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CROWD CAPITAL – CONCEPTUALISATION ATTEMPT

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Abstract

Background. The problems of open innovation and crowdsourcing are more and more often present in literature on management sciences. It is emphasized that during creation of innovation a given organisation should make use of the knowledge existing outside of it. Moreover, it is suggested that the process of creating and developing products or services should be open. By the same, organisations should make use of the knowledge that is being possessed by a generally understood public or crowd (Wexler, 2011). The crowd has gained a new meaning: from unorganised, chaotic and often aggressive people it has become organised and oriented towards problem solving, and in particular creating the so-called open innovations. However, despite the increase of researchers' interest in the subject of open innovation or crowdsourcing and awareness of "crowd wisdom", it is difficult to find in the literature unambiguous answers to the question on what is crowd capital. Many authors assume that crowd capital is the core of both open innovation and crowdsourcing.

Research aims. The aim of the article is integration and synthesis of the existing scientific output related to crowd capital and presenting an original conceptualisation of this notion.

Methodology. In order to identify the main research perspectives and develop a proposal of the conceptualisation, the method of systematic literature review was used, including an analysis of the number of citations. This enabled revealing the existing research axes and the cognitive structure emerging from works published so far. Publications entered in full text databases were analysed. The research covered a period of 9 years: from 2007 to 2016.

Key findings. The review and analysis of the contents of publications listed within the systematic literature review enabled identifying of the directions of further scientific research. The systematic foreign and domestic literature review published until 2016 indicated that many levels and areas of the occurrence of the subject phenomenon have still not been examined, which shows free space for new research in this scope. The article presents a proposal of an original conceptualisation of the notion of crowd capital.

Keywords: crowd capital, open innovation, crowdsourcing, systematic literature review.

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INTRODUCTION

In recent years in the literature on management, including strategic management, one may observe an increased interest in the problems of crowdsourcing. This interest also appears in business practice. It began in 2006 as a result of W.J. Howe's publication. This author introduced and defined the term "crowdsourcing". He named in such way actions consisting in taking over tasks traditionally executed by workers, by undefined, large groups of people. At the same time, the significance of virtual communities and making use of crowd wisdom are emphasised. Such actions lead to obtaining the best solutions to a given problem (Majchrzak & Malhotra, 2013) or building of competitive advantage (Rigby & Zook, 2002). This gains significance particularly in the context of open innovations (Afuah & Tucci, 2012; Boudreau & Lakhani, 2013; Marjanovic, Fry & Chataway, 2012; Wikhamn & Wikhamn, 2013).

The reason for initiating research in this scope is the lack of extensive research on crowd capital. Despite the growing popularity among researchers of the subject matter related to crowdsourcing, the current state of knowledge about crowd capital should be deemed insufficient since it does not give an answer to the question what it is in the context of crowdsourcing. The existing research studies have focused on specifying the significance of crowdsourcing for open innovation, whereas not much attention has been paid to crowd capital – despite the fact that crowd capital constitutes the basis of crowdsourcing and open innovation. Divergence between researchers is also visible on the level of conceptualisation and operationalisation of crowd capital.

The aim of this article is integration and synthesis of the existing scientific output related to crowd capital as well as presentation of an original conceptualisation of this notion. The article presents the results of literature research, their interpretation, including limitations and perspectives and the directions of further research were proposed. The article was elaborated based on a systematic literature review – which enabled disclosing of the existing axes of research and a cognitive structure emerging from the works published so far. Publications entered in full text databases were analysed. The research covered a period of 9 years: from 2007 to 2016.

The article was divided into two parts. Taking into account the complex nature of crowd capital – the definitions of the basic notions, which may form the crowd capital (crowd, dispersed knowledge, public participation, idea generation, crowd science, virtual communities, virtual practitioner communities, wisdom of the crowd, open innovation, and crowdsourcing) were presented in the first part. The second part indicated the main directions of research on crowd capital. A systematic literature review was applied to this aim. In the last and third part, a proposal of the conceptualization of the notion of crowd capital was presented. In addition, in the summary the need to initiate research on crowd capital was justified and possible directions of further scientific research were outlined.

THEORETICAL BACKGROUND

The crowd

In social sciences, particularly in sociology, the notion of crowd is collated with rallies, manifestations, or riots during sports events. The crowd is constituted by large collectivity of people who found themselves in direct spatial contact and who react spontaneously, without reflection, and imitatively to common stimuli and co-presence of others (Sztompka, 2007). In this perspective, people or persons do not know each other, they are anonymous, their identity is not known to the other participants (Kosslyn & Rosenberg, 2006). There is no bond between them, they are only connected by the fact that they are gathered in one space and by the reason for which they found themselves in it. These reasons are of an emotional nature: usually these are extreme emotions (from outrage, anger through joy, enthusiasm and ending with euphoria).

The participants of the crowd act according to imitation, assimilation, and co-presence (Sztompka, 2007) and it has nothing to do with rationality, or will to achieve something. The crowd governs its actions by the rule that only certain behaviours are acceptable, which are unacceptable in a different situation (Postmes & Spears, 1998). Emotions are aroused by the crowd themselves and they unleash various types of expression among the whole collectivity. The crowd may have a self-appointed leader who initiates various behaviours (Le Bon, 2001).

