

## Maria Kocot

University of Economics in Katowice  
e-mail: maria.kocot@ue.katowice  
ORCID:0000-0001-5150-3765

---

## THE USE OF ICT IN PROSUMER RELATIONS

## WYKORZYSTANIE TECHNOLOGII ICT W RELACJACH PROSUMPcyjNYCH

---

DOI: 10.15611/ie.2022.1.03

JEL Classification: I21, I23

© 2022 Maria Kocot

*This work is licensed under the Creative Commons Attribution-ShareAlike 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-sa/4.0/>*

*Quote as:* Kocot, M. (2022). The use of ICT in prosumer relations. *Business Informatics*, (1).

**Abstract:** The aim of the article is to analyse the use of ICT in prosumer relations. The hypothesis was formulated that these technologies play a huge role in the intensification of prosumption processes. A survey was conducted on a group of 500 respondents from the Śląskie voivodeship. The conducted research clearly showed that ICT plays a significant role in strengthening prosumption relations. By using them, prosumers can express their opinions, add comments, and contact manufacturers, providing them with tips so that they can improve their products, and ask questions about the products they use or plan to use. By using telecommunications and IT devices, they can also take part in actions organised by enterprises, and thus become co-creators of the product offer and its attributes. It was also emphasised that the Internet remains the most common ICT tool.

**Keywords:** ICT, prosumers, Internet, enterprise, consumers.

**Streszczenie:** Celem artykułu jest analiza wykorzystania technologii ICT w relacjach prosumpcyjnych. Sformułowano hipotezę, iż wspomniane technologie odgrywają ogromną rolę w intensyfikacji procesów prosumpcyjnych. Badania ankietowe przeprowadzone na grupie 500 respondentów z województwa śląskiego jednoznacznie pokazały, że technologie ICT odgrywają ogromną rolę w zacieśnianiu relacji prosumpcyjnych. Poprzez ich wykorzystanie prosumenci mogą wyrażać swoje opinie i uwagi, dodawać komentarze, kontaktować się z producentami, dając im wskazówki, dzięki którym mogą oni ulepszać swoje produkty, a także zadawać pytania na temat produktów, z których korzystają lub planują korzystać. Wykorzystując urządzenia telekomunikacyjne i informatyczne, biorą również udział w akcjach organizowanych przez przedsiębiorstwa, a przez to stają się współtwórcami oferty i jej atrybutów. Podkreślono również, że najczęstszym narzędziem ICT pozostaje Internet.

**Słowa kluczowe:** technologie ICT, prosumenci, Internet, przedsiębiorstwo, konsumenci.

## 1. Introduction

In today's turbulent market environment, the increase in market activity has led to the need to completely redefine the market role of buyers who, being market participants, intensify their involvement in its functioning. Thus, it can be concluded that they take on a new market role, which consists in performing a wide range of functions – purchasing, communication and creative. This fact exerts an extremely strong influence on intra-organisational relations.

The activity of modern consumers has undergone a significant metamorphosis. These entities, from being passive participants of the transaction, have become conscious market participants. The point of this state of affairs is often their insufficiency, which is often the result of limiting their activities only to the purchasing dimension.

Modern economic reality has significantly modified the role of the consumer who becomes a co-creator of goods and services. To a large extent, the development of prosumption relationships is possible thanks to the use of ITC solutions. Thanks to their development, the consumer establishes relations with other consumers and producers, acting as an online prosumer.

The aim of the article was to analyse the use of ICT in presumptive relations. It was hypothesised that these technologies play a huge role in the intensification of prosumption processes. This hypothesis was verified on the basis of conducting a survey on a group of 500 respondents from the Śląskie voivodeship.

## 2. Problems and genesis of Internet prosumption – theoretical approach

In the world of a dynamically developing economy, the increase in market activity forces the need to redefine the market role of consumers of products and services. As market participants, they increase their involvement in its functioning, and have to perform a wide range of functions, from purchasing, communication to creative functions (Gabriel, Korczynski, and Rieder, 2015, pp. 629-643).

