

FACTORS INFLUENCING DECISIONS ABOUT CROWDSOURCING IN THE PUBLIC SECTOR: A LITERATURE REVIEW

Regina Lenart-Gansiniec¹

¹Institute of Public Affairs, Jagiellonian University, Łojasiewicza 4, 30-348 Kraków, Poland

Abstract

LENART-GANSINIEC REGINA. 2017. Factors Influencing Decisions about Crowdsourcing in the Public Sector: A Literature Review. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 65(6): 1997–2005.

The subject of the article is identification of the factors that influence making decisions about implementing crowdsourcing by public organisations in their activity, in particular municipal offices in Poland. These factors have been selected based on a literature review. A review of one of the initiatives realised by a municipal Office in Poland allows for formulating a conclusion that factors connected with the type of task and management may impact decisions on implementing crowdsourcing.

Keywords: crowdsourcing, crowdsourcing decision, factors, literature review

INTRODUCTION

Crowdsourcing is a relatively new notion, nonetheless raising more and more interest with researchers. In short, it means selection of functions which until present have been performed by employees and transferring them, in the form of an open on-line call, to an undefined virtual community. In economic practice it has become a megatrend, which drives innovations, collaboration in the field of scientific research, business, or society. It is reached by more and more organisations, for instance considering its potential business value (Rouse 2010; Whittle 2009). The first paper dedicated to crowdsourcing appeared relatively recently, in 2006 thanks to J. Howe's article entitled: "The Rise of Crowdsourcing". Although crowdsourcing is more and more the subject of scientific research, one may note in the literature many ambiguities, which result from proliferation of various research approaches and perspectives. Therefore, this may lead to many misunderstandings (Hopkins, 2011). This especially concerns the key aspects and factors, which have an impact on making decisions about crowdsourcing by organisations, particularly the public ones.

The aim of this article is identification of the factors that influence making decisions about implementing crowdsourcing by public organisations in their activity, in particular

municipal offices in Poland. The article is of a theoretical and review nature. Searching for the answer to this question, a literature review was conducted and an analysis of crowdsourcing initiatives used by self-government units in Poland was made. In Poland there are only four municipal offices that implement crowdsourcing in their activity. The article presents the initiative entitled "Otwarta Warszawa" ("Open Warsaw"). The justification behind its choice is the number of the submitted ideas, registered users, and their activeness: 16,600 registered users, 1,147 ideas handed over by the crowd, 24 ideas were implemented (see more: Lenart-Gansiniec, 2016).

The article is composed of three parts. The first part concerns the essence and notion of crowdsourcing and its importance to organisations. The areas of applying crowdsourcing in public organisations using the example of Poland with a division to crowdsourcing typology were presented in the second part. The last, third part of the article was devoted to identifying factors which decide about making a decision about initiating crowdsourcing in a public organisation. A literature analysis was used here. The necessity for identifying these factors is justified by the fact that an organisation which intends to use crowdsourcing should be aware of the reasons for reaching for it. It will contribute to

increasing the level of crowdsourcing, its potential and maximising the benefits coming from it for all users.

Literature review

The essence and notion of crowdsourcing

Crowdsourcing is a relatively new notion (Howe, 2006), however year after year it has been gaining on popularity in sciences on management taking into account its potential (Afuah, Tucci, 2012; Gassenheimer, Sigauw, Hunter, 2013).

For the first time the notion of crowdsourcing appeared in the subject literature in 2006 owing to J. Howe. Crowdsourcing was defined as “the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call. This can take the form of peer-production (when the job is performed collaboratively), but is also often undertaken by sole individuals” (Howe, 2006). The basic building block is thus the wisdom of the crowd (Surowiecki, 2004). It is assumed that a group may achieve and generate more benefits than any expert (Jeppesen, Lakhani, 2010; Leimeister, 2012). The Internet and open collaboration with the crowd gains importance here (Prpić, Shukla, Kietzmann, McCarthy, 2015).

The importance of crowdsourcing in public organisations

The existing scientific output indicates that crowdsourcing is of big importance to organisations, which make use of such initiatives. In the economic practice crowdsourcing has become a megatrend which more and more organisations, including the public ones, reach for. It is considered in

the literature as a rising phenomenon based on Web 2.0 and it is pointed out that the source of its popularity is the possibilities and benefits coming from its use:

- it enables access to the resources of people’s knowledge located outside the organisation, e.g. access to talents, external knowledge (Burger-Helmchen, Penin, 2010), valuable information (Greengard, 2011), resources (Brabham *et al.*, 2009; Chen, 2016), skills and experience (Oliveira, Ramos, Santos, 2010), mobilisation (Zhao, Zhu, 2012), competences (Chanal, Caron-Fasan, 2008),
- it facilitates acquiring new ideas, contents, and data as well as the ways of solving problems at a lower cost and in a shorter time, e.g. creating new products and open innovations (Whitla, 2009),
- obtaining material benefits, e.g. building competitive advantage, (Leimeister, Zogaj, 2013), improving business processes (Burger-Helmchen, Penin, 2010; Brabham, 2008; Roy, Balamurugan, Gujar, 2013), and optimising the costs of the organisation’s activity or business models (Garrigos-Simon *et al.*, 2014).