In another perspective, the crowd is collated with the notion of the group (Barrows, 1981; McPhail, 1991). The issues of rationality, regular interaction between the participants, emotional bond, co-dependency appear. The crowd may demonstrate rationality in its action. The reason for coming into being is a feeling of injustice or a will to seek ways of solving some kind of problem (McClelland, 1989). Therefore, in this perspective, the crowd is a potential source of social changes. The crowd is therefore potentially strong (Canetti, 1984) and it constitutes a source of wisdom (Surowiecki, 2004; Sunstein, 2006), including the basis of generating collective intelligence (Alag, 2009; Lévy & Bononno, 1997).

It is assumed in sciences on management that the crowd is enthusiastic. Although it is public that is casually connected, but such one, which seeks ways to solve problems or general ideas. In this approach the concept of the crowd is linked to the emergence of modern Internet platforms (Bonnabeau, 2009; Rossiter, 2006). It is worth adding that the crowd is a collectivity that demonstrates the will to react and get involved. It becomes a peculiar virtual community. The last term is defined as a group of people who participate in an exchange of ideas by making use of Internet technology. The basis here are the following: interaction, building relations, and common knowledge (Rheingold, 1993; Hsu *et al.*, 2007; Lin *et al.*, 2008). Beside the notion of the crowd, the term "crowdsources" is mentioned. It refers to persons from the crowd who make use of a part of their resources to create potentially useful solutions to problems. The term "crowdsources" defines a person or persons who are able to mobilise a potentially useful crowd to act (Franke, Von Hippel & Schreier, 2006; Jeppesen & Laursen, 2009).

Dispersed knowledge

Dispersed knowledge is defined as a collection of knowledge possessed by a wide circle of people. It is the so-called detailed knowledge, which refers to specific conditions, existing in a given place and time. Its specific feature is its strong dispersion in the society. It never appears in a concentrated or integrated form. It is made up of the experience of individuals acquired as a result of everyday responsibilities, interests, as well as education (von Hayek, 2006).

Public participation

Participation is involvement or partaking. Public participation assumes active and collective participation of citizens in the decision making process at a local level (Brabham, 2009). It is oriented at the empowerment of citizens, local partnership, sustainable development, creating of networks, and partnership in the decision making process. Beside public participation the literature mentions the notion of social participation. It refers to direct and indirect, formalized and non-formalised, individual and collective participation of the citizens in making and enforcing decisions connected with the common good (Olech, 2011).

The idea of generation

Idea generation means some process of generating, developing, and communicating of new ideas. This process consists of stages of a mental cycle that finally leads to designing innovative products or services, their development, or updating. Generally speaking, this process covers all the phases of generating ideas. Those who participate in it are usually neither specialists nor experts, but they wish to co-participate in this process of their own free will (Poetz & Schreier, 2012). These actions become the basis of crowdsourcing (Lutz, 2011).

Crowd science

Crowd science (the terms "citizen science" and "networked science" are also used) means scientific research that is conducted in whole or part by a crowd of amateurs. Volunteer-scientists participate in projects, which are connected with their interests. This includes active participation in data gathering and analysing or processing (Wiggins & Crowston, 2011). Usually, these actions are taken on special virtual platforms (Hermida, 2010).

Virtual communities

Virtual communities signify a group of people, social aggregations, which meet by mediation of the Internet in order to realise common ideas or building durable relations (Rheingold, 1993). A virtual society

may also be defined as a "group of people with common interests or goals, which is focused around a certain Internet centre that enables achieving of these goals" (Komarczuk, 2006, p. 1). Virtual communities may constitute tracing of social groups that exist in the non-virtual world. Interactions of virtual communities are usually anonymous, they are not geographically or territorially limited, whereas the actions taken are asynchronous (Smith, 1992). They focus around common interests (Rheingold, 1993; Bugliarello, 1997).

Virtual practitioner communities

Practitioner communities are defined as informal unions, which are formed spontaneously, having a casual nature, with common aspirations and interests, which expand their knowledge and experience in this scope, through relentless mutual contacts (Lave & Wenger, 1991). They are established in order to invigorate the process of learning in an organisation and exchange knowledge (Lenart, 2010). These communities may assume a "virtual" form. They constitute groups of Internet users – specialists who possess specialist knowledge and experience in a given field. They participate not only in popularising, creating specialised products or services, but they also share their knowledge or information. There is a feeling of connection, common interest, and expanding of knowledge among the participants, which results from the interaction that occurs (Leser & Stock, 2001). Whereas, the aim of a participant of a virtual practitioner community is expanding her or his knowledge level (Gannon-Leary & Fontainha, 2007).

Wisdom of the crowd

Wisdom of the crowd is a notion that refers to a group of people who solve a given problem in a better way than an individual, even if that person is an expert (Surowiecki, 2004). The source of this wisdom is joining of individual capabilities, skills, creativity, or ingenuity of each member of the group, which means that the group's ideas are of much greater importance than those of the individual. Moreover, in order for it to take place, it is necessary to make use of the effect of synergy and joining all individual actions or solutions. The synergy effect is achieved when a few aspects are present: processing of information

and knowledge, coordination, collaboration, and diversity of opinions. First, the crowd has to be composed of persons with some knowledge or knowledge about a solution to a given problem. Second, people in the crowd have to have various viewpoints related to a given subject (Larrick, Mannes & Soll, 2011).

