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CREATING MARKETING KNOWLEDGE ABOUT THE CONSUMER IN THE CONTEXT OF THE DEVELOPMENT OF INTERNET TOOLS

Abstract

The aim of the article is to present marketing knowledge about the consumer as an enterprise resource and the role of marketing research in expanding it in the context of progressive virtualization of social life and the development of Internet tools. The current article was written on the basis of an in-depth literature study and an analysis of the selected results of quantitative research conducted in 2013 on a sample of 152 enterprises.

1. INTRODUCTION

Managing a contemporary enterprise requires skillful application of the development of information and communication technologies in the processes of producing knowledge, which is currently becoming the key resource of the company. It is related to shaping organizational culture in which knowledge is a significant value, as well as to motivating people to become knowledge workers through exploiting the potential of new Internet tools. As a consequence, it should translate into synergy between talent and Internet technology, whose application in knowledge management is constantly developing, which is manifested in the instrumental, functional as well as procedural dimension.

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Taking into consideration situating the consumer in the center of business models, it needs to be pointed out that there is a need to continually collect data and produce knowledge about their behavior and changing preferences, motivations, moods, respected values, lifestyles and criteria of choosing the increasingly individualized products purchased online and in traditional stores. It means that in the structure of knowledge resources, a significant role is played by marketing knowledge.

The aim of the article is to present marketing knowledge about the consumer as an enterprise resource and the role of marketing research in expanding it in the context of progressive virtualization of social life and the development of Internet tools. The basis of preparing this article was a literature study and empirical research conducted as part of a project entitled "The Internet in marketing and the application of new technologies in managing cooperation between a company and its clients." The methodology of the research and selected results are presented in the current article. Achieving the formulated objectives also required considering the development of the software which produces knowledge as an enterprise resource, as well as presenting the significance of marketing research, including online research, in the processes of producing knowledge about the consumer.

2. THE DEVELOPMENT OF SOFTWARE WHICH PRODUCES KNOWLEDGE AS AN ENTERPRISE RESOURCE

The category of knowledge is currently becoming the key resource of companies, a resource which requires effective management in order to gain long-term competitive advantage. As a consequence, the objective of the strategy in this respect is creating favorable conditions for producing and developing knowledge, as well as disseminating it, employing it in solving decision problems and protecting it. Knowledge resources constitute the basis of improving and modernizing the processes taking place in an enterprise, as well as the goods and services offered by the company. It needs to be stressed that producing knowledge is the basic area of activities for some enterprises. It is due to e.g. the tendency to outsource marketing research and growing expectations of research agencies, which are not only to supply marketing research users with data and information, but also with accurately profiled knowledge. One of the tools of knowledge management is a two-dimensional competence matrix, which is created on the basis of the competitiveness of knowledge resources and the extent of using knowledge. Figure 1 also presents recommendations for particular types of competence ensuing from the matrix.

		The extent of using knowledge	
		small	large
The competitiveness of knowledge resources	high	unused competences ↓ identified and used	unique competences ↓ protection, broader use
	low	irrelevant competences ↓ outsourcing	basic competences ↓ preservation, development

Fig. 1. Competence matrix as a knowledge management tool (Probst, Raub & Romhardt, 2002, p. 66)

The importance of IT solutions in knowledge management is pictured by the pyramid of IT support for business decisions, which encompasses the technology of databases, data mining and Business Intelligence, which serves the purpose of conducting business analyses and indicating direct decision-making solutions (Trajer, Paszek & Iwan, 2012).

From the point of view of the applicative nature of knowledge and the need for transforming tacit knowledge into explicit knowledge, a significant role is played by the visualization of knowledge, which can take various forms, from structured text and charts, pictures, heuristic sketches, conceptual diagrams, visual metaphors, knowledge maps, to interactive visualizations and animations (Eppler & Burkhard, 2007).

The development of marketing knowledge about the consumer is influenced by the virtualization of customers' behavior, which means that the buyer's whole decision process, consisting in recognizing a given need, looking for information, comparing variants of offers, the purchase and the evaluation of the choice one has made can take place online. It is accompanied by the development of software which measures consumer behavior on the Internet.

