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THE VALUE OF CROWDSOURCING FOR CREATIVE CLUSTERS DEVELOPMENT

Abstract

The article consists of three integral parts. It characterises the essence of the functioning of creative clusters, the concept of open innovation and crowdsourcing strategic dimension. Considerations presented in the article are focused on the importance of crowdsourcing in the development of creative clusters. The problem of using crowdsourcing to solve complex problems can be evaluated with multiple levels and multiple perspectives. The authors emphasise that this model of communication between cluster members and external stakeholders allows the use of internal and external resources of creativity in the process of co-creation of positive changes, including innovations (e.g. entrepreneurial solutions to local and global new challenges). They indicate that the implementation of the crowdsourcing in creative clusters can have both, a commercial dimension, where new business projects are the result of the transfer of knowledge, and a non-commercial one, for instance, a wider use of this concept in the development of creative spaces. It was stressed that innovativeness is one of the attributes of entrepreneurial orientation of clusters. Moreover, the key barriers to development of open innovation within a cluster environment are different problems related to intellectual property. The article is based on theoretical research (literature review) and on desk research. Considerations contained herein are conceptual and provide a starting point for further research on the impact of crowdsourcing on the open innovation process within creative clusters.

Keywords: cluster, management, creativity, innovation, crowdsourcing, development

Introduction

Creative clusters, that gather together on its territory cooperating entities from creative sector and related industries, provide a priori suitable environment for the development of open innovation and the effective implementation of crowdfunding. It is worth stressing that within internal environments, clusters operate active internal prosumers – cluster members who are not only consumers of creative products, but also willingly and vigorously co-create them. However, it is necessary to provide professional cluster management for implementation of innovative activities in joint projects to efficiently exploit the strategic potential of creative clusters and ensure dynamic development of cluster community.

The diversity of problems faced by cluster organisations requires different approach to solve them. Currently, one of the strategic challenges in managing creative cluster is the problem of using the wisdom of crowds (i.e. individuals and entities with a common interest, prosumers, internal and external stakeholders) in the development of these structures, including open innovation development. In this process the information and communication technologies (ICT) have strategic significance, because they offer support for R&D activities in clusters. This kind of contemporary management challenge led to five related research questions:

- why creative cluster is an open space for open innovation?
- what are the key barriers to the development of open innovation in clusters?
- why cluster members use their intellectual property and human capital within common cluster projects, although they know that final benefits are important for their competitors?
- what is the significance of crowdsourcing for the development of open innovation within creative clusters?
- why crowdsourcing is a valuable tool for creative cluster development?

The choice of this research problem was the effect of the scarcity of research in this field (particularly in the area of management sciences). Scientific considerations, based on selected results of theoretical and desk research, are meant to help to fulfill this gap. These considerations are the basis for further research on propensity of members of the Polish creative clusters in innovation development in using open innovation model based on crowdsourcing platforms, the scale of the phenomenon or the relationship between the intensity of open innovation and clusters individual attributes. For a more comprehensive understanding of how these platforms (as a form of information and communications technology) support open innovation, this needs to be broadened to include key factors that constrain the adoption of open innovation in clusters and those clusters members who do not want extensive use of technologies. Further work is needed to explore in detail the crowdsourcing approaches and processes used by cluster members to achieve specific outcomes. Thus, prospects for research on the attractiveness of crowdsourcing within creative clusters are good.

Creative clusters: open space for innovations

Clustering is still a crucial concept for developing industries, including cultural and creative industries. Clusters evolve basing on geographical proximity, develop over time and space, which boosts competition and collaboration resulting in innovation process, and potentially creates greater economic benefits through higher productivity, better knowledge management, and entrepreneurial attitudes [1, p. 553].

