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CROWD MANAGEMENT PROCESSES ON CROWDSOURCING PLATFORMS

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The goal of a crowdsourcing platform's (CP) activity is the efficient creation of innovative solutions and new products by crowd (Internet community) members for its clients (organizations, companies and people). Effective management of the crowd (as workers of the crowdsourcing company) enables CPs to achieve this goal and offer clients innovative solutions in accordance with their orders and expectations. The paper presents a model of the virtual crowd management process on CPs and verifies the possibilities of its practical application by existing crowdsourcing companies. The paper characterizes the principles of CPs and their contributors' activity on the Internet. It describes the contribution of managers and crowd members of the crowdsourcing company in the creation of innovative solutions, and the influence of their work on its competitive position on the online market. Next, it analyzes the results of the author's research on the possibilities of using the proposed model in practice, which was conducted in 52 CPs on the Internet in 2019.

Keywords: crowdsourcing, Internet, management process, crowd, innovative solutions

1. INTRODUCTION

Crowdsourcing relies by definition on an open call to the crowd that is transmitted today "mostly via the Internet platforms" (Schenk, Guittard 2011, 93). Existing research characterizes crowdsourcing as an open call for participation and a self-selection of contributors on the Internet. Crowdsourcers invite contributors to submit solutions for determined problems. Crowd members then decide to contribute a potential solution in a voluntary fashion (Blohm et al., 2018, 123).

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Crowdsourcing is a form of IT-enabled production of innovative solutions (new values, market trends, knowledge, design ideas, open innovations and new products, and solutions that are created while solving problems, challenges) by the crowd (Internet community) in a crowdsourcing company (on a crowdsourcing platform) for its clients (organizations, companies and/or people). Three kinds of contributors take part in the development of innovative solutions on the crowdsourcing platform (CP): (1) crowd members – solvers (creators), (2) clients (users and/or purchasers) of innovative solutions and (3) managers of the platform. Managers also collaborate and/or organize the collaboration with the CP's additional partners: consultants, patent owners, trainers of the crowd, designers, other specialized firms.

The goal of crowd management in crowdsourcing companies on the Internet is to engage their members that have the willingness, capacity and skills to resolve challenges, create and use knowledge during development of the best innovative solutions for their seekers as well as enable CPs to keep and increase their competitiveness and offer on the online market. CPs propose to clients the production of the best innovative solutions that are created by the crowd according to their orders and expectations, and also fulfil them. The effects of creation and/or co-creation of innovative solutions by crowd members depend on the managers' execution of online crowd management on CPs.

The purpose of this paper is to present the model of the virtual crowd management process on CPs and verify the possibilities of its practical application by existing platforms.

According to Malhotra and Majchrzak (2015, 103) opinion companies have much to learn from the crowd. They present three ways in which managers can assure that using the crowd's knowledge in the innovative solutions created by them is fruitful for companies: foster different crowd roles to encourage contribution diversity, offer knowledge integration instructions and offer explicit instructions for sharing different types of knowledge. Blohm, Zogaj and Bretdchneider (2018) propose a set of governance mechanisms for managing CPs effectively. Wilson, Bhakoo and Samson (2018) describe and analyze crowdsourcing as a form of project management. Other papers also analyze the influence of motivation on the effects of the crowd's work (Jian et al., 2019; Battistella, Nonino, 2012; Zheng et al., 2011).

This paper describes the principles and possibilities of a CP and its contributors' activity on the Internet. It characterizes the participation of managers and the crowd in the creation of innovative solutions, and the influence of the results of their work on the competitive position of CPs on the online market. It presents the model of the online crowd management process in crowdsourcing companies in accordance with the aim of their activity and offer development. Research on using a crowd management process in virtual crowdsourcing was conducted on the Internet for 52 existing CPs in 2019. An analysis of the results of the conducted research enables the author to verify the practical application of the proposed model.