Modern consumers are perceived not only as passive and submissive participants in marketing activities. They are beginning to be understood those in the category of partners of enterprises in the area of analysis, regarding products and services and their marketing activities. They can also openly assess the level and quality of consumer service (Rzepka, 2019, pp. 642-649). The consequence of this is that modern companies are willing to exchange information with consumers (Bond, Widdop, Cockayne, and Parnell, 2020, pp. 1-8; Martucci, de Felice, and Schirone, 2012, pp. 699-707; Matschke, Moskaliuk, and Cress, 2013, pp. 159-176; Ritzer and Miles, 2019, pp. 3-20; Veen, Dagevos, Jansma, 2020, pp. 255-277).

Consumers, actively involved in business tasks, participating in various activities depending on the company participating in the transfer of knowledge and, as a result, sharing their knowledge, are defined as prosumers. In turn, the process in which prosumers can undertake selected activities in the area of products, services and activities of enterprises, and also effectively share their opinions and suggestions, is referred to as prosumption (Smyczek and Sowa, 2005, pp. 10-21).

The term prosumption was formulated in the literature of the subject in the 1980s by Toffler, where the prosumer was treated as an individual willing to take over some of the tasks previously performed by the producer (Toffler, 1997, pp. 43-45). Currently, prosumption is understood in a much wider range. Consumption bearing the characteristics of intelligent choice is often analysed. At the same time, it belongs to a wider set of various forms of consumer behaviour (Doligalski, 2013, pp. 84-103; Prahalad and Ramaswamy, 2004, pp. 31-42). The term 'prosumption' is a combination of two words: (pro-) 'production' ('pro') and 'consumption' (-sumption). Thus, this phenomenon can be interpreted as merging into one process of the acts of consumption and production, which leads to the complete blurring of the differences between them (Bywalec, 2010, pp. 3-16).

Prosumption should be considered as a multidimensional phenomenon (Bond, Widdop, Cockayne, and Parnell, 2020, pp. 1-9), and can be approached from different points of view: economic, sociological, managerial and technical. Undoubtedly, prosumption can be defined as a phenomenon that creates a new form of capitalist society, i.e. the so-called prosumer society. The economic perspective emphasises the economic importance of prosumption (Baruk and Iwanicka, 2015, pp. 2-6; Bylok, 2015, pp. 341-356; Humphreus and Grayson, 2008, pp. 963-980).

From the management point of view, prosumption can be treated as part of a company strategy, emphasising the processes of cooperation with customers in the area of sales of consumer goods and services and production. It is worth presenting the achievements so far in the field of prosumption. Szul and Kieźel interpret prosumption in an innovative and product context (Kieźel, 2015, pp. 98-104; Szul, 2013, pp. 347-358), as a mutual and solidarity-based involvement of consumers and producers in the process of creating and improving products, resulting in the creation of a community with similar interests and working together on new solutions.

Other authors propose a product approach (see Bywalec, 2010, p. 220; Karciarz, 2010, p. 15; Xie, Bagozzi, and Troye, 2008, pp. 109-122). This means the complete integration of consumption with production, sales and distribution in a unit that brings together the roles of consumer and producer, through the production of products and the creation of a product tailored to the specific needs of the consumer, provided with the possibility of being involved in its design.

The literature also highlights the innovative overtones of prosumption and the treatment of buyers as 'creative agents', giving them innovative potential and creative abilities to participate in the process of open innovation. This interpretation enables a constant increase in innovative creativity, the development of higher profits by

reducing the costs of research and development departments and also by creating a community of users (Free, 2013, pp. 145-152; Izvercian and Potra, 2014, pp. 606-612).

Prosumption is also treated as a creative process. Buyers are treated as creators of exchange value for others. Customisation occurs by adding personalised value, as well as consuming the acquired items and creating a reimagining of consumer experiences by buyers, creating value with enterprises (Cadwell, Kleppe, and Henry, 2007, pp. 311-323; Humphreus and Grayson, 2008, pp. 963-980; Prahalad and Ramaswamy, 2004, pp. 31-42).