Talking about the benefits of crowdsourcing, mentioning a better adaptation of the organisation’s offer to the consumer’s needs and consequently increasing productivity, sales, and the level of the achieved income and the competitiveness and innovativeness of the organisation as well as creating a positive image of the organisation as a modern entity, which is open to the voices of its clients, cannot be omitted. By the same token it may be ascertained that crowdsourcing is a specific kind of participational on-line activity, participation (Lönn, Uppström, 2013), in which the organisation invites the crowd to collaborate. In particular the last

I: Importance of crowdsourcing – public organisation context

Date	Author/authors	Crowdsourcing importance
		enables solving problems
2008	Brabham	enables e-administration implementation
		increases the society’s involvement
		enables designing public space
2008	Dahlandera, Magnusson	improves anticipating different events
2008	Bernoff, Li	
2009	Huberman <i>et al.</i>	enables making use of the virtual community’s potential to create new products, services, and contents
2010	Buckley, Giannakopoulos	
2010	Almeida <i>et al.</i>	
2010	Landwehr	becomes a discussion space for the citizens
2013	Brabham	enables sending ideas for improvement
2010	Unterberg	
2013	Brabham	enables reporting problems
2009	Lipton	
2011	Kiva	enables obtaining funding to realise a given endeavour
2013	Agrawal, Catalini, Goldfarb	

Source: own elaboration.

aspect is important from the public organisation's point of view. It is because crowdsourcing increases the throughput of the citizens' participation in public life, their involvement and a feeling of being able to make changes in one's nearest environment (Seltzer, Mahmoudi, 2012). The significance of crowdsourcing in the context of public organisations is presented in Tab. I.

Apart from the benefits resulting from the scale and diversity of knowledge to which public organisations have access, crowdsourcing enables realising the open government postulate. In addition, by the possibility of co-participating and co-deciding, the society's involvement increases and by the same token its acceptance for public organisations' actions grows. Crowdsourcing may also be a tool for managing crisis situations since it enables anticipating potential hazards and reporting the arising problems. Moreover, it facilitates the citizens' stimulation to activity in public life by providing improvements. It is also worth mentioning the possibilities of obtaining additional funding for public investments.

Crowdsourcing in public organisations

Since 2008 a tendency has been observed for public organisations to include crowdsourcing in their activity, particularly to generate new ideas or develop innovative solutions to problems and enable citizens to participate in the actions of the government. This has also initiated a growing interest of researchers in the problematic aspects of crowdsourcing in public organisations. Nevertheless, there have not yet been any attempts to comprehensively look at the problem of crowdsourcing in public organisations (Brabham, 2015). The Google Scholar data indicate 57,600 theoretical and empirical articles devoted to crowdsourcing, but only 19,200 speaking of crowdsourcing in a public organisation. Most of these publications cover the area of psychology and information science. In rare papers related to economic sciences it is indicated that crowdsourcing may be useful in urban planning (Brabham, 2009),

collecting (Crampton, 2009; Goodchild, 2009), or data sharing (Hudson-Smith *et al.*, 2009). At the same time it is emphasised that crowdsourcing in public organisations is the current direction of research since crowdsourcing is viewed as a combination of collaboration, aggregation, collective work, consensus, and creativity.

In the literature, various typologies are indicated, nonetheless most often two are indicated, those by J. Howe and D. C. Brabham. J. Howe distinguishes four types of crowdsourcing: (1) collective intelligence, wisdom of the crowd, (2) crowdcreation, (3) crowdvoting, and (4) crowdfunding. Whereas, D. C. Brabham considers the following as variants of crowdsourcing: knowledge discovery and management, broadcast search, peer-vetted creative production, and distributed human-intelligence tasking). Only a few authors additionally point to crowdfunding (Corney *et al.*, 2009). Selected crowdsourcing initiatives of public organisations including the typology were presented below. D. C. Brabham's division was chosen taking into account its multidimensionality. A review of crowdsourcing initiatives was performed taking into account the division into crowdsourcing types (Table 2). It has been complemented by crowdfunding.