2. PRINCIPLES OF CROWDSOURCING COMPANIES' ACTIVITY ON THE INTERNET

Leveraging digital technology and capitalizing on users' innovative potential, an increasing number of companies are shifting their business models from a closed model to a crowdsourcing business model (Kohler, Nickel, 2017, 25). The creative role of the crowd and its engaged work in crowdsourcing companies is accompanied by the rapidly evolving global trend of social communities' (networks') activity on the Internet.

Crowdsourcing, is a neologism formed from the words "crowd" and "outsourcing". It refers to the outsourcing by a firm of some activities to the crowd. The phenomenon encompasses "a highly varied group of approaches that share one obvious attribute in common: they all depend on some contributors from the crowd. But the nature of those contributions can differ tremendously" (Howe, 2008, 280).

Crowdsourcing is a production platform through which people and firms send requests and other people (the crowd) return responses. A CP connects people, uses their skills, and/or aggregates their knowledge and solutions with the responding crowd being managed by the firm for the purpose of innovative solution development and problem solving (Saxton et al., 2013, 5).

The outcome of crowdsourcing is shaped by how the client defines the challenge brief. The more complex the value unit, the more complicated it is to gather all the requirements. Especially for R&D crowdsourcing sites, platforms invest a lot of effort, time, and resources to help clients define the innovation challenge (Kohler, 2018, 114). This enables managers to organize and lead the work of the crowd and also control its results in accordance with the orders and requirements of clients.

Crowdsourcing has become an established phenomenon in various business fields since crowds on the Internet can solve certain problems, challenges or propose innovative solutions or new products in a more efficient, effective or faster, better, cheaper way outside of the companies (Blohm et al., 2018; Kohler, 2018).

Crowdsourcing is a key new enabler for firms to tap talent and experience from outside a firm's boundaries (Wilson et al., 2018, 1472). CPs are now routinely used by business for various tasks, including product innovation (Innocentive), graphic design (99design), software development (TopCoder), and small jobs such as translation (Amazon Mechanical Turk, AMT). On these platforms, hundreds of contests are active at a time. Typically, they conduct innovation challenges that engage the crowd in collaborative and/or competitive processes (Jian et al., 2019; Malhotra, Majchrzak, 2014, 108).

Threadless is built upon a creative and passionate art community and outsources t-shirt design to their community of 120 000 designers. Their business model relies on the diversity and cost-effectiveness of crowd contributions. The beneficial risk

structure results from collective customer commitment where users are asked to vote on designs before the product is manufactured. The online platform outsources tasks along the entire value chain to the crowd (Kohler, Nickel, 2017, 25).

The Internet's high degree of openness and connectivity is the basis of virtual communication and collaboration of CP managers with innovative solution providers and seekers from the whole world and conducting the activity and offer of CPs in accordance with the requirements of their clients. Virtual crowdsourcing makes it possible to manage cross-functional, interorganizational teams of collaborators while creating innovative solutions, including new products, and solving a broad scope of problems and challenges by engaged and creative members of the crowd on the Internet (Dolińska, 2015; 2017a). The crowd's work and competencies of its members are seen as the biggest resources aiding the development of innovative solutions on the Internet. The effects of using the Internet's communities in crowdsourcing companies depend largely on managing the crowd members and also their work generating value for the CP's clients.

The Internet has created new opportunities to capitalize on the crowd's creativity, experience, knowledge and activity during the development of innovative solutions by virtual consumers on CPs. Crowdsourcing incorporates low (or no) costs for crowd work. It promotes flexibility through fostering fluid, multi-role and productive output. Such output is produced by an usual and unprecedented value chain stakeholder represented by the crowd (Wilson et al., 2018, 1491).

CPs offer the crowd the following opportunities: resolving challenges, problems and/or proposing new ideas, creating innovative solutions and new products, evaluating them, sometimes participating in their practical applications and/or commercialization (promotion and/or sale) on the market in accordance with the assumptions and orders of the CP's clients. The managers organize work for individuals or teams, or networks of crowd creators, but always cooperate with the network of crowd members (current and/or future CP workers), the composition of which changes dynamically over time.

Research on existing crowdsourcing companies which was conducted by the author on the Internet makes it possible to distinguish two types of CPs.