### **3. The importance of ICT in intensifying prosumption processes**

ICT is a very broad concept, covering communication media such as the Internet, wireless networks, Bluetooth networks, audio and video communication technologies, radio, TV, etc. It allows to record information, using portable memory, tapes, hard drives, tapes, etc., as well as equipment that facilitates data processing, including computers, computer networks and servers, etc. ICT technologies cover all IT applications, as well as complex systems, thanks to which it is possible to carry out data processing and transmission at a higher level of abstraction than that of the hardware level. Information technologies are successfully used in all sectors of the economy. The ICT sector owes its development to highly qualified staff as well as innovative investments (Martucci, de Felice, and Schirone, 2012, pp. 34-56).

Technological innovations in the form of new models of phones, computers and software are constantly emerging, so that the function and use of new goods should meet the expectations of future users. The same applies to management information systems. For many years, in highly developed countries computer-aided management methods have played an important role in the field of business management. These systems quickly penetrated into various areas of business management (Pręgowski and Juza, 2011, pp. 701-709).

ICT technologies are developing dynamically, and the effective use of information remains a measure of a company's ability to keep up with the competition. Thanks to it, the company can react in an instant to turbulent changes in the environment. It must have the appropriate equipment and system to analyse such information. The use of ICT technologies is part of contemporary business management concepts. The modern strategy of a company's survival on the market assumes offering the highest quality of customer service and striving to cooperate with it, also thanks to the use of ICT tools (Raišienė, Bilan, Smalskys, and Gečienė, 2019, pp. 34-56). This translates into the expansion of the functionality of IT systems, covering the company's activities as well as customer relations.

Therefore, it can be concluded that the development of Internet prosumption was influenced by progressive technological changes (Maciaszczyk and Kocot, 2021, pp. 1-16). Access to ICT tools, as well as to Internet resources, often offered in the form of LTE (Long Term Evolution), has developed rapidly. There is a wide range

of products in circulation providing great possibilities, manifested due to access to IT tools. Thanks to ICT technologies, communication without physical contact has become possible. As a result, the relation between the consumer and the company takes place in real time (Bondos, 2014, pp. 12-16).

The consequence of this process is the fact that companies are forced to create communication platforms, which in turn become a challenge to the creativity of ideas (Trzeciak, 2009, pp. 10-14). The importance of ICT in the development of prosumption is illustrated by the fact that nowadays prosumers are mainly the generation of networks, which treats reality as an arena for creating and exchanging innovative ideas. The new generation of Internet prosumers expresses a strong need for freedom and freedom of choice, tailoring the product offer to their needs. They are also characterised by their individualisation, the need for dialogue and entertainment, innovation and a tendency to make joint decisions (Tapscott and Williams, 2008, p. 140).

## **4. The importance of ICT in presumptive relations in the research**

### **4.1. Test method**

In order to achieve the research goal and verify the hypothesis, primary research was carried out, and the survey method was used. It should be added that the relevant studies and the pilot studies preceding them were of a direct nature, which required personal contact with the subjects tested.

The research was conducted in 2019, during which time an online questionnaire was sent to the respondents. During the study, the standards of the CAWI technique were used. The results of the surveys were developed using the SPSS Statistic program.

The research was conducted among 500 people who represent Polish final users. The research was addressed to people living in the Śląskie voivodeship. The survey was divided into two parts: the model and the research part. The former contained sociodemographic data of the respondent (gender, age, occupation, education, professional activity). The respondents were classified as prosumers, i.e. as those with a tendency to communicate and establish contacts with other people on the web, in order to describe products and brands on the Internet.

More than half of the respondents were women (57% of the total). In terms of age, the most numerous group were persons aged 26-35 (36%). Young people up to 25 years of age accounted for 34% of the total, and the respondents aged 36-40 amounted to 19%. The remainder were those over 45 years of age. Among the surveyed population, there were 36% with higher education (second and third degree), 14% undergraduate, 14% secondary, 18% vocational and 18% with primary education; 80% of the respondents were working professionals at the time of the survey.

## 4.2. Results of empirical studies

The survey sought to determine the degree of use of ICT solutions in presumptive relations. The results are presented in Table 1.