A specific forerunner of making use of crowdsourcing in public organisations was the United States President Barack Obama. The 21st of January 2009 may be considered the symbolic moment of initiating a public discussion on open government when President Barack Obama, who had just begun his presidency, signed the Memorandum on Transparency and Open Government. It is because the US President obligated the American government agencies to introduce the rule of transparency and ensuring the citizens' participation in the decision-making process. One of the variants of crowdsourcing implemented by the US government is broadcast search. It focuses on searching for ideas, solution ways, and answers to ideas submitted by organisations. Usually, these are special applications, which enable public organisations collecting ideas which solve difficult

II: Selected examples of crowdsourcing initiatives realised by public organisations

Type	Potential usage	Examples
Broadcast search	Identifying new solutions to problems, e.g. improvement of clerks' work	White House SAVE Award, NASA, InnoCentive
Peer-vetted creative production	Obtaining ready designs of logotypes, names, plans for developing of urban space, strategies	Open Data, Dear Mr. President, Challenge.gov, Change by Us, Amsterdam Opent, Medellin, Otwarta Warszawa, Dobre Pomysly, Next Stop Design
Knowledge discovery and management	Reporting occurring threats and problems	We the People, FixMyStreet, SeeClickFix, NaprawmyTo.pl, San Jose Mobile City Hall, Did You Feel It?, Ushahidi, Kidenga, POPVOX
Distributed human intelligence tasking	Processing, analysing a big quantity of data, arranging information, and creating registers	Amazon Mechanical Turk
Crowdfunding	Financing construction designs, social infrastructure facilities	Citizeninvestor, Neighborly, Spacehive

Source: own elaboration.

problems. Government agencies can ask citizens for practical ideas to solve specific problems. Broadcast search works in part because by casting a wide net online, an organisation can reach those on the margins of a problem domain, who may have unique heuristics, tool kits, or perspectives that could aid in solving a given problem. One of the examples is the White House's SAVE Award (<https://obamawhitehouse.archives.gov>), initiated in 2009 by President Obama. The goal of the SAVE Award is to produce ideas that will yield savings while also improving the way that the government operates.

Peer-vetted creative production focuses on generating new ideas, testing, and creating new products or services of an image, social, and political nature. In the Challenge.gov (<https://challenge.gov>) project more than 80 government agencies could place and direct to the crowd their requests to indicate innovative solutions to problems as well as improving ideas, products, or processes in public organisations. The winning ideas were awarded and implemented. Since the moment of launching the portal, over 640 problems have been handed over to the crowd for solving, 220 million dollars have been spent on awards, 250 thousand users have participated, and over 4.5 million people have visited the website.

Knowledge discovery and management consists in entrusting with the users searching for and storing information. Citizens may report various types of information, from clogged storm drains, through traffic lights' breakdowns, to potholes or graffiti. FixMy Street (<https://fixmystreet.com>) is a crowdsourcing platform founded in Great Britain. Since its beginning in 2007, it has registered over 900 thousand problems. It is the first service of this type which originator was a non-governmental agency My Society. In 2015 the service received the Smart City Award Digital Technology.

Distributed human intelligence tasking focuses on making use of the community to process, collect, or analyse a large volume of data with which computer systems could have a problem. For example Amazon Mechanical Turk (<https://mturk.com>) is a marketplace for work that requires human intelligence. The Mechanical Turk service gives businesses access to a diverse, on-demand, scalable workforce and gives workers a selection of thousands of tasks to complete whenever it is convenient. Amazon Mechanical Turk is based on the idea that there are still many things that human beings can do much more effectively than computers, such as identifying objects in a photo or video, performing data de-duplication, transcribing audio recordings, or researching data details. Traditionally, tasks like this have been accomplished by hiring a large temporary workforce (which is time consuming, expensive, and difficult to scale) or have gone undone.

Crowdfunding is mainly acquiring money from the virtual community by the organisation in order

to realise a given venture. In Kansas City a service called Neighborly (<https://neighborly.com>) has been launched. The community may participate in financing construction designs, road repairs, or other investments. It only takes purchasing municipal bonds. Another platform, Citizeninvestor focuses on raising money for public projects and social infrastructure. It enables the citizens to finance public organisation projects.

Currently, as for 26th August 2017, there are four crowdsourcing platforms operating in Poland that were initiated by public organisations, i.e. Lubelskie Dobre Pomysły, Krosno Dobre Pomysły, Rzeszów Dobre Pomysły, and Otwarta Warszawa. They are used as a place for submitting ideas. Through the service, members of the virtual community may submit ideas, which are later on analysed by a jury composed of a team of experts and city representatives (and thus, broadcast search). The ideas are evaluated from the point of view of their consistence with the regulations, appropriateness for the question asked, creativity and ingenuity, potential of change that it brings to the city, number of obtained votes in favour from other users, the idea's advantage over other proposals. Further on, the best ideas are implemented. Considering the greatest popularity and the participants' engagement focus has been made on the Otwarta Warszawa platform in the further part of the article.

