demand is an important determinant of activities of contemporary innovative organizations. Customers consciously or unconsciously indicate whether the company is to offer novelties or changes in the previously offered products / services and describe their features. Therefore the consumers, by determining and deciding on the demand for products / services significantly influence the success or failure of the innovative project in the market. The production and sale of what users say they want to buy and helped to design, reduces the risk of investment failure (Krawczyk, 2012). The importance of customers in the innovation process has been confirmed by surveys of sources of information for starting innovative activities. The surveys were conducted in companies in Poland by the Central Statistical Office. The consumers were considered one of the most important market sources (CSO, 2011; Krawczyk, 2013b).

This justifies the growing importance of the demand - side approach to innovation and the increased presence of this phenomenon in the EU and national innovation policies.

This is confirmed by the European Commission communications. In one of them it was said: “The EU can only become comprehensively innovative if all actors become involved and in particular if there is market demand for innovative products. (...) Such a wide partnership for innovation will create a virtuous circle, where supply of new ideas and demand for new solutions both push and pull innovation. Innovation depends on a strong demand from consumers and citizens for new and innovative products and services. Therefore, besides creating the optimal framework and possibilities to innovate, there must be an innovation friendly market and demand for the outputs. This, in particular requires consumer trust and confidence in these products and services not least in their (demonstrable) safety. (...)” (COM 502, 2006, pp. 3-4).

The demand - side approach to innovation has also become the subject of many reports on the development of innovation policy in a TrendChart series (Kinscö & Edler, 2011; Kinscö & Griniece, 2012).

It should be noted however, that the role of the consumers in creating innovation has been noticed only recently in Europe. Meanwhile, back in the 1980s, in the U.S., von Hippel proved that in some industries, the users are the most important source of innovation (von Hippel, 1988). Thus, he became a pioneer of research on a new approach to the role of consumers in the process of creation of innovation. He also introduced the concept of Lead Users, which defines users whose present needs will become common in the near future. Thus, the Lead Users can serve as a need-forecasting laboratory for marketing research (von Hippel, 1986). His research has also shown that the User-Centred Innovation process, the creation of innovation with a collaboration of, or by the consumers, is better than the traditional approach to the creation of innovation. Users better understand their own needs and can develop exactly what they expect. This helps avoid the erroneousness resulting from an incorrect analysis of the customer behaviour / comments / ideas and the lack of understanding them by employees of the company (von Hippel, 2007).

The importance of consumers in business is also shown by Norton and Kaplan who placed customer perspective in the Balanced Scorecard (BSC) as one of the four major areas of activity, in addition to financial, internal processes, and innovation and growth perspectives (Kaplan and Norton, 1992). The financial perspective was at the top of the hierarchy of perspectives in the original model of the BSC. Nowadays, more and more often the financial perspective is treated on a par with customer perspective. In fact, a company which strives to achieve financial performance has to generate sale revenues, and these depend on whether the consumers buy their products and services. Therefore, it is important to learn the needs and expectations of users and produce what will sell (Jaruga, et al., 2010; Krawczyk, 2013a).

Prahalad and Krishnan made consumer personalization and co-creation of value with consumers as one of the two pillars of innovation of their business model of modern enterprises. They treat innovation in their model as realization of

consumers' expectations by continually responding to their changing needs, behaviours, and experiences. This is possible thanks to the proper business processes (Prahalad & Krishnan, 2008).

Ph. Kotler also demonstrates the important role of consumers in the process of creating innovations. Along with F. Trias de Bes, he created a model "from A to F", in which users are recognized as Creators who co-create innovations with companies (Kotler & Trias de Bes, 2011).

### **THE ROLE OF THE USER IN THE USER-DRIVEN INNOVATION CONCEPT**

The results of the research of von Hippel and others underpin the concept of User-Driven Innovation. In the simplest terms, the UDI should be defined as a process that involves both the creation of innovation based on an earlier detailed analysis of the information coming directly or indirectly from consumers, and the application of knowledge, ideas and ready-made solutions of users, making them co-creators of innovations (Warzybok, et al., 2008). User-Driven Innovation allows a deeper understanding of customers' needs and strengthening of their role in an innovation activity (Kinscö & Edler, 2011).

Based on the above definitions we can distinguish two approaches to determine the role of consumers in the process of creating innovation. The first - the Voice of the Customer Method is focused on trying to identify the needs of the users, by mobilizing them to think creatively and use the acquired knowledge to make changes in the products / services already available on the market. For this purpose, an innovator / innovative company performs appropriate consumer surveys, learns consumer needs and preferences, and based on the results of the analysis takes efforts to create and implement innovation, mostly by improving the current offer. The Lead User Method is based on the co-creation of innovation with the consumers or on the use of inspiration and ideas that have been developed by the users themselves. The innovative company commercializes in this way ready-made ideas and solutions, or creates them together with the Lead - users (NORDEN, 2006; Warzybok, et al., 2008; Krawczyk, 2012).