In the first type of CP, the CP operates as the broker and its managers manage:

- the crowd's work and cooperation between the crowd members and many different clients of innovative solutions,
- regular cooperation of the crowd with always the same one or a few innovative companies that are the CP's clients and users of innovative solutions. Innovative companies as clients cooperate with the managers of the same chosen CP for a long period of time.

In the second type of CP, the CP is also its owner, seeker and user of innovative solutions. Managers work for the CP and can also be its owners.

Crowdsourcing provides fresh ways to organize and conduct work. The way that firms use crowdsourcing represents more fluid, dynamic and flexible operations flow, beyond traditional process choices (Wilson et al., 2018, 1490). The

strength of CPs is to deliver its own clients the value unit in a more efficient, effective, reliable way. By encouraging and motivating creative crowd members to contribute to innovative solution development on the Internet, CPs have the capability and possibility to grow significantly in size and revenue without equally increasing their costs (Blohm et al., 2018, 122).

3. THE WORK OF MANAGERS AND CROWD MEMBERS IN CROWDSOURCING COMPANIES

Managers of CPs cooperate with creators (the crowd) and clients of innovative solutions, and often organize the collaboration between the relevant representatives of these two groups of CP contributors during the development of innovative solutions on the Internet. Engaged members of the crowd develop innovative solutions in accordance with the expectations and/or orders of their seekers – clients of CPs – and sometimes in cooperation with them.

Crowd members may be private individuals, amateurs or professionals in the relevant fields, researchers, as well as representatives of different commercial entities. They work individually or in teams, within networks and cooperate with managers, clients and sometimes also with outside partners of CPs. Clients of CPs can be representatives of companies, government agencies, high schools, research institutions, non-profit organizations or people.

The managers of CPs cooperate with crowd members with specific abilities (e.g., design professionals or individuals), technical background, demography (e.g., age or income), or past experiences, performance (e.g., collaborators that have successfully completed similar tasks in the past) (Blohm et al., 2018, 129). Managers analyze the activity, potential and plan the development of CPs, collaborate with their innovative solution clients, determine the rules of interactions, communication with the crowd and cooperation with creative crowd members. They always learn how to plan and organize work for the crowd members, motivate them, control the effects of their work in accordance with the aims of the CP and orders of the innovative solution's clients. Assimilation, application and development of external knowledge on CPs depends on their managers' capacities for conducting effective cooperation and communication with innovative solution clients, providers and outside specialists in the area of the CPs activity.

Crowdsourcing companies have become more effective at creating and capturing value because they can benefit from the crowds' contributions. Crowd members can function on CPs as ideators, designers, testers, suppliers or marketers (Kohler, Nickel, 2017, 25).

Clients of CPs should develop precise definitions of the crowd contribution requirements to ensure that the results of its work can be applied in practice. In ac-

cordance with clients' orders, managers determine what challenges to developing innovative solutions by the crowd are present and also engage its members in anticipating the evolution of markets and expectations of their consumers. They determine the rules for crowd members and the ways they work on CPs, offer them primary material, which is used by solvers to develop innovative solutions. Engaged members of the crowd use their own creativity, experience, knowledge, skills, even professional competences to generate new values, design ideas, new products and submit these solutions online (Dolińska, 2017c).

Crowd members read the challenge and assumptions of collaboration with managers on CP websites, register as solvers on the relevant websites and within a determined timeframe send back the developed solutions to managers. The crowd is provided with a comprehensive tool for submitting its own ideas and solutions on CPs. Managers present the best solutions to relevant clients and sometimes join all the creators' ideas together and offer it as the best finished product to the client. A very important solution which is offered by the managers to the crowd members is the possibility of intellectual property protection on CPs.

In innovation communities, the consumer is an equal interaction partner with other users of the CP. Virtual innovation communities can be integrated in different stages of development of innovative solutions for a short interaction time or continuously. Innovation communities feature a higher level of integration and interaction on the Internet. Managers of the CP facilitate the communication and interactions between the virtual innovation community members and screen their ideas and final solutions on the platform (Busse, Siebert, 2018, 29).