Creative cluster – as a type of cluster structure based on geographic concentrations of interconnected people or companies to create new product – is becoming increasingly an important component of knowledge-based economies [1, p. 552]. Usually, it is largely characterised by social networks that integrate creative firms and individuals together in a delimited geographic space (social and creative milieu). Therefore, creative clusters can be understood as [2, p. 26-27; 3, p. 13; 4, p. 9; 5, p. 99; 6, p. 552; 7, p. 3]:

- a geographically proximate group of interconnected companies and associated institutions (e.g. R+D sector, local government, non-profit organisations), in a creative sector, linked by commonalities and complementarities;
- a specific kind of cluster connected with the creative sector;
- a linked group of creative industries, firms and/or cultural activities spatially concentrated;
- an organisation of different and interconnected partners that produce complementary creative goods and are usually produced through the exploitation of a value chain within creative sector where common inputs, specific skills, and technologies are used;
- an overlap area between cultural and commercial activities;
- cooperation and competition (coopetition) between organisations which deal with the supply of goods and services that contain a substantial element of artistic, imaginative or intellectual effort and play a vital role in sustaining cultural activities;
- activities related to the creation, production and/or distribution of creative goods and services as well as with the integration of creative elements into wider processes and other sectors;
- broader range of activities which include the cultural industries as well as all cultural or artistic production, whether live or produced as an individual unit;
- primarily formed in various creative environments, including institutions of high culture, e.g. museums, concert halls, opera houses and institutions representing popular culture, e.g. theater, cinema, and other entities involved in the wider arts and entertainment activities – as well as private stakeholders in architecture, advertising, publishing and other closely related industries;
- a type of urban quarter that has a high concentration of cultural activities and creative industry companies with on-site networks that create added value.

The concept of creative clusters may be interpreted differently due to the fact, among others, that such clusters are often created by cultural sector entities. On one hand, creative clusters include the so-called kernel of creativity (cultural heritage, visual and stage arts) and, on the other, one specific sectors of culture such as film, music, books, newspapers, radio and TV and the creative industries, e.g. computer games, software, design, fashion, architecture and advertising [8, p. 11]. According to A. Klasik, creative clusters consist of companies, non-profit organisations, cultural and research institutions and special meeting places (such as science parks, cultural centers and media centers) that stimulate ideas exchange between individual artists and scientists. In these clusters there are produced and consumed products based on intellectual property (e.g. patent, new technology, trademark, brand, copyright work, among others) [9, p. 15]. Thus, they require extensive coordination and active participation of local authorities. It is especially important at the stage of

linking local actors from the creative sector and aimed at using their intellectual capital (including relational capital) in the creation of new ideas, products and services, valuable for the ultimate purchaser.

According to J. Foord [5, p. 111], if the aim is to facilitate creative place, then more attention needs to be paid to the particularities of locality. Today, the creativity may be found everywhere, but perhaps not all the localities can become “creative places” with the competitive advantages. This type of spaces and environment stimulate the creativity of individuals and teams by a wide range of positive incentives arise in the urban, commercial and / or public space. Entities located in creative clusters systematically encourage cross-linking, active use of a wide range of services and creative products, enabling the co-creation of new creative products. The creative clusters tend to concentrate in the metropolitan areas (large urban zones) and are particularly important in the largest ones [10, p. 24]. Location of creative companies in creative clusters is not accidental. It is the result of rational decision of the owners of these companies, who perceive the cluster as an attractive space for further growth and development. Many companies in the creative sector come into direct interaction with customers, playing an increasingly important role in creating innovation and accelerating growth of other sectors [11, p. 20].

The research report “Creative clusters and innovation: putting creativity on the map” is the most ambitious attempt to map the UK’s creative clusters, showing where they are, which sectors form them, and what their role is in the systems of innovation where they are embedded. Creative clusters play a strategic role in the dynamics of innovation of the places where they are located. High levels of innovation in the creative industries and creative clusters make them a potential source of innovation spillovers into other sectors. The study shows the existence of links between creative businesses and the wider Regional Innovation System. Moreover, very often, interactions between the creative industries and other sectors in their vicinity have an innovation rationale. The research also shows that the creative industries are more innovative than many other high-innovation sectors, for example professional and business services. What is more, the creative industries provide a disproportionate number of the innovative businesses in most parts of the country [12, p. 4,42].