Factors impacting decisions about crowdsourcing

A theoretical framework

According to Rouse (2010) the knowledge of factors, which influence the decision about crowdsourcing in the organisation is important in so far as the lack of knowledge about it may contribute to the organisation's losing valuable resources. Many researchers of crowdsourcing initiatives attempted to select a group of factors, which determine the decision on making use of crowdsourcing (Table 3). Such grouping may contribute to minimising the potential threats resulting from the limitations brought about by entrusting tasks for realisation with an unknown, virtual group of recipients. The factors presented above were matched with four groups in order to indicate as precise as possible the dilemmas and true motives of the actions taken, and so these are the following: tasks, people, management, and the surroundings.

A task or more appropriately its type was assigned to the first category. The importance of the task is considered as the decisive factor for making a decision about crowdsourcing (Ranade, Varshney, 2012). What is important – not all types of crowdsourcing initiatives may be used for realising each task directed to the virtual community (Burger-Helmchen, Pénin, 2010). The reason for this state of affairs is the fact that the members of the virtual community are anonymous – the issues

III: Factors impacting making of a decision on applying crowdsourcing

Level of analysis	Date	Author/authors	Factors
Task	2009	Kazman, Chen	
	2010	Malone, Laubacher, Dellarocas	
	2012	Ranade, Varshney	Type of task
	2012	Heimerl <i>et al.</i>	
	2012	Afuah, Tucci	
	2010	Burger-Helmchen, Pénin.	Interactions with the online community
	2013	Muntés-Mulero <i>et al.</i>	Openness
People	2012	Feller <i>et al.</i>	Confidential information
	2010	Malone, Laubacher, Dellarocas	Number of employees
	2010	Sharma	Resources
Management	2011	Rouse	
	2012	Zhao, Zhu	Cost-saving
	2012	Van Pelt, Sorokin	
	2011	Rouse	Coordination
Surroundings	2009	Whitla	
	2012	Zhao, Zhu	Platform accessibility
	2012	Van Pelt, Sorokin	

Source: own elaboration.

of the crowd's involvement, confidential data protection, intellectual property, or privacy and data security appear here (Muntés-Mulero, 2013). It is suggested in the literature that in order to increase intellectual security, larger tasks may be divided into smaller ones (Feller, 2012). The most frequent tasks directed to the crowd are the following: micro-tasks, macro-tasks, and creative tasks. Micro-tasks are tasks, which do not require collaboration of many persons, time involvement, or the necessity for financial remuneration for the virtual community. What is important is the crowd's involvement. They may include for example indicating facilities on a map or translating short texts and notifying about a certain problem. This type of tasks may be applied in "knowledge discovery". Macro-tasks are tasks, which require involving a larger number of persons who collaborate with each other and further bigger amount of time, knowledge, and skills. They may concern searching for ideas, means of solving, or answers to problems reported by the organisation. It is about such crowdsourcing initiatives as "broadcast search". Creative tasks are connected with making use of creativity, innovativeness of the virtual community's members. They concern improving the offer or way of functioning of the organisation – and therefore the crowdsourcing initiative – "peer-vetted creative production". In Poland public organisations direct tasks of various nature to the crowd. The biggest interest is raised by encouraging the crowd to generate new ideas, test products, services, and solve various problems. However, it is difficult to ascertain that it is a type of task, which constitutes a significant factor that

influences crowdsourcing decisions. Research in this scope has not been conducted so far.

The next factor is the people. The organisation may take crowdsourcing actions in case when it does not possess a sufficient number of employees for executing a given task (Malone, Laubacher, Dellarocas, 2010). In particular, when this task requires great resources, skills, or competences. An example is the actions of the "peer-vetted creative production" type. Then what is required is the knowledge, creativity, or innovativeness for generating new ideas or solutions. The probability of adopting and accepting new solutions is also increased then.

Management constitutes an important factor which determines making a decision about crowdsourcing. In particular this concerns costs, coordination, and risk. The will to save money or lack of funds for realising an action may constitute the premise for making a decision about crowdsourcing (Zhao, Zhu, 2012). Next, coordination of actions or the mechanisms of coordination in the organisation are of key importance to crowdsourcing. Their lack may mean resource leakage. Therefore, the organisation should possess workflow management (Potter, McClure, Sellers, 2010), members management (Dow *et al.*, 2011), and agreement management (Psaier *et al.*, 2011). Moreover, what is important is the ability or the developed mechanisms of controlling and motivating the virtual community. Otherwise, there is a risk of receiving useless ideas by the organisation (Zhao, Zhu, 2012). It is particularly required in the case of "distributed human intelligence tasking" since the crowd's knowledge is used here

to execute specific, often complicated tasks or analyse large quantity of data. More and more often one points out that public organisations should increase their efficiency, effectiveness of public tasks, or the rationality of spending public funds (Frączkiewicz-Wronka, 2013). By the same token, it seems that these premises may decide about making a decision about crowdsourcing – nonetheless, there is a lack of research in this scope.