It is underlined that appropriate conditions are important for making use of the wisdom of crowds. It is assumed that the Internet is particularly favourable to this phenomenon (Surowiecki, 2004). Moreover, making use of crowd wisdom is possible owing to virtual predictive markets. Virtual predictive markets assume and enable aggregation of dispersed knowledge of the crowd and forecasting of occurrence of future events. They indicate specific financial markets on which the chances of making real some solution or event are evaluated. Usually, this evaluation takes place in the form of contracts or bets (Borucki, Świtalski & Paczka, 2008).

Open innovations

Open innovations are defined in the subject literature as the organisation's opening to making use of ideas coming from its interior as well its surroundings (Chesbrough, 2006). Other definitions point to using ideas arising both inside and outside the company as well as internal and external ways of introducing a new product, i.e. new technology on the market (Matusiak, 2008). Therefore, during the process of seeking and making discoveries and developing innovations, organisations base on their own ideas, but also those that can be found in their surroundings. Ideas come to the organisation from its environment and they are included in creating of innovations or sharing ideas with others (Seltzer & Mahmoudi, 2013). They also share the knowledge they possess in the form of licenses and sales of patents. Therefore, organisations are oriented towards seeking ways to develop products, with particular inclusion of maximising profits for all cooperating entities. Owing to establishing of cooperation with broadly understood partners, the organisation is able to transform business from focusing on production towards an organisation that serves its environment. The condition for the realisation of open innovations is voluntarism of interaction and thus not an automatic integration of partners or cooperating parties.

Crowdsourcing

The term crowdsourcing constitutes an abbreviation of crowd-resource-using. Therefore, we are dealing with a combination of the following terms: crowd, sourcing, and outsourcing. Crowdsourcing means using the knowledge of a diversified collectivity of people in order to realise tasks, which are normally carried out by specialists (Howe, 2006, 2008; Jeppesen & Lakhani, 2010). Therefore, tasks carried out by professionals are taken over by laymen or amateurs. What is important is that this group does not constitute an organised collectivity, they are rather Internet communities that are interested in solving different kinds of problems (Howe, 2008) or creating innovations (Brabham, 2007). The Internet and open collaboration (Prpić *et al.*, 2015), competitions (Jeppesen & Lakhani, 2010; Afuah & Tucci, 2012) or the so-called microtasking, i.e. division of a large task into a number of smaller ones (Kittur, Chi & Bongwon, 2008) constitute the basis here. In this space, the crowd gives examples of specific ideas or solutions. Further on, the crowd evaluates the submitted ideas and chooses the best ones by means of voting.

SYSTEMATIC LITERATURE REVIEW

In order to identify and define, and further conceptualise the notion of crowd capital, a systematic literature review in the scope of management sciences was conducted. In addition it was used to identify the main research perspectives. It is assumed that it is a review, which is subjected to a clear-cut question, using the methods of identification, selection, and critical evaluation of significant research studies and a data set and analysis related to research qualified for this review. This will enable elaborating of a detailed analysis, which is necessary for evaluating the existing research output (Ginsberg & Venkatraman, 1985).

According to the methodology of the systematic literature review, the process of analysing the existing state of knowledge on crowd capital, consists of three stages: (1) isolation of databases and determining a set of publications; (2) selection of articles; (3) verification of the usefulness of the obtained elaborations for further research.

Stage one covers determining a set of publications, which will be further analysed. Therefore, there is a need to prepare a full source list. For the needs of this article, it had been assumed that these would be full text and bibliographic databases, therefore emphasis was put on integration of all scientific reports (Booth *et al.*, 2012). What is important is that the basis is defining the scope of the search and determining the databases, specifying which databases will be included in a full/detailed search. The criterion was their general accessibility and completeness. Digital libraries, periodicals in electronic and traditional form, especially review and specialist magazines, review magazines in traditional and electronic form, and specialist, full text databases were taken into consideration.

The following full text databases were analysed: Google Scholar, EBSCO, Elsevier/Springer, Emerald, Proquest, ISI Web of Science, and Scopus. The decision on the choice of the databases depended on the level of completeness and contents. Further on, the criteria of filtering them were determined and formulated (Table 1).

Table 1. Three-level selection applied in the research

Stages	Selection criterion	Number of publications
Stage I	identified scientific articles dedicated to crowd capital of the database: Google Scholar (321000), Ebsco (907), Elsevier/Springer (32,963), Emerald (3,406), Proquest (646,952), ISI Web of Science (23), and Scopus (153)	972 441
Stage II	full text elaborations dedicated to crowd capital (title and abstract selection) of the database: Google Scholar (13,200), Ebsco (333), Elsevier/Springer (479), Emerald (803), Proquest (551), ISI Web of Science (2), and Scopus (46)	15 414
	full text elaborations dedicated to crowd capital (selection of key words) database: Google Scholar (27,500), Ebsco (0), Elsevier/Springer (90), Emerald (58), Proquest (28), ISI Web of Science (47), and Scopus (10)	27 733
Stage III	CROWD CAPITAL AS A RESEARCH OBJECT: full text reviewed publications of the database: Google Scholar (400), Ebsco (258), Elsevier/Springer (10), Emerald (50), Proquest (208), ISI Web of Science (2), and Scopus (42)	970
	following a verification of abstracts, titles, research area (crowd capital)	250
	following the cleaning of duplicated publications (crowd capital)	25

Source: own elaboration.