Published research findings by W. Yu, J. Hong, Y. Zhu, D. Marinova, and X. Guo about the impacts of creative industries cluster (CIC) on regional innovation and economic growth in China also showed that creative clusters are the best space for innovative companies’ development, or this kind structure is more innovative than other industrial clusters. Their research has examined the role of China’s creative industries cluster in region innovation and value added in other sectors. They distinguish two kinds of regional innovation effects (i.e., upstream effect): novelty-oriented and efficiency-oriented innovation, and they investigate two sectors of valued added effects (i.e., downstream effect): traditional and high technology industries. Given this role of the CIC in regional innovation and economic growth, innovation policy-makers should further establish more CIC zones and advance the contribution on the wider regional innovation system construction. They argue that the Chinese government should pay much more attention to the concentration of creative industries at regional levels because regional CIC is a significant factor for regional novelty and efficiency improvement. To develop more CIC zones may be an opportunity to improve regional novelty innovation and efficiency innovation for China’s economic growth transition, from extensive economic growth to an increase driven by innovation impetus [13, p. 345].

Creative cluster, as well as each organisation, has a recognisable life cycle. This cycle refers to the sequence of various stages, which immediately follow each other in a logical manner. Often, the development of creative clusters concerns five phases: embryonic, aspirational - entrepreneurial initiative, emergent - dynamic development, mature, decline or transformation (Tab. 1). In order to ensure the sustainability of creative cluster and taking into account its social and technological base, it is necessary to stimulate and facilitate innovative activity that will involve all members of the cluster.

Creative clusters are not conventional business clusters and additional factors are critical to their development and form (especially the role of publicly funded arts and cultural institutions) [5, p. 99]. The potential of certain locations to support the growth of the creative clusters depends on the different dimensions, such as [14, p. 11]:

- hard infrastructure: local availability of business spaces, wealth of the local population or tourism and/or transport infrastructure of a place;
- soft infrastructure: soft, idiosyncratic reasons such as networks, a specific image or identity of the place, the presence of traditions;

- governance: policy strategies and initiatives, engagement of the creative industries with various policy arenas such as local regeneration, economic development, social inclusion, etc.;
- markets: the creative industries operate in very fast changing markets where uncertainty of demand and interaction with clients and customers are something permanent.

Table 1. Creative cluster development

Development level	Characteristic
embryonic - dependent - identification	<ul style="list-style-type: none"> ▪ a group of regional entities (enterprises, scientific and administration units) which identify a possibility of cooperation within the cluster ▪ meetings with initiators and experts, presentation of benefits from cooperation, encouraging the assessment of own competences versus ▪ competition and potential cooperation partners ▪ creative enterprises developed as a direct result of public sector intervention through business support, infrastructure development for cultural consumption and finance to SME/micro creative enterprises ▪ public subsidy required to sustain the cluster ▪ limited and underdeveloped local markets
aspirational - entrepreneurial initiative	<ul style="list-style-type: none"> ▪ some independent creative enterprises and/or privatised former public sector cultural enterprises in place but limited in scale and scope ▪ underdeveloped local markets and limited consumption infrastructure ▪ high levels of public and institutional promotional activity ▪ development by social capital ▪ the emotional engagement of cluster's participants in cluster cooperation ▪ the growth influenced by benefit collocation and exogenous growth ▪ new firms or actor join the cluster ▪ formalised institution of collaboration
emergent - dynamic development	<ul style="list-style-type: none"> ▪ initiated by growing number and scale of creative enterprises with infrastructural investment from the public sector ▪ developing local and regional markets with visible cultural consumption ▪ economic agglomeration plays an important role in encouraging growth and transformation of cluster structure ▪ innovations emerge increasingly as a result of inter-organisational cooperation ▪ focus on internationalisation
mature	<ul style="list-style-type: none"> ▪ the critical mass established ▪ strong relationships of cluster members with other clusters ▪ achieving operational excellence, independent diagnosis of market trends, preparing strategies and increasing competences in strategic management required ▪ development by cluster governance ▪ led by established large-scale creative firms in specific industries with established sub-contracting linkages and highly developed national and international markets ▪ cluster develops its structures and social responsibility, however, with decreasing its primary dynamics ▪ the process of cluster maturing is connected with exhaustion of development possibilities in given shape of cluster ▪ arms-length public intervention ▪ low cluster flexibility - progressive loss of cluster competitiveness
decline or transformation	<ul style="list-style-type: none"> ▪ transformation to new cluster specialisation ▪ new ideas are the beginning of new networks and structures which results in new emergent cluster ▪ new model of cluster management

Source: Authors', based on [5, p. 100; 15, p. 357-360; 16, p. 201-207].