One challenge related to measuring consumer behavior online is that presently there are many various types of devices which can be connected to the Internet. There is a need for measuring the behavior of users of various devices and platforms in a situation when there are difficulties with unambiguous identifiers which allow for registering the continuity of such behavior. A certain solution of this problem is independent measurement on different platforms with a calibration panel (a measuring application on every device of a given user), which allows for data integration through data fusion and mathematical algorithms (Pliszka, 2017).

Due to the quickly growing amount of digital information and the dynamic development of the technology which analyzes databases, attention needs to be drawn to big data. This category is described with 5Vs (volume, velocity, variety, value and veracity), or big amounts of data, their changeability, diversity, value

related to the need of verifying data and credibility. It is worth adding that while initially the object of analyses in enterprises was what was taking place in the area of the supply chain and finances, and, subsequently, the analysis of sales and customers gained significance, currently, in order to create competitive advantage, enterprises strive to conduct demand forecasts and to personalize offers (Bulska, 2015).

Taking into account the development of Web 2.0, which makes consumers participate more and more actively in creating contents and contribute to creating the Internet culture, it needs to be pointed out that sentiment analysis is employed in producing knowledge about the consumer. Such analysis concerns “soft,” disorganized streams of information. Its objective is to identify the consumer’s attitude to the product, idea, a specific value or another analyzed issue. In this analysis, natural language processing and analytical techniques are employed. It allows for identifying certain regularities in written statements and monitoring their tone. More advanced analyses can also determine the level of unambiguity and the strength of the statement (Paharia, 2014).

Due to exponentially and continuously increasing data, a need is felt to devise algorithms which would select significant information from a set of data and construct models of behavior of customers who are of key significance from the point of view of the conducted marketing activities. The value of such solutions, which also refer to the achievements from the area of artificial intelligence, is reflected in creating the foundations for predicting future customer behaviors, reinforcing the positive ones and preventing the negative ones (Rowecka & Wojtasik, 2016).

The development of software leads to the growing significance of the idea of excellence based on data. It is related to employing artificial intelligence. Its use requires determining the scope of decisions which remain within the competence of talented employees, and those which are left to autonomous algorithms. The anthropomorphism-based models of employing artificial intelligence in making decisions are presented in Table 1. It means that artificial intelligence can play the role of an autonomous strategic advisor, an independent outsourcer, an employee or a manager making decisions.

At the same time, it should be observed that 5% of jobs could become entirely automatized, while in the case of over a half of all jobs computerization and robotization could contribute to a situation in which almost one third of human responsibilities could be taken over by machines (Chui, Manyika & Miremadi, 2015). It concerns not only production and customer service, but also management and marketing.

Tab. 1. Anthropomorphism-based models of employing artificial intelligence in business

The type of a model of artificial intelligence	Description
Autonomous strategic advisor	Autonomous algorithms evaluate and make recommendations basing on the data; however, the decision about what needs to be autonomized and how to implement these decisions is left to the employees who supervise the algorithms. In this model, data analysts perform the function of an intermediary between the senior management supervising autonomous software and those areas of the company in which algorithms have been implemented.
Autonomous outsourcer	In this case, algorithmization takes the form of outsourcing business processes with all its advantages and disadvantages. Data analysts are project managers in this model.
Autonomous employee	For this solution, it is characteristic that software is treated as a “co-worker” who supplies the correct answer. The model of machine learning does not constitute a static fragment of the code, but there are new data introduced into it. The role of data analysts is to eliminate tensions created between the man and the machine.
Manager making decisions	In this model, human leadership gives way to the power of algorithms, and the role of employees is to expand the boundaries of the effective autonomy of algorithms. In companies which implement this model of artificial intelligence, machines perform transactions and make investments which people do not comprehend in the cognitive sense. They also make justifications and produce narratives which explain the decisions they make to people.

Source: Based on: (Schrage, 2017, p. 100–105).

3. THE SIGNIFICANCE OF MARKETING RESEARCH IN PRODUCING KNOWLEDGE ABOUT THE CONSUMER

Rapid technological changes in producing, storing and using information and knowledge, as well as in sharing them, make them more accessible for employees of enterprises and consumers alike. Meeting the challenges of the modern market requires employees to have interdisciplinary knowledge and cooperate with customers in order to satisfy their increasingly sophisticated needs through using information in an innovative way and producing new knowledge from already existing knowledge. Moreover, it should be observed that there is a shift in the significance of the sources of knowledge, which is produced more and more often as a result of network forms of cooperation with consumers and partners (Morawski, 2006).