The aim of the three-level selection was the need to identify potentially significant scientific articles, which would then be analysed and selected. It is important here to identify key words, developing and documenting a search strategy. To this aim the technique used in the initial stage of the search the so-called "pearl culture" was applied. This consists in identifying the most significant scientific article in a given field of research. Interest in this subject began in 2013 due to the publication by J. Prpić and P. Shukla. It was an article entitled "The Theory of Crowd Capital", which constitutes the basis of the existing research in this scope. The conducted analysis of the number of this publication's citations enabled evaluating the impact of each publication on further publications and research. The number of citations is 31. It may be seen that the publication entitled "The Theory of Crowd Capital" deserves the name of seminal studies, therefore a leading publication that is inspirational for further scientific research. It was also considered as the so-called "pearl". By the same, the following were deemed its features: free terms of "crowd" and "capital", whereas "the theory" as the descriptor. Therefore, the obtained terms may be applied to probably suitable articles connected with the research problem by the subject. Each word, and therefore crowd capital was applied to the title, abstract, and key words. The time scope of the research covered the years 2007–2016.

Nonetheless, within the methodology of the systematic literature review, an analysis of the number of publications in each year was conducted (Figure 1). Based on this it is hard to name the interest in the problems of crowd capital as spectacular. It demonstrates the impact of the publications of J. Prpić and P. Shukla as well as Howe on identifying and understanding these two notions. The interest of scientific research centres in the subject of crowd capital has been changing throughout recent years.

The publication trend figure equal to $R^2 = 0.8207$ (years 2007–2015) and $R^2 = 0.2130$ (years 2007–2016) indicates satisfactory matching to the exponential function, which indicates a growing tendency of the publications. By the same, an increased interest in crowd capital among researchers is shown.

Stage two of the systematic literature review is the so-called "database cleaning" (Czakon, 2011). Therefore, after the first selection, which had taken into account all the chosen full text databases, in the second stage a limitation of the database took place. The author

assumed here the following criteria: only full text scientific articles, selection of titles, abstracts, and key words. Additional filtering was also applied, the aim of which was identifying potentially significant publications for conducting further analyses. In this connection, publications on information science, social, engineering and technological, mathematic, humanist sciences, psychology as well as publications of a medical nature were excluded from further research. By the same the database was narrowed down to publications in the scope of management sciences.

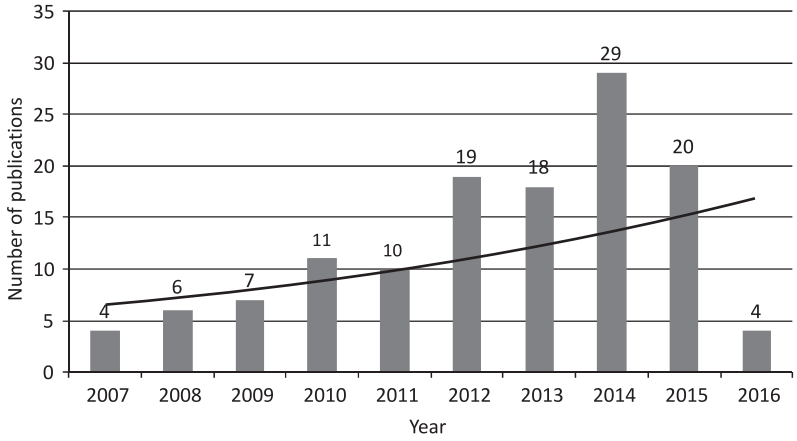

Figure 1. The number of publications on crowd capital in the years 2007–2016

Source: own elaboration.

Stage three includes an evaluation of the usefulness of the obtained elaborations for further research. Full text reviewed publications were qualified. Only those publications were deemed as significant research wise, which leading objects of analyses were the terms "crowdsourcing" and "crowd capital" placed in the title, or key words of the reviewed articles, excluding at the same time book reviews and editorial introductions. Further on, publications duplicated in various databases were removed. The database obtained in this way containing 25 publications published until 2.02.2016 became the basis of further analysis. In the database there are full text reviewed articles – publications such as books, dissertations, or book chapters were excluded from the area of analysis. Articles published in magazines and conference proceedings were included. The research covered only publications written in English. Based upon that 10 countries were selected, which have the biggest

percent share in the state of existing knowledge on crowd capital. They represent 3 continents: Europe, Asia, and North America, whereby the United States take the lead (48% of all the publications selected for the research).

The obtained publication base was analysed using bibliometric techniques, i.e. frequency analysis, which covers analysis of key words, research methods applied, dependent variables, theoretical bases, and research problems. First an answer to the question about the publication type was sought. As a result of the conducted frequency analysis it was ascertained that most often these are review articles (15 publications). They constitute a summary of the current state of knowledge in a given research area. By the same, the authors basing on the output of their predecessors, straightened the theory, formulated new scientific problems, however they had not conducted any empirical research. In the case of the other ones, 9 publications constituted the so-called original scientific articles, therefore those, which present the results of original research of an empirical nature. On the other hand in case of 1 article it was a case study, therefore a publication that is an analysis of a given case, which gives a possibility of drawing conclusions concerning the causes and results of the case described in it or a description of the event.

A frequency analysis is oriented towards specifying the absolute and relative frequency of the occurrence of words, trends, perspectives, or categories (Czakon, 2011). The frequency analysis covers an analysis of key words, research methods applied, theoretical bases, and research problems.