Currently, from an economical point of view, clusters can be seen not only as an example of cooperation through informal and formal economies of scale, spreading risk in R&D and information sharing via socio-economic networks, but also as reactive anti-establishment action (avant-garde, artists' squats), defensive necessity, resisting control from licensing authorities, global firms, guilds and artistic and political mainstream [17, p. 34]. Therefore, the concept of creative cluster can be applied as a strategy for urban regeneration, policies formulation and execution, protection of local creative industry in the context of increased competition from the other regions, and creative districts, quarters with a "cool" subculture for freelancers and SMEs [18, p. 45]. The strategic aims of creative clusters are different from traditional business or industrial clusters and have also social objectives such as inclusion and cultural development [5, p. 99].

Successful creative cluster development can be a key to regional competitive advantage. Nowadays, the challenge is how to ensure the continued success of existing clusters and enhance the growth of emergent clusters [6, p. 550]. The rationale for creative industry clusters is mixing characteristics of culture production and culture consumption centers and the benefits of clustering/agglomeration effects [4, p. 10]. According to S. Olko creative clusters are the basis of resources, creative skills and development of innovation in the region. Often, they also support local and regional identity, increasing investment and tourism attractiveness of the territory [19, p. 176]. This type of clusters is often seen as exemplary in terms of identifying historical memory, local identity and authenticity that might even incorporate into the content or branding of their business [20, p. 124]. They can also contribute to [21, p. 76]:

- increase of public participation in culture and other creative industries,
- increase in sales and licensing of copyright works,
- increase of availability of creative public spaces,
- increase in importance and popularity of the cluster location,
- new joint projects in field of design, including industry design,
- active participation of cluster members in international projects,
- better attention to artistic and intellectual uniqueness.

Moreover, these clusters serve different purposes in region, for example [21, p. 78]:

- can be an area for shaping pro-innovative attitudes of key stakeholders,
- can assist other clusters or single organisations (public, social and commercial) in development, creation and commercialisation of innovations,
- can be used as an accelerator of innovation processes in the economy thanks to the introduction of innovations at various stages of value chain,
- can form a network for talent development (knowledge workers) for proximal and distal environment (including international).

The creative clusters are believed to provide an environment where there can be minimised direct and indirect costs associated with open strategies (such as contractual, knowledge search costs, transmission costs), the uncertainty and risk in collaborative relationships and possible conflicts between inbound and outbound knowledge flows [22, p. 108]. Only active and strong creative clusters provide benefits, not only to its members, but also to the external environment (spillover effect). The positive influence of this type of clusters for the process of development of knowledge and innovations helps the creation of the knowledge-based economy and information society. For this reason, the synergy effects that can be created in the environment of these type of clusters contribute to them being considered as local and regional instruments of socio-economic development.

Open innovation: the need or challenge within the creative cluster development?

Today, clusters operate under turbulent environment. Particularly dynamic changes that take place in the field of computerisation, cyber security, development of digital technologies, network communication, Web 2.0 and other technological innovations are important for their development. These changes, acting as a determinant of knowledge-based economy, accelerate the implementation of the principles of Open Access model in the process of development of science and R&D. Contemporarily, the norms of open science promote rapid diffusion of the latest knowledge and invite broader stakeholders to participate in the discovery of new knowledge and innovations [23, p. 3].