Crowdsourcing allows for using human resources at low cost. Managers most often do not have access to such bulk human resources directly (Wilson et al., 2018, 1490). The crowd members of CPs not only contribute ideas and input to innovative solutions, but they also share goods, services, space, and money to deliver solutions that traditionally have been performed by the companies themselves (Kohler 2015, 64).

Managers of some CPs propose to the crowd various options to comment, discuss, and/or vote on submitted ideas, solutions, or new products. Experts of the organization-client review the best (winning) idea(s), conduct careful financial and marketing analysis of new solution implementation and decide which solutions or new products submitted by the crowd are the best candidates for application and/or sale. Sometimes companies, as clients of CPs, include providers of the best solutions in the e-promotion and/or sale of new products via online or physical channels (Schlagwein, Bjørn-Andersen, 2014; Dolińska, 2017b).

Benefits of crowd work in crowdsourcing companies include:

– rapid online communication and cooperation with the crowd members,
– open access to the crowd members all over the world,
– possibility of choice from the crowd the most creative, efficient workers,
– change of composition and competencies of the crowd members at the time,

– synergic effects of using collective abilities, creativity, knowledge of the crowd members on the Internet.

Table 1 presents a classification of managers and crowd members which takes into consideration their participation in CPs' activity.

Table 1. Classification of managers and crowd members on CPs

Types of CP managers	The manager as the independent firm-broker and the owner of a CP works for: – many different CP clients (organizations, people) of innovative solutions, – one or a few clients – always the same innovative company(-ies) looking for innovative solutions. The manager (2.1) works for the owner or (2.2) is the owner of the CP. The owner of the CP is the innovative company and uses innovative solutions for its own benefit.
Kinds of crowd members on CPs	The crowd members – providers of innovative solutions: – individual members of the crowd: customers, experts, researchers, specialists, students, dedicated amateurs who submit innovative solutions to challenges on CPs, other people, – team(s), network(s) of crowd members, – other outside providers of innovative solutions: companies and/or their employees, research institutions, laboratories, universities, colleges, people, government agencies, other specialist organizations, – other partners in innovative solution development: consultants, patent owners, other facilitators.

Own elaboration.

Identifying how to harness the power of crowds is the critical step for companies to differentiate themselves in the marketplace and sustain their competitive edge (Malhotra, Majchrzak, 2015, 122).

The contribution of active crowd members to the development of innovative solutions on CPs varies strongly and depends on their competences and engagement in crowdsourcing work. Therefore, conducting the online crowd management process (i.e., identification and selection of the appropriate, creative solvers with the relevant knowledge and abilities; planning and organizing their work; managing the cooperation; communicating with solvers; leading their activity and motivating them and evaluating the results of their work, plays a critical role in developing innovative solutions in accordance with the wishes and orders of clients in crowdsourcing companies.

4. THE VIRTUAL CROWD MANAGEMENT PROCESS IN A CROWDSOURCING COMPANY

Managers manage the activity of the CP in order to achieve the goals of its development:

– to create the best innovative solutions for their clients by the crowd members efficiently,
– to maintain and/or increase the competitiveness of the CP's activity and its product and service offer on the online market.

Executing the relevant actions of the virtual crowd management process on CPs enables managers to achieve these goals. This process may consist of four stages, which are connected with inter-related functions of management in crowdsourcing companies: (1) planning and decision making, (2) organizing, (3) leading, (4) controlling.

Planning means setting the CP's goals and deciding how to achieve them in the best way. Plans enable managers to conduct and develop the efficient operation of the CP. Managers organize the work of the crowd to enable them to create innovative solutions for the CP's clients. They also select the activities and how they ought to be accomplished on the CP as well as coordinate the application of the best crowd and knowledge resources of the CP in accordance with the orders of clients.

Managers of CPs need to be effective leaders and encourage the crowd members to work and/or cooperate among themselves and with other users of the CP during the development of innovative solutions. Using the appropriate directions, motivation and communication systems during coordination of the crowd's work and cooperation with the best creators of innovative solutions enable managers to lead the activity of the CP in accordance with the expectations of clients and goals of its development.