The last group of factors is connected with the surroundings, especially possessing a specific crowdsourcing platform. The multitude of existing crowdsourcing platforms may cause that the decision on their choice should be dictated by the goals which a crowdsourcer wishes to achieve. What is more, the possessed platform determines the choice of a strategy of conduct and selecting a suitable type of virtual community. And so, the functionality, possibility of collecting a number of offers, a communication module, or aggregating data gain on decisive significance. The platforms that operate in Poland are oriented at collecting ideas from the crowd.

Factors impacting decisions about crowdsourcing – Otwarta Warszawa platform case

Otwarta Warszawa was the first crowdsourcing platform implemented in Poland (<https://otwartawarszawa.pl>). The originator of this endeavour was the Municipal Office of the Capital City of Warsaw. The whole project lasted from June 2014 to July 2015. In this period the citizens of Warsaw had submitted 1,147 ideas via the platform of which 50 were implemented by the Office. The platform functioned on the basis of submitting ideas by Internet users, which were next analysed by a jury composed of a team of experts and city representatives. These ideas were evaluated in regard to their consistency with the rules, adequateness to the question asked, creativity, and originality, the number of received upvotes from other users, and the idea's advantage over other proposals. The awarded ideas were handed over to receive an opinion of the Vice-Mayor of the Capital City of Warsaw. The best of them were implemented. In addition, the authors of the selected ideas were awarded. The main award amounted to 500 zlotys.

50 ideas were selected for implementation, among others: (1) hammocks and outdoor libraries on the banks of the Vistula River; (2) learning sign language at schools; (3) Warszawa as the protagonist of a game (creation of the Warsaw Churches games within the Carcassonne game, Warsaw game board for the Scotland Yard game, a board with Warsaw railway routes for Rosyjskie Koleje and Ticket to Ride); (4) improvement of tramway traffic lights (a tram which approaches a crossroads receives a green light automatically); (5) improvement of downtown road safety (widening the pavements, bicycle paths); (6) potable water intakes in parks; (7) summer theatre scenes on the banks of the Vistula; (8) benches in

parks protecting from the rain and sun. Another idea which is being realised is installing additional equipment in the outdoor gyms.

The above-mentioned examples of the platforms may be classified in broadcast search. During the identification of the factors that impact decisions about crowdsourcing, an analysis of the project's website and press news was carried out. According to the information mentioned on the project's website its main goal was to “define the city's identity”, which was defined as “a set of features which positively distinguish the brand, which make up its ideal image, the most beneficial from the point of view of the brand's owners or managers. In other words, brand identity reflects the desired way of viewing (perceiving) the city's brand by its most important consumers” (<https://otwartawarszawa.pl>). Therefore, Otwarta Warszawa project mainly focused on generating new ideas, but also on defining the city's identity “not as a logo or motto, but the actual state” (<https://otwartawarszawa.pl>). In addition, Michał Olszewski, the Vice-Mayor of the Capital City of Warsaw stated that it is difficult to envisage a metropolis which ignores the voice of its citizens and does not include them in the process of shaping the surrounding space. It is obviously the citizens – by their natural knowledge of the city – who intuitively feel which solutions will be most beneficial for a given place. Owing to the Otwarta Warszawa platform the citizens have become a force, which creates real changes in the city's space, entertainment, and culture” (<https://otwieramymiaasto.pl>).

Having regard to the factors impacting decisions on crowdsourcing identified based on a literature review, an attempt has been made to indicate the ones that are important from the perspective of the Otwarta Warszawa crowdsourcing initiative. Above all the platform under discussion may be classified as broadcast search. As it has already been pointed out, the type of task may be of importance in this aspect. Broadcast search is useful in solving micro-tasks, which do not require strict collaboration of many people, greater involvement of an individual, her or his invested time, and offering high financial gratification for the winners. The basis here is constituted by motivation and willingness to change. It appears from the research conducted by the author, related to the motivation of the online communities of crowdsourcing platforms initiated by public organisations, that the main motivator is willingness to change and participate in shaping of the local community. Therefore, it seems that the type of task may be of importance in making decisions about crowdsourcing. For example, to solve complicated and complex problems – competition is a better form. Further on, the importance of the human factor is pointed out in the literature. It is difficult to state that an inadequate number of employees may constitute a decisive factor on making a decision about crowdsourcing. In Poland one rather talks

about overstaffing (Czarzasty, Zieleńska, 2013). It is difficult to acknowledge that in case of Otwarta Warszawa not enough employees is a significant premise: the Warsaw City Hall employs over 22 thousand employees (<http://warszawa.naszemiasto.pl/artykul/warszawski-ratusz-jednym-z-najwiekszych-pracodawcow,3896766,galop,t,id,tm.html>). A lack of competences and skills is not an important factor as well: separate legal regulations regulate the need to possess a higher education degree and many years of experience. A will to save money or no funds constitute the next premises for making a decision about crowdsourcing. They do not seem to be important factors. In the Otwarta Warszawa project the awarded ideas were later implemented, so additional costs were incurred. This also concerns the awards for the winners.