All 25 publications were analysed for the frequency of the key words. Whereas, in 14 publications out of the 25 analysed ones, the authors did not indicate any key words. The selected and gathered key words were analysed from the point of view of quality, whereas their visualization was presented using the "word cloud" technique. In the graphic presentation of key words the frequency of occurrence is specified by using the font size and boldface (Figure 2). All together 67 key words were analysed. Their ranking is the following: crowd (13), IT (7), social (6), crowdsourcing (5), and innovation (4). The other indications were single and they did not constitute uniform and specific indications.

The applied research methods were analysed for frequency. The obtained results may constitute a recommendation as to the method used in future research, but they also enable an evaluation of the

"maturity of the research field, quality of evaluated research, as well the general methodological trends occurring in the discipline" (Czakon, 2011). It was established that in case of 8 selected, so-called original scientific articles, researchers used the quantitive methods (research technique: survey, research tool: questionnaire), whereas in relation to the other 2 they used quality methods (interviews).

Figure 2. Analysis of key words' frequency

Source: visualisation made using Wordle (http://www.wordle.net).

The next action in the frequency analysis is establishing the most used research trends by the authors. It should be emphasised that the research on crowd capital was conducted from various perspectives. It turns out that most publications assume the perspectives connected with innovations and strategic management, including key competences and knowledge management.

In the scientific publications, selected within the systematic literature review, sectors were analysed. For the identified branches names consistent with the Polish Ativity Classification of 24th December, 2007 (Journal of Acts 251 item 1885 of 31st December 2007) were assumed. The aim of this measure was to standardise the names. The three following sectors were specified in the publications: (1) Information and communication (telecommunication – 1 indication, service activity in the scope of information – 1 indication, publishing activity in the scope of computer games – 1 indication), (2) public administration and national defence, obligatory social security (public administration – 1 indication), (3) activity connected with culture, entertainment, and recreation (sport activity, sportsmen & sportswomen – 1 indication). A category unclassified anywhere was also specified, namely virtual communities (5 indications)

In this last, third stage of the systematic literature review, the gathered literature base was deeply analysed contents wise. This will be used to evaluate the existing scientific output from the perspective of its quality, next its adequacy, and the context of the research. It will also enable determining cognitive gaps and indicating the areas of future research. In this article it also constitutes a starting point for attempting to conceptualise the notion of crowd capital.

First, the topicality of research on crowd capital. The first publications related to this notion appeared relatively recently – in 2007. These were, however, seed reports. Only since 2013, owing to the publication of "The Theory of Crowd Capital" by J. Prpić and P. Shukla we have been observing a growing popularity of the deliberations based upon management sciences. The field under consideration is currently in an early, but increasing phase of growth. This is a highly up-to-date area. Whereby, one observes a lack of homogeneity and coherence in defining crowd capital. The majority of authors refer to the already mentioned publication. Moreover, the deliberations in this scope are significant taking into consideration the fact that crowd capital constitutes a peculiar base of crowdsourcing. Setting it forth in the easiest way, the question of conceptualisation of this notion as well as operationalisation have not been studied in a full or comprehensive way. This may result from the specifics of their creation: these consist of organisational resources, which were obtained by means of crowdsourcing. The process of searching for crowd resources by an organisation alone takes place from below (Aitamurto, Leiponen & Tee, 2011; Prpić & Shukla, 2013). A peculiar model of creating crowd capital takes place, which consists of three elements defined in the subject literature as dimension (components or dimensions) (1) identification of external resources (understading and choosing the form of interaction, which will be useful for gaining knowledge, next choosing an appropriate IT infrastructure, which facilitates the involvement of dispersed individuals), (2) absorbing the crowd's knowledge and making use of the crowd capital. The necessary condition is openness of the organisation to resources dispersed in the crowd. These processes are named crowd capability.

Therefore, crowd capital in the simplest conceptualisation means organisational resources generated from the crowd using IT technology. One may say that crowd capital is a side effect or an indirect phenomenon resulting from capability (crowd competency). These are peculiar competencies and their combination in the scope of obtaining contents,

possessed IT structure, and internal processes. These competences define the form and type of the sought knowledge, information, data, money from the crowd – using information technology. This leads to involving the crowd in the process of realising a given idea. According to literature indications, crowd capital constitutes, beside social or financial capital the organisation's key resource, which may facilitate running of business activity. Working out this capital requires investing, specified actions and only then one may derive dividends from it.

As it has already been mentioned, the multidimensional nature of crowd capital is emphasized and its various components are mentioned. However, one may observe a lack of agreement among researchers as to the number of components or dimensions of crowd capital and their sequence. Unfortunately, they do not agree on the structure of crowd capital, while the typology alone is lacking coherence. The subject literature review provides many dimensions and skills, which condition crowd capital. Some of them mix the components of crowd capital and crowd capability. The author acknowledges that these are not identical notions – crowd capital is the final effect of crowd capability possessed by the organisation.

To a large extent the identified dimensions or components of crowd capital, identified based on the systematic literature review, refer to the components of the absorptive capacity. In particular, to the division applied by Zahra and George (2002) – and so to a potential and executive absorptive capacity. It is, however, difficult to equate crowd capital and absorptive capacity. However, one should remember that R&D, or external knowledge configurations constitute one of the factors of absorptive capacity (Cohen & Levinthal, 1990; Lenart, 2012). In particular, the latter have been gaining more and more importance recently, for instance taking into account the fact of reducing by the organisation of R&D expenditure (Rigby & Zook, 2002). In order to identify the dimensions/components of crowd capital most frequently analysed by researchers, a frequency analysis was conducted. They include the following: competencies in the scope of acquiring knowledge (acquisition capabilities), competencies in the scope of assimilation (assimilation capabilities). However, it should be underlined that one may also find in the literature other components: contents, IT structure, and organisational processes. Only a minority of authors regard alternatively crowd capital or crowd capabilities as the components (Prpić & Shukla, 2016). Nonetheless, a deep analysis of each

component of crowd capital shows the complexity and multi-aspects of this notion. It should, however, be emphasised that research in this scope is sparse. However, they depict the complex nature of this term.