The development of the Internet leads to expanding market space, accompanied by consumers transferring various types of activities from the physical sphere to cyberspace and the increasing role of the consumer through their active participation in creating values within networks. Among the reasons for customers’

interest in co-creating values, individualization of consumers' behavior needs to be indicated, as well as their search for new forms of social integration and their desire to be innovative in different areas of life. Moreover, the development of the ways in which the Internet can be applied leads to the transition from "push" business models and solutions, consisting in adapting the offer with regard to the identified needs of customers, to the "pull" model, whose essence lies in customers' high activity in initiating new solutions which develop the market offer.

It all implies new challenges for marketing research. Creating a detailed image of every customer which would help predict their future behavior requires obtaining data from various sources, including data about the customers which can be recorded as their behaviors are being monitored, as well as collected with their active, conscious participation.

Conducting classic marketing research contributes to a better understanding of consumer behaviors and the factors which shape them, but it is based on declarations solely. On the other hand, automatized measurements which provide hard data are at risk of certain underestimation, resulting from e.g. browser cache, firewalls which often ascribe a single IP address to many different users, as well as overestimation related to the functioning of the so-called web crawlers or frames dividing a website into parts which are counted as separate page views. It means that building in-depth knowledge about customers requires employing automatized measurements, marketing intelligence, as well as qualitative and quantitative marketing research, including online research.

Taking into account the functions of the Internet, including the informative, communicative and social function, as well as its interactivity as a medium, one should refer to the sociological view of production, development, dissemination and application of knowledge. According to this approach, relationships between individuals and groups are a plane of creating knowledge. It means that producing knowledge requires shaping new relationships and managing the ones which already exist (Mikuła, Pietruszka-Ortyl & Potocki, 2002). The process of creating knowledge takes place in two interrelated loops, the first of which stands for individuals learning on the basis of the obtained information, and the second – social learning based on mutual transfer of information thanks to relationships between people (Golińska-Pieszyńska, 2009). It also concerns the relationships between researchers and consumers who participate in marketing research as respondents.

In the processes of producing knowledge in the virtual environment, an important role is played by marketing research, whose application in reference to the loop of individual and social learning is presented in Figure 2.