The main difference between these approaches stems from the source of innovation. Under the Voice of the Customer Method the consumer is only a source of information on the changes possible to implement. This is the company that through observations,

surveys, and using other research methods interprets conscious or hidden needs / preferences of users and implements them becoming a source of innovation. Under the Lead User Method companies use consumer ready-made ideas or co-create innovations with customers. Thus, in this case, the user is the source of innovation (NORDEN, 2006).

The UDI is different from the traditional approach to the process of innovation, in that:

- 1) a change takes place in the strategic approach to the role of consumers and consequently what is produced is what will sell, and not vice versa,
- 2) enterprise resources are activated into a better understanding of customers' needs, allowing skilful response to the submitted requirements and deliver what the consumers will want to buy. In the long run, this leads to higher revenues,
- 3) there is a direct involvement of consumers in the process of innovation,
- 4) it opens the collaboration with consumers and other businesses,
- 5) it is accompanied by a broadening and diversification of approaches, tools and methods in the process of creating innovation (NORDEN, 2006; Warzybok, et al., 2008; Krawczyk, 2012).

User involvement, direct or indirect, in the creation of innovation is a complex process which requires a change in thinking and often a change in a company's strategy. The user motivates enterprises to deploy innovative solutions and is often a source of innovation. It is therefore necessary to know the needs and preferences of the user and this is possible only through the use of pro-consumer orientation. Therefore, the UDI requires changes in philosophy and thinking within the organization (Krawczyk, 2013a). The very process of implementation of the concept includes at least the following steps:

- 1) observation of consumers, in particular the potential ones or those who are dissatisfied with the offer. At this stage, there takes place an identification (through the use of a wide variety of research methods) and the understanding of the users' needs (conscious and hidden),
- 2) the design of solutions and creation of new ideas. At this stage the collected information is analysed and on this basis actions are taken to satisfy the needs / expectations / requirements, by providing users with what they want to buy. This requires the involvement of the organization's resources, especially human, and changing the culture of the organization into a pro-consumer. Changing the approach allows the use of experience, knowledge and creativity of employees

in designing innovations which take into account customer feedback, and establish cooperation between employees and consumers when creating innovations,

- 3) determination of technological capacities and capabilities. At this stage a company's production potential and capacity are estimated in order to determine whether they are sufficient to create innovations. In addition, estimated are the cost of the development of innovation and the price of innovation,
- 4) estimation of market opportunities. At this stage, market research is conducted and market potential is evaluated, to determine the market capacity for innovation which the company intends to introduce,
- 5) implementation. This stage involves introducing innovations to the market, along with the continuous monitoring of demand and the perception of the product / services by consumers. This is because the usability of the innovations reported by users must be regularly tested and the company must respond to the emerging changes. (Warzybok, et al., 2008; Krawczyk, 2012).

The above stages of the User-Driven Innovation should be of a continuous nature. This is a consequence of the essence of the UDI, i.e. the current offer must be improved and adapted to the

users' needs, preferences, and expectations, which change and evolve along with users who make up the target group of customers.

Thus, the deployment of the UDI does not end with the implementation of innovation. In order that the said concept could be successfully applied it is necessary to systematically evaluate actions at every level of implementation of the UDI and evaluate the effects and results arising from the implementation of a new idea / solution. Monitoring of the various stages of the UDI process and the results helps not only to assess the achievements in the process of creating innovation and assess how the approach to the role of users in innovation processes has changed, but it is also helpful in identifying problems and barriers associated with the entire cycle of the User-Driven Innovation in the company. The conclusions drawn from the current assessment can be used to improve the process of the UDI and to overcome the difficulties and improve the UDI tools used in the implementation of enterprise innovation strategy (Warzybok, et al., 2008). And there are many barriers in the implementation of the UDI. Sample problems are presented in Table 1.

Table 1: Barriers to implementation of the User-Driven Innovation concept

<i>UDI implementation phase</i>	<i>Barriers</i>
Identification of the needs and expectations of consumers.	Failure to reach the hidden needs of customers, Lack of awareness of the hidden needs of consumers, Ignorance or misunderstanding of the UDI.
Development of new ideas, designs, and solutions.	Reluctance of the organization and its employees to change, Lack of qualified staff, Rigid organizational structure, Lack of incentives to perform innovation activities, Failure to cooperate with the external environment.
Checking technical abilities and capacities.	Lack of technical, legal or economic opportunities.
Estimation of market opportunities.	The niche nature of the created innovations.
Implementation.	A short product life cycle forces the constant need to take into account new consumer needs.