Second, the state of theoretical and empirical knowledge on crowd capital. A deep analysis of the contents proved an insufficient number of empirical studies conducted in this scope. It may be a result of difficulty related to conceptualisation or operationalisation. Moreover, crowd capital is of an immaterial nature, one is unable to observe it directly and therefore it is difficult to measure. The above conclusions bear consequences for future research. They point to a research gap, which further on constitutes a premise for continuing research on crowd capital, they specify the need to explain the diversity. It is pointed out that the empirical research conducted so far are not free from cognitive and methodical and methodological limitations. Among them one may point out to the lack of a full view of crowd capital and its significance to the organisation, moreover there is a lack of answer to the question whether this is a new type of capital, which may be placed equal with the other ones. In addition, there is a lack of holistic research studies encompassing crowd capital that take into account crowdsourcing.

In the author's opinion present day research studies are dispersed and they do not constitute an occlusive conceptualisation of other researchers' achievements. Maybe the barrier here is the lack of a moderately uniform conceptualisation. As it was indicated the existing, rather fragmentary knowledge is based to a large extent on theoretical deliberations. By the same, the above and the results of the systematic literature review enable defining of the main directions of further research – they constitute an answer to the ones recommended in the subject literature (Table 2).

Table 2. Recommended directions of research on crowd capital

Recommended areas of new knowledge	Author/authors
Architecture of participation, intellectual property regime	Lakhani & Panetta (2007)
Change of the business model and adapting it to virtual communities	Dahlander & Magnusson (2008)
Seeking ways of managing virtual communities	Dahlander & Magnusson (2008)
Crowd mechanisms: relations, bonds, trust, feeling of community, common visions, connections with the organisation, knowledge sharing	Garrigos (2010)

Table 2. cont.

Recommended areas of new knowledge	Author/authors
Monitoring crowd behaviours	Wexler (2011)
Crowd management	Brabham (2011)
Searching for other solutions than problem solving and generating contents, benefits from crowd capital	Schenk & Guittard (2011)
Relations between virtual communities and the organisation	O' Mahony & Lakhani (2011)
Virtual communities' ways of action	
Ways of creating values for an organisation by means of crowd capital	
Factors that motivate the crowd to get involved	
The crowd as a way of diffusion of decision making and avoiding responsibility for these decisions	Charness & Sutter (2012)
Value chain of the crowd capital	Garrigos-Simon, Alcamí & Ribera (2012)
Participation of the crowd in making strategic decisions of an organisation	Belleflamme, Lambert & Schwienbacher (2013)
Interactions among the crowd	
Crowd action monitoring	Afuah & Tucci (2012), Brabham (2011)
Knowledge possessed by the crowd	Corvello & Iazzolino (2013)
Crowd capital as an organisation's resource, balance between investing in intellectual capital, social and psychological mechanisms of involvement in crowd action	Prpić & Shukla (2013)
Specifying the number of virtual participants necessary to build the crowd capital	Herm, Callsen-Bracker & Kreis (2014)
Crowd competencies	Lüttgens, Pollok, Antons & Piller (2014)
Researching crowd capital in public, non-governmental organisations	Prpić & Shukla (2014)
Crowd spatial collocations	Prpić & Shukla (2014)
Creating value out of an amorphous community, ways of effective involvement of the crowd, crowd typology, significance of the crowd for building of a competitive advantage	Prpić, Shukla, Kietzmann & McCarthy (2015)
Crowd involvement	Prpić & Shukla (2016)

Source: own elaboration.

Summarising the performed systematic literature review, it should be stated that it is difficult to find any attempts of crowd capital conceptualisation in the existing literature. The current state of knowledge

did not enable answering the question on what crowd capital is. And this is very important since the problems related to crowdsourcing draw a great number of entities representing the world of science and economy. A constant increase in the number of publications related to the usage of crowd wisdom to solve problems is observed. Nonetheless, crowd capital is a relatively young concept and what is more it is investigated by single researchers. It should also be reminded that crowd capital is a peculiar core of the crowdsourcing concept, open innovation. The lack of agreement on defining crowd capital is still present in the literature.

CROWD CAPITAL – TOWARDS CONCEPTUALISATION

The review of literature related to management sciences enabled determining only a few definitions of crowd capital. Generally speaking these definitions emphasise obtaining of dispersed knowledge, which is located in the crowd. This knowledge is deemed the key resource for an organisation, even taking into account the fact that it may contribute to building of competitive advantage. Going further, to gain profit.

The capital alone is an economic category, which means the gathered resources used for realising and developing of business activity (Matusiak, 2008). For the author of this article the division of capital made by Bourdieu is important. He discerned three types of capital: economic, social, and cultural. The last one constitutes the components of the so-called symbolic capital. In the case of symbolic capital it is assumed that it comprises the resources possessed by each individual. Each community possesses resources, which may help solving difficult social issues (Lewenstein, 2004). These resources are composed of the competences and skills of local community's members, relations between the inhabitants, and various institutions. The category of "symbolic capital" defines the competencies, level of capabilities, and by the same the opportunities for achieving success by a given entity of social life. The symbolic capital, however, is not directly perceptible, but only through its components, capitals: economic, social, and cultural.