Monitoring the effects of the crowd's work toward achieving the CP's goals and requirements of clients is conducted by the managers in cooperation with clients and the engaged members of the crowd. The results of the evaluations of developed innovative solutions form the basis of their practical implementation and/or commercialization on the market.

Table 2 characterizes the model of the virtual crowd management process on CPs. It consists of four stages: planning and decision making, organizing, leading. and controlling. Actions which are executed in the relevant stages of this process are connected with the management functions of crowdsourcing companies and integrated with the aims of their activity and development on the online market.

Managers decide how to build trust in the activity of CPs and the work of the crowd. The presentation of previous success stories, actual case studies, achievements of the best solvers create a positive image of CPs on the innovative solutions market. The support of well-known stakeholders and association with governmen-

tal institutions or famous magazines also increases the trust in the managers and the crowd's work in crowdsourcing companies.

The market success of CPs is connected with a manager's ability to motivate the crowd to active and creative work for clients. The framework of motivations on CPs may be subdivided into intrinsic and extrinsic ones (Battistella, Nonino, 2012, 559). Extrinsic motivation is the motivation to work for something apart from and external to the work itself, such as reward or recognition from other people. Intrinsic motivation is defined as the motivation to engage in work for its own sake because the work itself is interesting or satisfying (Zheng et al., 2011, 61).

Table 2. The crowd virtual management process on the crowdsourcing platform

Stages of the crowd management process	Actions which are executed during the relevant stages of the virtual crowd management process on a CP
Planning and decision making	presenting the offer of the CP's products and services, encouraging the crowd to develop innovative solutions cooperating with clients and offering them innovative solutions and learning from the crowd creating a positive image of the CP and trust in its activity and offer
Organizing	presenting challenges to solve, innovative solutions for development by the crowd determining the rules and ways the crowd works for CPs organizing the crowd's work during the development of innovative solutions organizing a contest for the generation of the best innovative solutions (including new products) organizing cooperation and communication with the crowd members, clients and between them
Leading	offering work to the crowd members with expected competencies and engaging them in creating innovative solutions offering solvers intellectual property protection practical application of cooperation rules with the crowd members, between creators and clients of innovative solutions facilitating interactions, communication with clients and the crowd members offering the crowd members software for creating and/or testing innovative solutions motivating the crowd members to work effectively engaging solvers in the application, and/or promotion, and/or sale of winning innovative solutions (including new products)
Controlling	evaluating innovative solutions by managers in accordance with the requirements of clients estimating and carrying out financial and marketing analysis of the best innovative solutions by clients proposing to the crowd the assessment of new concepts, design ideas and voting on them

Own elaboration.

Hundreds of contests are active on CPs at a time. As rewards of these contests are often nontrivial (a few hundred to a few thousand U.S. dollars) and financial compensation is an important impetus for participation of the crowd members in the development of innovative solutions on CPs (Jian et al., 2019, 98). On the one hand, the crowd members act rationally and want be compensated for their work financially, on the other hand, crowdsourcing workers as volunteers are motivated by the desire to experience something new and interesting, to collaborate, share knowledge and learn from others (such as specialists) or to accomplish goals important to them and others (Mladenow et al., 2014, 80).

Managers can use the following kinds and ways of motivating the crowd members towards effective work on CPs (Battistella, Nonino, 2012, 559; Dolińska, 2017a, 78; 2017c, 197; Mladenow et al., 2014, 80):