Source: Warzybok et al., 2008; Krawczyk, 2013a, p. 610-611

Apart from the identification of barriers to the implementation of the UDI it is important to take action to eliminate the identified problem areas. Special attention should be paid to the human factor. In fact, employees should know the essence and purpose of the User-Driven Innovation, they should actively

participate in the process, and be aware that they are an important link in the communication between the company and consumer. It motivates them to work with users. Therefore, staff should be trained in order to raise their awareness of the role of consumers, to build good relationships with customers and be

provided with techniques that will let them learn and understand consumer needs. The knowledge acquired by employees about the expectations of the users may in fact prove to be a significant source of innovation solutions. It is important, therefore, to know the methods and techniques of research and analysis that will make it possible to update and gather information about the needs of consumers, to identify their ideas and suggestions and consequently implement them (Warzybok, et al., 2008). Therefore, next to learning the expectations and preferences of users it is necessary for employees to acquire skills that will help them transform this knowledge into innovation (Rosted, 2005). Marketing and its tools can help in this respect.

### **MARKETING APPROACH TO CUSTOMER**

The role of marketing in the organization has evolved considerably over the last few decades. Marketing has become a process that is to support the market actions. Today, the role of marketing comes down to three levels:

- 1) Management level, where marketing serves as customer advocate,
- 2) Business units level, where marketing acts as the owner of a business at the level of strategic units,
- 3) Operational level, where marketing acts as a professional manager (Kozieński, 2011).

From the point of view of customer relationships the most important is the role of customer advocate. Modern marketing departs from the idea that the consumer is only the addressee of actions. The consumer is a tool to gain knowledge about users and understand who the customers are, what are their expectations, needs, and problems, what determines their decisions and what affects the change of their preferences and how often these changes occur. Modern marketing makes us aware, at the level of the organization as a whole, that consumers can play an important role in the processes of production, informs about the offer and sale, and therefore should be involved in these processes (Kozieński, 2011).

One of the main areas of interest of marketing is the issue of competitive advantage and its sources, and therefore the answer to the question: Why do consumers choose our products and services and renounce those of the competition? (Kozieński, 2011). The implementation of innovation with

properly implemented User-Driven Innovation may be an answer to this question, and the UDI is one of the sources of the advantage. Marketing, by providing information about customers, their needs, preferences, and problems, is an important link in the UDI process. For example, marketing indicators can be used for evaluation and monitoring of the effects of the UDI implementation.

### **THE USE OF MARKETING INDICATORS FOR MEASURING THE EFFECTS OF THE UDI IMPLEMENTATION AND MONITORING NEEDS OF CONSUMERS**

Marketing indicators, in particular those used as measures of the customer perspective in the Balanced Scorecard can be useful for evaluating the effects of the UDI implementation and the on-going monitoring of consumer preferences and expectations. The purpose of the implementation of the User-Driven Innovation concept, i.e. the use of knowledge, acquired through the use of research and analyses, about conscious and hidden needs of users and the implementation of ideas and ready-made solutions coming from customers to increase a company's own innovation, competitiveness and market share, is in line with the message of the BSC customer perspective. In the BSC customer perspective a company seeks to establish customer groups, to identify and meet their needs as a precondition for success in other perspectives, especially financial (Krawczyk, 2013a).

The measures used in the BSC customer perspective can be divided into two groups:

- 1) Indicators of effects of the implementation of the customer perspective objectives. They include such measures as customer satisfaction, customer loyalty, customer retention, the ability to attract new customers, customer acquisition, market share, and customer profitability,
- 2) Measures which determine the value of the product to the customer. These indicators reflect the preferences and expectations of consumers, i.e. the attributes of particular importance to customers which often determine the decision to purchase. They include for example, being the first innovator in the market, the uniqueness of the product / service, the average response time to reported problems, and delivery on time (Krawczyk, 2013a).

The indicators of the first group are the most commonly used measures of the BSC and important determinants of marketing actions. They affect the strategic aspects of the company and significantly

determine its position on the market (Kozielski, 2011). Attention should be drawn to the interrelationship between the said indicators of the group. Customer satisfaction leads to loyalty and decreases consumer retention. The satisfied user will tell others about the attributes of the offer which have determined the purchase, and this will increase the company's ability to attract new customers and perhaps the very number of the acquired customers will increase. By maintaining the existing and attracting new users, the market share of the company is expected to increase. Moreover, loyalty and reduction in customer retention will increase customer profitability.

It is therefore important to identify factors that affect customer satisfaction. Indicators of the second group, i.e. the measures determining the value of the product to the customer, may be helpful in this respect. They make it possible to specify the attributes of the product / service especially important for consumers and which determine the purchase decision.

The company which implements the UDI should use both groups of indicators to evaluate the effects of implementing the concept.