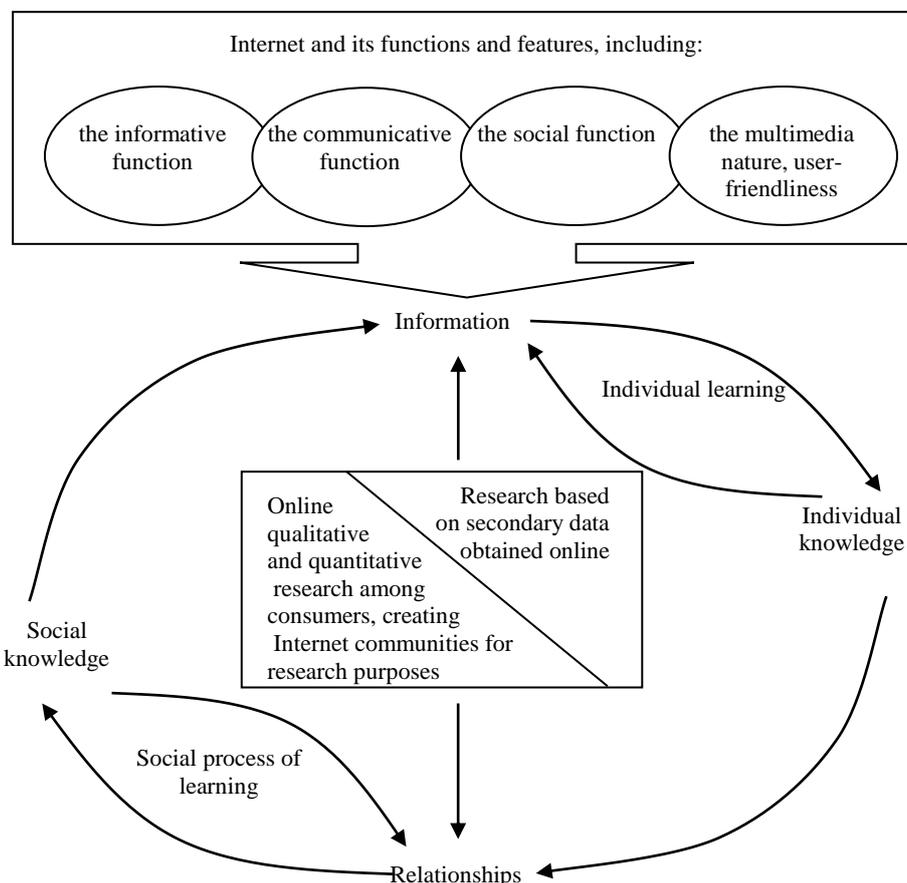


Fig. 2. Online marketing research in producing knowledge - the sociological dimension (authors' own study using: (Sawhney & Prandelli, 2000, p. 27)).

The complexity of modern market processes and consumer behavior leads to the need for employing the idea of triangulation (Flick, 2011), including triangulation of data and their sources as well as methods in order to produce marketing knowledge about the consumer using Internet tools.

At the same time, it should be stressed that a change in the area of marketing research, caused by the increasing extent of the virtualization of social life, is that not only the existing Internet communities are used in marketing research, but also new ones are created for research purposes. Adopting a perspective in which respondents are members of Internet communities results in the research process also encompassing the interactions which occur between them. It is related to replacing the "top-bottom" model of communication, or between a researcher

and a single respondent, with the “bottom-bottom-top” model, concerning mainly the interactions between the participants of the study. In this case, the role of the researcher does not lie in guiding the discussion, but in inspiring its participants and listening to their statements (Mróz & Feldy, 2010; Cooke & Buckley, 2008; Smith, 2009).

At this point, a question arises concerning the usefulness of opinions expressed by consumers in producing marketing knowledge for policy makers in different types of enterprises. A quantitative study was conducted in search for the answer to this question. The most important information about this study and its organization is presented below.

4. THE METHODOLOGY OF THE EMPIRICAL STUDY

The empirical study was of quantitative character and was conducted as part of a project entitled “The Internet in marketing and the application of new technologies in managing cooperation between a company and its clients” (project manager: Prof. Krystyna Mazurek-Łopacińska, Ph.D.; the main researcher: Magdalena Sobocińska, Ph.D.). It was conducted in 2013 on a nationwide sample of 152 enterprises, including 51 companies with up to 49 employees, 51 companies with between 50 and 200 employees and 50 companies with over 200 employees. The study concerned managers responsible for employing the Internet in marketing activities or for establishing and maintaining relationships between the company and the customers using new technologies. With the professional character of the research in view, interviews using a standardized questionnaire, after a pilot experiment, were conducted in the CATI studio of ARC Rynek i Opinia Research Institute in Warsaw. Telephone numbers to the respondents were randomly selected from a database of enterprises.

5. USEFULNESS OF CUSTOMERS’ OPINIONS FOR ENTERPRISES IN THE LIGHT OF THE RESULTS OF THE QUANTITATIVE STUDY

In the era of the development of the Internet, customers are given more and more possibilities to express their opinions, which can provide an impulse to consider introducing changes to an enterprise’s offer. It should be stressed that customers’ opinions and remarks are perceived in the studied enterprises mainly as a source of information about the recipients’ impressions and their reactions to the conducted marketing activities. Such a significance from the point of view of the enterprise is given to customers’ opinions and suggestions by 37.5% of the studied managers (see Table 2).

Tab. 2. Usefulness of customers' opinions for enterprises

The manner of perceiving opinions \ The size of the enterprise	Companies employing up to 49 persons	Companies employing from 50 to 200 persons	Companies employing over 200 persons	Total
Customers' opinions only provide tips for improving the features of the offer	25.5%	25.5%	38.0%	29.6%
Customers' opinions contain interesting ideas and suggestions concerning the fundamental features of the offer	17.6%	19.6%	6.0%	14.5%
Customers' opinions express their dissatisfaction and are a basis for complaint	2.0%	2.0%	6.0%	3.3%
The opinions are a source of information about customers' impressions and reactions to marketing activities	31.4%	39.2%	42.0%	37.5%
Customers' opinions are not significant for creating the offer	23.5%	13.7%	8.0%	15.1%
Total	100 %	100 %	100 %	100 %