It must be emphasized that despite many attempts to define what crowd capital is, there is no unambiguous and clearly précised definition

of this notion. One may see a lack of coherence, which is connected with the diversity of theoretic bases. Many research studies published so far agree as to one thing: crowd capital is not a uniform notion, but multidimensional.

The review of the existing publications, and more precisely the systematic literature review performed by the author enabled selecting only two definitions of crowd capital. The first definition by J. Prpić and P. Shukla (2012) defines crowd capital as heterogenic organisational knowledge generated owing to crowd capability possessed by the organisation. These competences enable obtaining capital from data, information, and crowd knowledge, which is necessary for the realisation of the organisation's goals. The following elements make up crowd capability (Prpić & Shukla, 2012): IT structure (technical and IT means enabling gathering of data and information and establishing of relations between all participants of crowdsourcingu) and organisational processes (procedures enabling assimilation, filtering, and making use of knowledge coming from the crowd). The process of transforming dispersed knowledge of the crowd in crowd capital was presented in Figure 3.

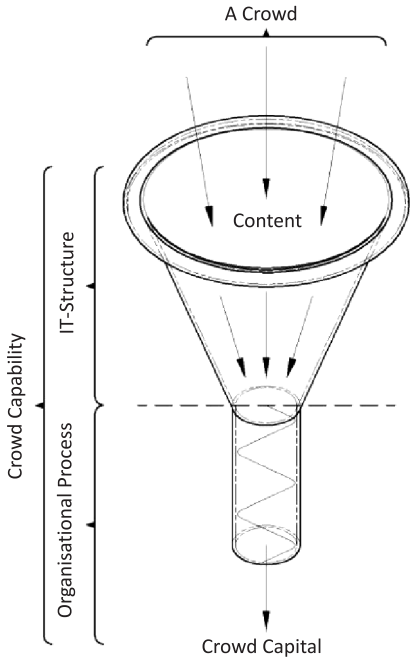

Figure 3. Stages of crowd capital emergence

Source: own elaboration based on: Prpić & Shukla, 2016.

J. Prpić and P. Shukla underline that crowd capital is a new kind or type of capital since it does not fit those currently identified. Intellectual capital is created based upon knowledge. It constitutes a total of many intangible components (Stewart, 1997). It has the following components: human, structural, and relational. The authors point out that knowledge and capabilities of the organisation's collectivity are at the core of intellectual capital (Nahapiet & Ghoshal, 1998), whereas the basis of crowd capital is dispersed and diversified knowledge obtained from the crowd's capabilities. Social capital means "the features of social organisations, such as the networks (systems) of individuals or households and the norms and values connected with them, which create external effects for the whole community" (Pogonowska, 2004). Crowd capital does not require building or even the occurrence of networks and relations as well as involvement. The authors point out that this may occur, but it is not a necessary condition for crowd capital to emerge. Despite the subsequent publications of these authors, the proposed definition has not been modified (Prpić & Shukla, 2013, 2014, 2016; Prpić, *et al.*, 2015). Crowd capital means the resources of heterogenic knowledge generated by an organisation from the crowd's dispersed knowledge using the structure, contents, and processes (the so-called crowd capability).

In the author's opinion, a limitation of the presented definition is the omission of the issue of collaboration with the crowd in the scope of providing information or knowledge. In this approach crowd capital is considered only as peculiar filtering, selecting of knowledge obtained from the crowd. Moreover, the presented definition omits the fact that crowd capital is built with virtual communities using information technologies. There is also a lack of information on crowd motivation. Particularly, considering the fact that within crowdsourcing what is important is solving different types of problems (Howe, 2008) or creating innovations (Brabham, 2007). Therefore, it is not simply drawing in the crowd's knowledge.

Another approach to crowd capital by Corneli and Mikroyannidis (2012) emphasises the importance of mobilisation of dormant knowledge and crowd wisdom. The authors did not give their own definition of crowd capital, they rather critically refereed to their predecessors' definitions. They point out that such knowledge constitutes the key resource of an organisation. It should be mentioned that the said approach omits the fact that crowd wisdom, is not only composed of

knowledge, but also the skills, creativity, or ingenuity of each group member (Surowiecki, 2004).

What is important for crowd capital's conceptualisation is the base or theoretical bases of crowd capital, and thus open innovation and crowdsourcing. In this scope, the significance of two aspects should be emphasised. First, the condition of open innovation is treating the crowd as a partner (Sopińska, 2013). Chiaroni, Chiesa and Frattini (2011) underline the fact that open innovations require creating of vast networks between organisations and building relations with many external partners. Second, in the case of crowdsourcing – it constitutes a tool used for gaining knowledge and ideas, which are present outside the organisation (Djelassi & Decoopman, 2013; Feller *et al.*, 2012). What is emphasised here is the significance of the motivators that encourage the crowd to generate ideas (Estellés-Arolas & Gonzáles-Ladrón-de-Guevara, 2012). According to the indications of the literature, one may agree that in case of creating of crowd capital both approaches are important.