1) extrinsic motivation, which consists of:
   - financial motivation – leads directly or indirectly to financial advantages for the crowd members and may include monetary rewards for the best innovative solutions, such as in the form of a revenue share on the sales of new products, or free final products, services, price reductions,
   - personal motivation – offering crowd members new professional benefits, personal learning, access to valuable knowledge, the opportunity to appear in the list of solvers, express their individual engagement, creativity, abilities,
   - social motivation – includes obligations and responsibilities that arise from the social sphere of the crowd members' activity and influences their development, and also the benefit of collective learning, establishing relationships with other professionals in the crowd, exchanging knowledge with them, executing projects in teams;
2) intrinsic motivation (concerns non-financial advantages) and can be:
   - personal motivation which takes into consideration the psychological-emotional sphere of crowd members and proposes active personal learning and knowledge exchange while generating innovative solutions, the opportunity to express individual creativity, amusement, using own resources to do something beneficial to people,
   - social motivation which refers to social influence, responsibility in collective projects, sense of cooperation with the crowd members during sensible and creative work in project teams.

5. RESEARCH RESULTS OF USING A VIRTUAL CROWD MANAGEMENT PROCESS IN CROWDSOURCING COMPANIES

The research was conducted by the author on 52 websites of CPs existing on the Internet in 2019. The following research question was posed: Can the virtual crowd

management process on existing CPs be conducted in accordance with the model proposed in this paper?

The analyzed virtual crowdsourcing companies are managed by different types of managers:

– most (68.42%) CPs are managed by independent crowdsourcing firm-brokers, and most (63.16%) of this type of CPs collaborate with many different kinds of clients, that is, innovative companies, other organizations, non-profit organizations, or people; only a few (5.26%) of this type of CPs always provide their own crowdsourcing services to one or a few companies on the Internet;
– managers of some (31.58%) of the analyzed platforms run crowdsourcing businesses only to benefit their owners – these include innovative companies and users of the developed innovative solutions (or new products) on CPs.

Managers of the analyzed CPs collaborate with the relevant kinds of crowd members:

– on most (78.95%) CPs they collaborate with individual crowd members,
– and on most (63.16%) CPs they collaborate with teams or networks of crowd members.

The research results show that managers of the analyzed CPs perform actions in the following stages of the virtual crowd management process: (1) planning and decision making, (2) organizing, (3) leading and (4) controlling.

They plan the activity of CPs and encourage their contributors, that is, the crowd members, clients and other partners, to participate in their development. The following actions are executed at the planning and decision making stage of the virtual crowd management process on the analyzed CPs:

– the majority (90.38%) of CP websites characterize the kinds of innovative solutions they develop or the services provided by the crowd,
– most (70.43%) of the analyzed CPs present information and data about their own activity and contributors, and 77.27% of them – about their best solvers,
– most of the analyzed CPs build a positive image and trust in their operation and services because 72.27% of them show case studies of their clients' implemented innovative solutions, present publications on important events and achievements in their operation and development, and publish on social media and their own magazines,
– 57.89% of CPs characterize the principles of collaboration of their solvers in teams and/or networks.

All the analyzed actions at the stage of planning and decision making are executed by most of the examined platforms.

Managers organize the work of the crowd members and their collaboration with CPs' clients in the following way:

– managers of the majority (88.64%) of CPs organize contests and determine the rules of choosing their winners,
– 70.45% of CPs present primary material and the principles of its use by the crowd,

– most (63.64%) CPs facilitate interactions, knowledge exchange and communication between providers and seekers and/or with other external CP collaborators,
– 56.82% of CPs offer rights and ownership to solvers after design idea submission until the end of the contest, innovative solution application and sale,
– 63.16% of CPs propose answering questions by their users,
– on some (36.36%) CPs, managers synthetize the final innovative project from various ideas which are developed by the crowd members separately.

The majority of the analyzed actions at the organizing stage are carried out by most of the examined CPs.

The managers lead the operation of the analyzed CPs during the virtual crowd management process in the following way:
– most (68.18%) CPs describe the criteria of choosing the best innovative solutions by clients clearly,
– 81.58% of them describe the principles and ways of uploading complete designs of the innovative solutions generated by the crowd,
– clients co-create new values and innovative solutions with the crowd members on most (73.68%) CPs,
– some (43.18) CPs offer their own software for designing and/or testing innovative solutions by solvers,
– clients of some (36.84%) CPs involve the creators of the best solutions or new products in their promotion, and clients of few (21.05%) CPs engage the best solvers in the sale of winning solutions or new products.