**Table 1.** Research on the degree of use of ICT solutions in presumptive relations (in %)

Forms of Internet prosumption	Definitely yes	Rather yes	Neither yes nor no	Rather not	Definitely not
I am inclined to express my opinions and comments on the purchased products and services through the use of telecommunications and IT equipment	215	125	116	30	14
Among telecommunications and IT equipment, I most often express my opinions regarding the product offer via the Internet	225	124	102	36	13
I am happy to add comments to the opinions functioning on the Internet about the goods / services I use	199	128	127	20	26
I am happy to get acquainted with the opinions of other buyers, through the use of telecommunications and IT equipment, about the goods / services that I use or intend to use	129	117	125	121	8
With the help of telecommunications and IT equipment and on its own initiative, I contact manufacturers, giving them guidance so that they can improve their products	106	143	116	124	11
Through the use of telecommunications and IT equipment on my own initiative, I contact manufacturers, making inquiries about the products I use or plan to use	65	118	132	111	74
I often take part in actions organised by enterprises using telecommunications and IT equipment, thanks to which I become a co-creator of the product offer and its attributes	106	134	109	126	25

Source: own study based on the research.

According to the data presented in Table 1, prosumers are willing to express their opinions and comments through the use of telecommunications and IT equipment, with the Internet remaining the most common ICT tool. It is also common practice to add comments to opinions appearing in the Internet about the goods / services that the customer uses. In addition, many customers use telecommunications and IT equipment, and on their own initiative contact manufacturers, giving them advice

so that they can improve their products. Customers also ask questions about the products they use or plan to use. Additionally, they take part in actions organised by enterprises using telecommunications and IT equipment, thanks to which they become co-creators of the product offer and its attributes.

It will also be of interest to present the research results in relation to the respondents' gender and education, as well as to present these relations using the Chi 2 test. These issues may constitute interesting material for future research.

## 5. Conclusion

Internet prosumers are constantly expanding their activity, becoming co-creators of products and services. This process takes place through the use of ICT tools. The presented research indicated the significant role played by these technologies in the intensification of prosumption processes. Thanks to them, prosumers have the opportunity to quickly contact manufacturers and other consumers, adding their opinions and suggestions and commenting on the product offer. These relations contribute to the creation of a platform for the exchange of ideas, insights and suggestions, which in turn enable the emergence of 'new knowledge'.

Contemporary prosumers demand an individualised product offer tailored to their needs, and this pushes them to enter into various types of relations with other consumers and offerors. Such developed relations contribute to the creation of platforms for the exchange of opinions, and these, in turn, are the seeds of innovation. The innovative potential of prosumers should be used by modern enterprises striving to increase their innovativeness.

It is the prosumers who can become the creators of innovation. Their market activity has been intensified thanks to the use of modern ICT, therefore it can be concluded that through their influence, prosumers become a form of reservoirs of knowledge and creativity. Thus, prosumers in the era of Industry 4.0 are becoming co-creators of innovations of various types could provide interesting material for future research and scientific studies.

It should be noted that the research carried out was not representative. The author of the article included in the research sample only those entities that expressed their willingness to answer and to whose data she had access to, therefore limiting the study population to those whom he was able to identify and include in the sample. This fact represented some research limitations.

Thus, the presented research does not fully exhaust the issues related to determining the degree of use of ICT solutions in presumptive relations. Continued research into the use of ICT tools by prosumers could differentiate their behaviour taking into account their age, gender, place of residence and education.