Taking into account the results of the systematic literature review and definitions' review, the author's standpoint is that crowd capital may therefore be a new form of capital. First, the gathered resources are used for developing of business activity and building of competitive advantage (Prpić & Shukla, 2014). Second, the knowledge obtained from the crowd alone has no value, only as a resource it becomes valuable and unique. By the same, appropriate efforts or actions are required (Prpić & Shukla, 2013). Internal procedures of processing incoming knowledge serve this purpose. However, it should be underlined that crowd capital does not exist alone, but in combination with a broadly understood intellectual and social capital of an organisation it constitutes the source of competitive advantage. In particular, two forms of intellectual capital (structural and relational capital) are idiosyncratic for a given organisation. On the other hand, social capital fosters creation of knowledge and tendency to collaborate (Bugdol, 2006). Taking into account the above conditions, the author assumes that crowd capital takes on the features of symbolic capital: it is not directly perceptible.

Therefore, it is acknowledged that crowd capital is the sum of all intangible resources created from the crowd's potential, which are involved in solving various types of problems and creating innovations. According to that – crowd capital is created on the basis of collaboration,

bidirectional flow of knowledge, common norms and values, and crowd and organisation value as well as resources used and the potential of involved parties in a long-term perspective. What is important, the key aspect in this case is transforming the crowd into a community.

CONCLUSIONS

For the needs of realising the aim of the article a systematic literature review was conducted. The considerations on crowd capital presented in the article were used for the integration and synthesis of the existing scientific output related to crowd capital as well as the attempt to conceptualise this notion. The starting point for the conceptualisation was further specification of such notions as: crowd, dispersed knowledge, public participation, idea generation, crowd science, virtual communities, virtual practitioner communities, wisdom of the crowd, open innovation, and crowdsourcing. In the author's opinion they constitute the basis of crowd capital.

As a result of the systematic literature review, it was ascertained that crowd capital is a relatively new term. However, it is gaining importance, even taking into account the context of companies' using the crowd and its knowledge more and more often. Moreover, there have not been many attempts to unify crowd capital and it still remains a category that is difficult to specify in an unambiguous way. The lack of a uniform proposal, fragmentary knowledge in this scope makes investigation and research analyses difficult.

The existing knowledge output is only limited to two conceptualisation proposals. The issue of crowd participation and establishing interaction with it is omitted (Belleflamme, Lambert & Schwienbacher, 2013). At the same time the necessity of a bilateral information flow is emphasised (Fang, Yin & Dacheng, 2013).

The above-mentioned conclusions bear consequences for future research. They point to the research gap, which constitutes further a premise for continuing the research related to crowd capital, they specify the need to explain the diversity, which leads to improving the efficiency and effectiveness of the organisation. In the author's opinion, the conceptualisation proposal contained in the article as well as the results of the systematic literature review may constitute the basis for further, intensified analyses within crowd capital. Future research

should focus on operationalisation and methodology of measuring crowd capital. An interesting area for further investigation may be the conditions of crowd capital.

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KAPITAŁ TŁUMU – PRÓBA KONCEPTUALIZACJI

Abstrakt

Tło badań. Problematyka *open innovation* oraz *crowdsourcing* coraz częściej jest obecna w literaturze z zakresu nauk o zarządzaniu. Podkreśla się, że podczas tworzenia innowacji organizacja powinna korzystać z wiedzy znajdującej się poza jej granicami. Ponadto sugeruje się, że proces tworzenia i rozwoju produktów czy usług powinien być otwarty. Tym samym organizacje powinny korzystać z wiedzy będącej w posiadaniu szeroko pojętej publiczności czy tłumu (Wexler, 2011). Tłum nabrał także nowego znaczenia: z osób niezorganizowanych, chaotycznych, często agresywnych stał się zorganizowany i zorientowany na rozwiązywanie problemów, a w szczególności na tworzenie tzw. otwartych innowacji. Jednakże mimo wzrostu zainteresowania badaczy tematyką otwartych innowacji czy crowdsourcingu i świadomości „mądrości tłumu" trudno w literaturze odnaleźć jednoznaczne odpowiedzi na pytanie, co to jest kapitał tłumu. Wielu autorów uważa, że to kapitał tłumu jest rdzeniem zarówno otwartych innowacji, jak i crowdsourcingu.

Cel badań. Celem artykułu jest integracja i synteza dotychczasowego dorobku naukowego dotyczącego kapitału tłumu.

Metodologia. Do identyfikacji głównych perspektyw badawczych oraz wypracowania propozycji konceptualizacji wykorzystano metodę systematycznego przeglądu literatury, w tym analizę liczby cytowań. Pozwoliło to na ujawnienie dotychczasowych osi badań, struktury poznawczej wyłaniającej się z publikowanych do tej pory prac. Analizie poddano publikacje zamieszczone w bazach pełnotekstowych. Badaniem objęto okres 9 lat: od 2007 do 2016 roku.

Kluczowe wnioski. Przegląd i analiza treści publikacji wyszczególnionych w ramach systematycznego przeglądu literatury pozwoliły na identyfikację kierunków dalszych dociekań naukowych. Systematyczny przegląd zagranicznej i krajowej literatury opublikowanej do 2016 roku wskazuje, że wiele płaszczyzn i obszarów występowania omawianego zjawiska wciąż nie zostało zbadanych, i ukazuje wolną przestrzeń do nowych rozważań w tym zakresie. W artykule przedstawiono autorską propozycję konceptualizacji pojęcia „kapitał tłumu".

Słowa kluczowe: kapitał tłumu, otwarte innowacje, *crowdsourcing*, systematyczny przegląd literatury.