Source: Authors' own study on the basis of a questionnaire study (CATI)

Taking into account the increasing possibilities of exploiting customer potential in the processes of creating innovation, it should be observed that almost every second studied manager (44.1%) perceives the remarks and suggestions voiced by the customers in the context of useful ideas and hints concerning changes in the offer of the enterprise. 14.5% of the managers assess them as interesting and valuable suggestions concerning changes of the fundamental features of the offer, and 29.6% of the respondents state that these suggestions could improve features of the offer. It should be seen as a positive fact that a small percentage (3.3%) of policy makers in different types of enterprises who participated in the research believe that customers' opinions and remarks are mainly an expression of their dissatisfaction and as a consequence they are a basis for complaint. The failure to see the opportunities provided by the demand models of innovation is also attested by the fact that 15.1% of the studied managers believe that customers' opinions and remarks have not so far been significant for creating the offer of the enterprise. It should be stressed, however, that managers' opinions are diversified in the cross-section of the size of enterprises they represent. Policy makers from bigger companies indicate that customers' opinions do not play a significant role in creating the offer less often than the representatives of smaller market subjects.

Taking into account the aim of the present article, it should be noted that the Internet serves more to develop the subsystem of marketing research than to conduct quantitative and qualitative marketing research online. It is attested by the fact that while 86.2% of the studied enterprises look for reports or press publications online, only 5.9% of the studied policy makers state that they conduct research using the Internet on relatively large samples, and 9.9% carry out qualitative studies online.

Moreover, the results of another study indicate that the potential of the Internet is not fully exploited in the marketing activities carried out by Polish enterprises and in producing knowledge about the consumer. It leads to the conclusion that although enterprises attach more and more importance to modern informative-communicative technologies, they fail to sufficiently employ different types of software which supports marketing (Kapera, 2014).

The image presenting the significance ascribed to the consumer in meeting the goals of enterprises which emerges on the basis of the conducted empirical research and literature studies leads to the conclusion that enterprises operating on the Polish market more often carry out standard marketing activities in which the purchaser plays the role of their addressee then employ the Internet to engage the recipient in creating values within networks. Moreover, the results of the authors' quantitative research indicate that only every second studied market subject has a strategy of the company's presence in the Internet, which is an expression of adopting an integrated, holistic and planned approach to the virtualization of marketing and the production of knowledge about the customer.

6. SUMMARY

Enterprises which can produce, obtain and transfer knowledge, as well as adapt their strategies and operational tactics to new information, are described as learning organizations. The basis of these activities is:

- a systemic approach to problem solving, which requires diagnosing problems to be based on scientific methods, and not on guesswork, and on the data processed using tools for statistical data instead of speculations,
- experimenting, understood in the context of searching for new knowledge and verifying it with the use of scientific methods,
- drawing conclusions from one's own experiences,
- taking into account good solutions originating from the outside by employing the technique of benchmarking and looking for inspiration in other lines of business, as well as by observing customers and obtaining information from them,
- transferring knowledge (Garvin, 1993).

Formulating the conclusion, we need to stress that in spite of the new possibilities for knowledge management created by the development of Internet tools, the significance of people and cultural conditioning cannot be overlooked. Moreover, it is significant to appreciate both quantitative and qualitative aspects, as well as to take into account the fact that knowledge management is a dynamically changing system of organization (Dalkir, 2005).

The evolution of management models is expressed in a transition from administering databases, managing data and information to managing knowledge, including the knowledge about the consumer as a unique resource of the enterprise. The greater the extent to which knowledge resources about consumers fulfill the criteria conditioning the permanence of competitive advantage is, the greater their value, since as a consequence they make it possible to create new ideas and new sources of values. Moreover, they should be difficult to acquire and imitate, as well as complementary and permanent (Amit & Schoemaker, 1997). In creating knowledge resources about the consumer, an important role is played by qualitative and quantitative marketing research, including online research, which makes it possible to launch social processes of learning from consumers. Striving to obtain in-depth marketing knowledge, one needs to employ triangulation of methods and integrate the methods of automated measurement with studies based on the opinions expressed by the consumers.

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