## References

- Baruk, A. I. and Iwanicka, A. (2015). Prosumpcja jako trend konsumencki w opiniach potencjalnych prosumentów. *Zeszyty Naukowe Uniwersytetu Szczecińskiego*, 875, 1-8.
- Bond A. J., Widdop P., Cockayne D., and Parnell, D. (2020). Prosumption, networks and value during a global pandemic: Lockdown leisure and COVID-19. *Leisure Sciences*, 1, 1-9.
- Bondos, I. (2014). W kierunku Marketingu 3.0. *Handel Wewnętrzny*, 14(3), 12-16.
- Bylok, F. (2015). Między uległością a suwerennością konsumencką – zmiany w relacjach producent-konsument – konsument na rynku XXI wieku. *Zeszyty Naukowe Uniwersytetu Szczecińskiego*, (711), 344-356.
- Bywalec, Cz. (2010). *Konsumpcja a rozwój gospodarczy*. Warszawa: Wydawnictwo C.H. Beck.
- Cadwell, M., Kleppe, I. A., and Henry, P. (2007). Prosuming multiple gender role identities: A multi-country written and audio-visual exploration of contemporary young mainstream female achievers. *Consumption, Markets & Culture*, 10, 311-323.
- Doligalski, T. (2013). *Internet w zarządzaniu wartością klienta*. Warszawa: Oficyna Wydawnicza SGH.
- Gabriel, Y., Korczynski, M., and Rieder, K. (2015). Organizations and their consumers: Bridging work and consumption. *Organization*, 22(5), 629-643.
- Humphreus, A. and Grayson, K. (2008). The intersecting roles of consumer and producer: A critical perspective on co-production, co-creation and prosumption. *Sociology Compass*, 2, 963-980.
- Izvercian, M., and Potra, S. A. (2014). Prosumer-oriented Relationship Management capability development for business performance. *Procedia Technology*, 16, 606-612.
- Karciaz, M. (2010). *Informacja w Internecie*. Warszawa: Wydawnictwo Naukowe PWN.
- Kieźel, M. (2015). Role of individual customers in development of banking products in the context of open innovation concept and demand approach to innovation. *Journal of Economics and Management*, 4, 98-104.
- Maciaszczyk, M., and Kocot, M. (2021). Behavior of online prosumers in the organic product market as a determinant of sustainable consumption. *Sustainability*, 1157, 1-16.
- Martucci, I., de Felice, A., and Schirone, D. (2012). *Knowledge exchange between IKEA and suppliers through social and environmental strategy* (European Conference on Knowledge Management, Academic Conferences International Limited, Kidmore End.).
- Matschke, Ch., Moskaliuk, J., and Cress, U. (2013). Knowledge exchange using Web 2.0 technologies in NGOs. *Journal of Knowledge Management*, 1(16), 159-176.
- Prahalad, C. K., and Ramaswamy, V. (2004). Co-creation experiences: The next practice in value creation. *Journal of Interactive Marketing*, 3, 31-42.
- Pręgowski P., and Juza, M. (2011). Twórczość w Internecie. Prosumenci, kognitariat, demokratyzacja. *Zagadnienia Naukoznawstwa*, 4(190), 701-709.
- Raišienė, A. G., Bilan, S., Smalskys, V., and Gečienė, J. (2019). Emerging changes in attitudes to inter-institutional collaboration: The case of organizations providing social services in communities. *Administratie si Management Public*, 33, 34-56.
- Ritzer, G., and Miles, S. (2019). The changing nature of consumption and the intensification of McDonaldization in the digital age. *Consumer Culture*, 19, 3-20.
- Rzepka, A. (2019). Innovation, inter-organizational relation, and co-operation between enterprises in the Podkarpacie region in Poland. *Procedia Manufacturing*, 30, 642-649.
- Smyczek, S., and Sowa, I. (2005). *Konsument na rynku. Zachowania, modele, aplikacje*. Warszawa: Difin.
- Szul, E. (2013). Prosumpcja jako aktywność współczesnych konsumentów – uwarunkowania i przejawy. *Nierówności Społeczne a Wzrost Gospodarczy*, 31, 347-358.
- Tapscott, D., and Williams, A. D. (2008). *Wikinomia. O globalnej współpracy, która wszystko zmienia*. Warszawa: Wydawnictwo Akademickie i Profesjonalne.

- Toffler, A. (1997). *Trzecia fala*. Warszawa: Państwowy Instytut Wydawniczy.
- Trzeciak, A. (2009). Innowacyjny trexy marketing. *Marketing w Praktyce*, (7), 10-14.
- Veen, E. J., Dagevos, H., and Jansma, J. E. (2020). Pragmatic prosumption: Searching for food prosumers in The Netherlands. *Sociologia Ruralis*, 61, 255-277.
- Wolny, W. (2013). Prosumption – consumer creativity in e-business. *Studia Ekonomiczne Uniwersytetu Ekonomicznego w Katowicach*, 158, 145-152.
- Xie, C., Bagozzi R. P., and Troye, S. V. (2008). Trying to prosume: Toward the theory of consumers as co-creators of value. *Journal of the Academy of Marketing Science*, 36, 109-122.