The concept of open innovation is based on sources of knowledge developed in the scope of organisation and environment (entrepreneurial or entrepreneurship ecosystem). It is especially important at cluster level where internal research and knowledge or external sources of innovation are especially active, creating a space where high technology meets creative processes with an aim to develop new products. Contemporary approach to open innovation may be pursued in many ways, for instance [7, p. 5; 22, p. 86; 23, p. 12; 24, p. 15; 25, p. 174-175]:

- theory where generation of innovative outputs is facilitated by more openness towards external knowledge sources,
- the notion that innovations are not always inspired and developed entirely within a single firm,
- innovation collaboration or knowledge flows across organisational boundaries,
- processes which combine internal and external ideas together into platforms, architectures and systems,
- organisational form of knowledge acquisition and exploitation in a given time horizon,
- broad and effective engagement and participation in the innovation process,
- number of partners, from dyadic partnerships to networks and typologies of partners, from traditional supply chain relationship to collaboration with universities, technical service companies, competitors and firms operating in different industries,
- phases of the innovation process that exploit external and internal sources,
- the use of purposive inflows and outflows of knowledge to accelerate internal innovation and expand the markets for external use of innovation, respectively,
- model which explain how ideas and innovations are to be transferred across the organisational boundaries in order to create value and new income streams.

Considering the results of studies and analysis linked to open innovation in clusters, it is shown that despite the higher levels of social capital and quality of business-to-business cooperation, there are still many barriers to implement this concept efficiently. Among the most frequently mentioned obstacles, the problem of intellectual property is still the major one (Tab. 2). Key barriers to adoption of open innovation are situated on three different levels [26, p. 11]:

- internal factors at company level (for instance, R&D intensity and availability of surplus technologies),
- innovation system level (for instance, influence of innovation policies and public funding on firm's involvement in open innovation processes),
- cultural level (certain features of national and organisational culture creating an attitude towards the use of open innovation practices within the company).

Table 2. Key factors that constrains the adoption of open innovation in clusters

Areas	Barriers to the development of open innovation
Absorption of knowledge	<ul style="list-style-type: none"> ▪ lack of financial resources ▪ time constraints ▪ lack of internal skills ▪ differences in organisational culture with external partners ▪ IP management problems ▪ distant location of external partners ▪ lack of trust in external partners
spin-offs development	<ul style="list-style-type: none"> ▪ lack of financial resources or logistical conditions ▪ high degree of specialisation / lack initiative of workers ▪ unawareness of the advantages associated with the creation of spin-offs ▪ lack of information about the kind of support that can be given ▪ fear of competitive threat
support for ideas development	<ul style="list-style-type: none"> ▪ lack of financial and/or logistical resources to support ideas ▪ limitation of working hours ▪ preference for collaboration with external entities to capture new ideas and suggestions for improvement and lack of internal skills to take advantage of the ideas proposed
IP strategy	<ul style="list-style-type: none"> ▪ unawareness of the advantages and/or forms of IP protection ▪ difficulty in demonstrating the novelty of the invention ▪ costs associated with the registration/application for IP protection ▪ costs associated with maintenance of IP rights

Areas	Barriers to the development of open innovation
	<ul style="list-style-type: none"> ▪ copy fear (by competitors) - fear of competitive threat ▪ costs associated with IP litigation ▪ high cost of acquisition of external IP ▪ lack of information on the forms of IP sale to other entities and licensing advantages (in the case of SMEs) ▪ problems with the ownership of IP rights within partnership projects ▪ disagreement with external partners in the form of use of IP
funded projects developed with external entities	<ul style="list-style-type: none"> ▪ coordination problems (many partners involved) ▪ difficulty in project management and sharing results with partners ▪ IP protection conflicts ▪ skills gap between the partners involved

Source: Authors', based on [28, p. 28; 29, p. 157].

In order to eliminate this type of barriers, it is important to organise discussions within the cluster about protection of intellectual and industrial property. It is necessary to explain how can use intellectual and industrial property assets in the cluster in the most efficient and effective way that at the same time comply with the law. Of course, there is no unique answer, because in one case may be more valuable a system of licensing or patents and in the other - free revealing. Often, some cluster members have a negative attitude towards patenting due to the inadequacy of the tempo of technological change in relation to longevity of the safeguard procedures. They propose a more radical solution like open source, especially in field of software [27, p. 19]. The complexity of the structure of creative clusters, causes that collective management organisations (as key stakeholders) in solving potential problems related to copyrights they can be very helpful.