In the first phase, based on the monitoring of consumers, particularly important may be the indicators of the second group. Monitoring helps to identify and understand the users' conscious and hidden needs and is therefore crucial to the success of innovation. At this stage, marketing activities play a key role. It is important to know the determinants which affect the satisfaction and turnover of users, and constantly monitor the determinants. In addition to measures determining the value of the product to the customer, to evaluate the effects of the implementation of the first stage of the UDI, helpful are, therefore, indicators of the first group, in particular the measures indicating satisfaction, loyalty, and customer retention.

At the second stage of implementation of the UDI, namely in the phase of designing solutions and developing new ideas, there takes place the use of knowledge and creativity of employees in designing innovations which take into account customer feedback and cooperation is established between employees and consumers in creating innovation. Thus, the information gained in the first phase of the UDI is used, including the analysis of information coming from the indicators that determine the value of the product to the customer. Properly identified and accurately understood, the needs and preferences

are in fact the key to the success of the implementation of the User-Driven Innovation. Similarly as in the first stage of implementation of the UDI, also in the second phase, the indicators of the said first group can be helpful in evaluating the effects of efforts to design solutions and create new ideas. This is because if the employees have properly interpreted information from the measures that determine the value of the product to the customer, i.e. have properly interpreted the needs of users, the company will produce exactly what consumers expect. The probability of success will increase when customers are directly involved in the creation of innovation. Consumer involvement in the implementation of new ideas will make them start identifying with the product / service, and thereby with the company, and their loyalty will increase. Therefore, customer satisfaction, customer loyalty, customer retention or loss of customer profitability can be used as the measures to assess the effects of the implementation of the second phase of the UDI.

The third stage of the implementation of the UDI, i.e. determining the technological capacities and capabilities, helps to assess the potential and capacity of an enterprise, calculate the cost of creation of innovation, and determine its market price. In this phase, marketing indicators, as a tool for assessing the effects of the implementation of the User-Driven Innovation and for monitoring the results, are not very useful.

Instead, marketing indicators are widely used to evaluate the results of the implementation of the fourth phase of the UDI. At this stage, market opportunities are estimated and market potential is examined, in order to determine the absorption of the innovation, which the company intends to introduce. The knowledge acquired in this phase focuses on the company's strategic aspects and significantly determines the company's market position. Properly assessed market opportunities and examination of the market's capacity for innovation will make it possible to learn what portion of the current and potential customers want to purchase innovation, i.e. to estimate the market share. Thus, at the fourth stage of the implementation of the UDI, the indicators of the first group, in particular the market share, can be particularly useful to assess the effects of the UDI's implementation.

However, marketing indicators are most widely used in the final phase of the UDI, where the implementation of innovations takes place. At this stage, innovations

are introduced to the market, and demand and consumer preferences are continuously monitored in order to identify new needs, expectations, and requirements of customers. This is because the usability of the innovations reported by users must be regularly tested and one must respond to the emerging changes. Therefore, one should examine on a regular basis the attributes of particular importance to customers, which specify purchasing decisions using measures that determine the value of the product / service to the customer. However, the very success of innovation implementation can be evaluated by analysing the changes in values of indicators of the first group, in particular by examining indicators of customer loyalty, customer retention, the number of acquired newly customers and market share.

## CONCLUSIONS

In the process of creation of innovation not only is supply important but demand as well, and i.e. the desire to purchase new goods / services reported by consumers. The idea has been confirmed in the models of creating innovation, in which the users are not only taken into account but are also recognized as important determinants of innovation and as an important source of innovation (e.g. von Hippel, 1986, 1988, 2007; Prahalad & Krishnan, 2008; Kotler & Trias de Bes, 2011).

Currently, User-Driven Innovation is one of the strongly developed demand concepts of innovation sources and the consumer's role in motivating innovation. According to the UDI, users unknowingly

or knowingly, by indirect or direct reporting about their own preferences and needs, motivate companies to be active in innovation. In this way, consumers become active or passive members in the process of creating innovation.

Implementation of User-Driven Innovation is, however, a complex process involving several phases, and each of them determines the success of the UDI. Therefore, one should, in a systematic and thoughtful way, gather information about the needs of consumers, identify their ideas and suggestions, and finally implement them. It is also necessary to update and evaluate the results of the implementation of the UDI and monitor the effects at each stage. To this end, marketing indicators can be successfully employed. They will make it possible not only to assess the relationship with the customer, but also to indicate whether the company properly acquired, interpreted, and used the knowledge that comes from users about the implementable and expected innovations.

The company, which has identified and properly interpreted the needs and preferences of users, including those which are hidden, should achieve better customer loyalty, acquire new customers, better customer satisfaction and market share, and improved customer profitability. However, to correctly interpret the demand, it is necessary to learn what qualities and attributes are important for users, and which determine the purchase of innovation, and that means constant measurement of the indicators that determine the value of the product to the customer.

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