Nevertheless, in the group of factors, which include management, building an image and participation are important. Based on desk research these aspects are of special importance in Otwarta Warszawa. Therefore, it is possible to acknowledge that management constitutes an important factor which determines making a decision about crowdsourcing by public organisations. And finally the last group of factors, the environment, and in particular availability and adapting the platform to the needs of organisations. The Otwarta Warszawa platform is not a universal platform, which can be used by other organisations. It was designed especially for the needs of this very initiative. Thus, one may conclude that this factor has no influence on decisions related to crowdsourcing.

CONCLUSION

In light of the obtained analysis of the Otwarta Warszawa crowdsourcing platform, initiated by the Municipal Office of the Capital City of Warsaw, it may be ascertained that the type of task and management play the key role in making a decision about crowdsourcing. The initiators of the platform under discussion made use of it to obtain solutions to simple micro-tasks and to create an image of the city as one that is open to the voices of its citizens. Skilful management of crowdsourcing is the resultant of many factors, which should be taken into consideration by organisations, which intend to implement it. The decision on taking up crowdsourcing initiatives should be the subject of the organisation's decision. Therefore, crowdsourcing should be a conscious and planned action. Then the risk of resource drainage or leakage of confidential data from the organisation appears. The identification of the factors which have an impact on making a decision about crowdsourcing still belongs to relatively new areas. There is still no answer to numerous questions, in particular whether a distinction between the factors taking into account the type of organisation (e.g. commercial or public) should be made. An attempt to find the answer to this question will contribute to neutralising the negative consequences of crowdsourcing. Particularly in the context of public organisations in Poland – it seems that the factors, identified based on the literature, do not correspond with the specificity of these organisations. Thus, it is important to conduct further and very detailed research in this scope.

Acknowledgements

This project was financed from the funds provided by the National Science Centre, Poland awarded on the basis of decision number DEC-2016/21/D/HS4/01791.

REFERENCES

- AFUAH, A. and TUCCI, C. L. 2012. Crowdsourcing as a solution to distant search. *Academy of Management Review*, 37(3): 355–375.
- AGRAWAL, A. K., CATALINI, C. and GOLDFARB, A. 2015. The geography of crowdfunding. *Journal of Economics and Management Strategy*, 24(2): 253–274.
- ALMEIDA, J. M., GONCALVES, M. A., FIGUEIREDO, F., PINTO, H., and BELEM, F. 2010. On the Quality of Information for Web 2.0 Services. *IEEE Internet Computing*, 14(6): 47–55.
- BERNOFF, J., and LI, C. 2008. Marketing – Harnessing the power of the oh-so-social web. *MIT Sloan Management Review*, 49(3): 36.
- BRABHAM D. C. 2015. *Crowdsourcing in the Public Sector*. Washington: Georgetown University Press.
- BRABHAM, D. C. 2008. Crowdsourcing as a Model for Problem Solving: An Introduction and Cases. *Convergence: The International Journal of Research into New Media Technologies*, 14(1): 75–90.
- BRABHAM, D. C. 2009. Crowdsourcing the Public Participation Process for Planning Projects. *Planning Theory*, 8(3): 242–262.
- BUCKLEY, S., and GIANNAKOPOULOS, A. 2010. Sharing Knowledge in a Knowledge City Using CoPs. In: RODRIGUES, S. (Ed.) *Proceedings of 2nd European Conference on Intellectual Capital*. Reading, UK: Academic Conferences Ltd, pp. 144–151.