Managers use the following kinds of crowd motivation on the examined CPs:
1) financial motivation, because 72.27% of CPs offer solvers monetary rewards for the best solutions;
2) various kinds of personal motivation such as
   − all crowd members can develop their own competences and interests connected with the relevant activity on CPs,
   − some (45.45%) CPs present a list of their own best solvers,
   − the crowd on 47.73% of CPs considers the work amusing or fun,
   − on 27.27% of CPs crowdsourcees can be altruists and develop innovative projects for society;
3) social motivation, because solvers can benefit from collective learning in situations such as
   − during active collaboration with managers on 84.09% of CPs,
   − and – with clients on 65.91% of them.

Most the analyzed actions at the leading stage of the virtual crowd management process are typical for the examined CPs because they are executed by most of the platforms. A small number of CPs must adjust their activity to the special requirements of clients, hence some of the analyzed actions at the leading stage are carried out by few CPs.

Crowdsourcing companies use different rules and forms of controlling the crowd's work and its effects:

– managers of all of the analyzed CPs evaluate the results of the crowd's work and the innovative solutions generated by them in accordance with the requirements of their seekers,
– 72.73% of CPs offer evaluations or comments on the design ideas, innovative solutions or new products submitted by the crowd members,
– 68.18% of CPs provide voting on the best solutions,
– clients on 81.81% of CPs conduct careful financial and marketing analysis of putting into practice the best innovative solutions (or new products).

Most of the analyzed CPs perform the controlling actions which are determined in the proposed model of the virtual crowd management process.

The above analysis of research results confirms that the examined crowdsourcing companies execute all actions which are determined in the four stages of the proposed model of the virtual crowd management process (and additionally most of these actions are carried out by most CPs). The research results show which actions in the four stages of the virtual management process enable managers to engage the crowd members in efficiently creating innovative solutions for their seekers and improve their competitive position and offer on the online market.

6. SUMMARY

The most valuable feature of virtual crowdsourcing is the ability to transcend geographic, economic, cultural, technological, and intellectual barriers by the crowd and the possibility of its engagement in the development of innovative solutions and new products for clients (organizations, companies, non-profit organizations and/or people) of crowdsourcing companies on the Internet. The investigation results of the analyzed CPs confirm that they conduct and develop management operations in accordance with the presented in this paper model of the virtual crowd management process, hence the proposed model has a practical application. The final conclusion is the following – the aim of this paper has been accomplished.

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PROCESY ZARZĄDZANIA TŁUMEM NA PLATFORMACH CROWDSOURCINGOWYCH

Streszczenie

Celem działalności platformy crowdsourcingowej jest efektywne kreowanie rozwiązań innowacyjnych, w tym nowych produktów, przez uczestników tłumu (społeczności internetowej) dla jej klientów (organizacji, a także przedsiębiorstw, ludzi). Skuteczne zarządzanie tłumem (pracownikami przedsiębiorstwa crowdsourcingowego) umożliwia platformie osiągnięcie tego celu oraz oferowanie klientom rozwiązań innowacyjnych zgodnych z ich zamówieniami i oczekiwaniami. W artykule zaprezentowano model wirtualnego procesu zarządzania tłumem na platformie crowdsourcingowej oraz weryfikację jego zastosowania w praktyce gospodarczej. Przedstawiono zasady działalności platformy crowdsourcingowej oraz jej współpracowników w Internecie. Opisano wkład zarządców i uczestników tłumu przedsiębiorstwa crowdsourcingowego w kreowanie innowacyjnych rozwiązań oraz wpływ efektów ich pracy na pozycję konkurencyjną firmy na rynku internetowym. Następnie poddano analizie wyniki badań autorki na temat możliwości zastosowania proponowanego modelu w praktyce gospodarczej, przeprowadzonych w 52 firmach crowdsourcingowych w Internecie w 2019 r.

Słowa kluczowe: crowdsourcing, Internet, proces zarządzania, tłum, rozwiązania innowacyjne