- BURGER-HELMCHEN, T. and PÉNIN, J. 2010. The limits of crowdsourcing inventive activities: What do transaction cost theory and the evolutionary theories of the firm teach us. In: *Workshop on Open Source Innovation*. Strasbourg, France.
- CHANAL, V. and CARON-FASAN, M. L. 2008. How to invent a new business model based on crowdsourcing: The crowdspirit case. In: *EURAM Conference*. May 2008. Ljubana: Slovenia.
- CHEN, K. et al. 2016. The Power of Citizens' Voices in Democracy – Examining the impact of civic input on crowdsourced policymaking. In: *20th International Research Society on Public Management Conference 2016 Hong Kong*. Available at: <http://programme.exordo.com/irspm2016/delegates/presentation/269/> [Accessed: 2016, December 20].
- CORNEY, J., TORRES-SÁNCHEZA, C., JAGADEESANA, A.P., YANA, X.T., REGLIB, W.C. and MEDELLIN, H. 2010. Putting the crowd to work in a knowledge-based factory. *Advanced Engineering Informatics*, 24(3): 243–250.
- CRAMPTON, J. W. 2009. Cartography: Maps 2.0. *Progress in Human Geography*, 33(1): 91–100.
- CZARZASTY, J. and ZIELEŃSKA M. 2013. Poland: Working conditions in central public administration. *EurWork: European Observatory of Working Life*. [Online]. Available at: <http://www.eurofound.europa.eu/ewco/studies/tn1303013s/pl1303019q.htm> [Accessed 2017, March 18].
- DAHLANDER, L. and MAGNUSSON, M. 2008. How do firms make use of communities? *Long Range Planning*, 41(6): 629–649.
- DOW, S., BUNGE, B., NGUYEN, T., KLEMMER, S. R., KULKARNI, A. and HARTMANN, B. 2011. Shepherding the crowd: managing and providing feedback to crowd workers. In: *Proceedings of the 2011 annual conference Extended abstracts on Human factors in computing systems*. New York: ACM, pp. 1669–1674.
- FELLER, J., FINNEGAN, P., HAYESA, J. and O'REILLY, P. 2012. 'Orchestrating sustainable crowdsourcing: A characterisation of solver brokerages. *The Journal of Strategic Information Systems*, 21(3): 216–232.
- FRĄCZKIEWICZ-WRONKA, A. (Ed.) 2013. *Efektywność zarządzania organizacjami publicznymi i jej pomiar*. Katowice: Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach.
- GARRIGOS-SIMON, F. J., NARANGAJAVANA, Y. and GALDÓN-SALVADOR, J. L. 2014. Crowdsourcing as a competitive advantage for new business models. In: *Strategies in E-business*. US: Springer, pp. 20–37.
- GASSENHEIMER, J.B., SIGUAW, J. A. and HUNTER, G. L. 2013. Exploring Motivations and the Capacity for Business Crowdsourcing. *AMS Review*, 3(4): 205–216.
- GASSMANN, O. 2012. *Crowdsourcing: Innovationsmanagement mit Schwarmintelligenz*. München: Hanser Verlag.
- GOODCHILD, M. F. 2009. Neogeography and the nature of geographic expertise. *Journal of Location Based Services*, 3(2): 82–96
- GREENGARD, S. 2011. Following the crowd. *Communications of the ACM*, 54(2): 20–22.
- HEIMERL, K., GAWALT, B., CHEN, K., PARIKH, T. and HARTMANN, B. 2012. Communitysourcing: Engaging Local Crowds to Perform Expert Work via Physical Kiosks. In: *CHI '12, Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. May 5–10, 2012, Austin, Texas, USA. New York: ACM, pp. 1539–1548.
- HOPKINS, R. 2011. What is Crowdsourcing? In: PAUL, S. (Ed.) *A guide to open innovation and crowdsourcing*. (Vol. 1). London: Kogan Page.
- HOWE, J. 2006. The rise of crowdsourcing. *Wired Magazine*, 14(6): 1–4.
- HUBERMAN, B. A., ROMERO, D. M. and WU, F. 2009. Crowdsourcing, attention and productivity. *Journal of Information Science*, 35(6): 758–765.
- HUDSON-SMITH, A. and CROOKS, A. T. 2009. The renaissance of geographic information: Neogeography, gaming and second life. In: LIN, H. and BATTY, M. (Eds.) *Virtual Geographic Environments*, eds, Beijing, People's Republic of China: Science Press.
- JEPPESEN, L. B. and LAKHANI, K. R. 2010. Marginality and Problem Solving Effectiveness in Broadcast Search. *Organization Science*, 21(5): 1016–1033.
- KAZMAN, R. and CHEN, H.-M. 2009. The Metropolis Model a New Logic for Development of Crowdsourced Systems. *Communications of the ACM*, 52(7): 76–84.
- KIVA. 2011. *Kiva.org*. Available at <http://www.kiva.org> [Accessed 2017, August 26].
- LANDWEHR, C. 2010. Discourse and coordination: Modes of interaction and their roles in political decision-making. *The Journal of Political Philosophy*, 18(1): 101–122.
- LEIMEISTER, J. M. 2012. Crowdsourcing: Crowdfunding, Crowdvoting, Crowdcreation. *Zeitschrift für Controlling und Management*, 56: 388–392.
- LEIMEISTER, J. M. and ZOGAJ, S. 2013. *Neue Arbeitsorganisation durch Crowdsourcing*. Hans-Böckler-Stiftung Arbeitspapier 287. Arbeit und Soziales. Düsseldorf: Der Setzkasten GmbH,
- LENART-GANSINIEC, R. 2016. Crowd Capital – Conceptualisation Attempt. *International Journal of Contemporary Management*, 15(2): 29–57.
- LENART-GANSINIEC, R. 2016. Społeczności wirtualne i otwarte innowacje – perspektywa organizacji publicznych. *Studia Ekonomiczne. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach*, 28: 82–93.
- LIPTON, J. D. 2009. From domain names to video games: the rise of the internet in presidential politics. *Denver University Law Review*, 86: 693–708.

- LÖNN, C. M. and UPPSTRÖM, E. 2013. Government 2.0 challenges in Swedish public sector – eChallenges. In: CUNNINGHAM, P. and CUNNINGHAM, M. *eChallenges e-2013 Conference Proceedings*. IIMC International Information Management Corporation.
- MALONE, T. W., LAUBACHER, R. and DELLAROCAS, C. 2010. The collective intelligence genome. *Engineering Management Review*, 38(3): 38.
- MUNTÉS-MULERO, V., PALADINI, P., MANZOOR, J., GRITTI, A., LARRIBA-PEY, J. L. and MIJNHARDY, F. 2013. Crowdsourcing for industrial problems. In: *Citizen in Sensor Networks*. Springer, pp. 6–18.
- OLIVEIRA, F., RAMOS, I. and SANTOS, L. 2010. Definition of a crowdsourcing Innovation Service for the European SMEs. In: DANIEL, F. et al. (Eds.) *Current Trends in Web Engineering*. Berlin/Heidelberg: Springer, pp. 412–416.
- POETZ, M. K. and SCHREIER, M. 2009. The Value of crowdsourcing: Can Users Really Compete with Professionals in Generating New Product Ideas? *Journal of Product Innovation Management*, 29(2): 245–256.
- POTTER, A. and MCCLURE, M., Sellers, K. 2010. Mass collaboration problem solving: A new approach to wicked problems. In: *International Symposium on Collaborative Technologies and Systems (CTS)*. IEEE.
- PRPIĆ, J., SHUKLA, P. P., KIETZMANN, J. H. and MCCARTHY, I. P. 2015. How to Work a Crowd: Developing Crowd Capital Through Crowdsourcing. *Business Horizons*, 58(1): 77–85.
- PSAIER, H., SKOPIK F., SCHALL, D. and DUSTDAR, S. 2011. Resource and agreement management in dynamic crowdcomputing environments. In: *15th IEEE Enterprise Distributed Object Computing Conference (EDOC)*. IEEE, pp. 193–202.
- RANADE, G. and VARSHNEY, L. R. 2012. To Crowdsourc or not to Crowdsourc? In: *Workshops at the Twenty-Sixth AAAI Conference on Artificial Intelligence*. AAAI.
- ROUSE, A.C. 2010. A preliminary taxonomy of crowdsourcing. In: *ACIS 2010: Information Systems: Defining and Establishing a High Impact Discipline: Proceedings of the 21st Australasian Conference on Information Systems*. Brisbane: ACIS, pp. 1–10.
- ROY, S., BALAMURUGAN, C. and GUJAR, S. 2013. Sustainable employment in India by crowdsourcing enterprise tasks. In: *Proceedings of the 3rd ACM Symposium on Computing for Development*. Bangalore, India – January 11–12, 2013. New York: ACM.
- RREICHWALD, R. and PILLER, F. 2006. *Interaktive Wertschöpfung: Open Innovation, Individualisierung und neue Formen der Arbeitsteilung*. Wiesbaden: Springer Gabler.
- SELTZER, E. and MAHMOUDI, D. 2012. Citizen Participation, Open Innovation, and Crowdsourcing: Challenges and Opportunities for Planning. *Journal of Planning Literature*, 28(1): 3–18.
- SHARMA, A. 2010. *Crowdsourcing Critical Success Factor Model: Strategies to Harness the Collective Intelligence of the Crowd*. Working paper 1.
- SUROWIECKI, J. 2004. *The Wisdom of Crowds: Why the Many Are Smarter Than the Few and How Collective Wisdom Shapes Business, Economics, Societies, and Nations*. New York: Doubleday.
- UNTERBERG, U. 2010. Crowdsourcing. In: MICHELIS, D. and SCHILDHAUER, T. (Eds.) *Social Media Handbuch: Theorien, Methoden, Modelle*. BadenBaden, pp. 121–135.
- VAN PELT, C. and SOROKIN, A. 2012. Designing a scalable crowdsourcing platform. In: *SIGMOD '12 Proceedings of the 2012 ACM SIGMOD International Conference on Management of Data*. Scottsdale, Arizona, USA – May 20–24, 2012. New York: ACM.
- WHITLA, P. 2009. Crowdsourcing and its application in marketing activities. *Contemporary Management Research*, 5(1): 15–28.
- YANG, J. L., ADAMIC, A. and ACKERMAN, M. S. 2008. Crowdsourcing and knowledge sharing: strategic user behaviour on tasks. In: *Proceedings of the 9th ACM conference on Electronic commerce*. New York: ACM, pp. 246–255.
- ZHAO, Y. and ZHU, Q. 2014. Evaluation on crowdsourcing research: Current status and future direction. *Information Systems Frontiers*, 16: 1–18.

Contact information

Regina Lenart-Gansiniec: regina.lenart-gansiniec@uj.edu.pl