According to H. Chesbrough [23, p. 12], the open innovation model assumes that firms or innovating institutions can and should use external and internal ideas, as well as external and internal paths to market, as they look to advance their innovations. Open innovation models highlight the importance of using a broad range of knowledge sources for a firm's innovation and invention activities, including customers, rivals, academics and firms from unrelated industries while simultaneously using creative methods to exploit the firm's intellectual property (IP) [30, p. 319]. Active knowledge management is important because overly strong protection of IP, or prematurely assigning IP rights at early stages of scientific inquiry, can stifle innovation rather than advance it [23, p. 3].

H. Huang and J. Rice [22, p. 108], based on their own research, argue that the open innovation model could be effectively implemented and actively encouraged within regional clusters to drive regional innovation performance and create a collaborative arrangement among firms in a competitive local environment. Under such conditions, local entrepreneurs and entrepreneurial universities in regional clusters (e.g. creative clusters) also are more likely to take advantage of external knowledge sources to create successfully innovative products and start-ups. Most of the key benefits proposed by researchers within open innovation model are based on the ideas of interdependence, trust and mutual reciprocity that facilitate knowledge sharing, transfer and benefits of appropriation [22, p. 108].

The model of open innovation is somehow included in the clusters nature, including creative clusters. Nowadays, for many clusters (including those based on innovations), the open innovation model seems to be not only a need, but also a necessity. The main attributes of open innovation are co-creation, knowledge sharing between partners and their interrelations. The effectiveness of these processes depends both on the quality of partnership in the cluster, as well as the quality of its information and communication technologies (ICT), including tools such as crowdsourcing platforms.

Strategic dimensions of crowdsourcing for creative clusters

Today, the concept of crowdsourcing has strategic potential for creative cluster development and relationship management with key stakeholders. Crowdsourcing is a narrower term compared to open innovation or co-creation innovations, as the latter two encompass any inflows or outflows of innovation in any way. It is focuses more on inflows from efforts of single individuals or small groups [31, p. 73]. Moreover, crowdsourcing does not necessarily capture profit-oriented value whereas open innovation is fully considered as a profit

oriented concept. Contemporary approach to crowdsourcing as a concept sometimes overlaps with open innovation because it remains under the broad umbrella of open innovation concept [32, p. 15-17]. It is a relatively new concept that refers to creativity and innovations within cooperation with stakeholders, including active prosumers. Following this approach, crowdsourcing is defined as [33, p. 189-196; 34, p. 76-87; 35, p. 210]:

- concept, which name is formed from two words: crowd, making reference to the people who participate in the initiatives, and sourcing, which refers to a number of procurement practices aimed at finding, evaluating, and engaging suppliers of goods and services;
- a type of participative online activity in which an individual, an institution, a non-profit organisation, or company proposes to a group of individuals of varying knowledge, heterogeneity, and number, via a flexible open call, the voluntary undertaking of a task;
- new web-based business model that harnesses the creative solutions of a distributed network of individuals through what amounts to an open call for proposals;
- a powerful approach for tapping into the collective intelligence of the broad-based community of Internet users;
- a model capable of aggregating talent, leveraging ingenuity while reducing the costs and time formerly needed to solve problems;
- knowledge platform which is enabled only through the technology of the web, which is a creative mode of user interactivity, not merely a medium between messages and people.

According to S. Marjanovic, C. Fry and J. Chataway, a key difference between crowdsourcing and open source innovation is that open source production is a cooperative activity generally enabled by a web-based innovation platform, frequently initiated and voluntarily undertaken by members of the public, and generally without attribution of traditional ownership and IP to a specific body. Moreover, the key difference between crowdsourcing and open source in comparison to traditional outsourcing is that in both crowdsourcing and open-source production, a task or problem is outsourced to a much wider pool of organisational and/or individual innovators [36, p. 325].

The essential idea of crowdsourcing is that a crowdsourcer (which could be a company, an institution or a non-profit organisation) proposes by online platform to an undefined group of contributors (individuals, formal or informal teams, other companies) the voluntary undertaking of a task presented in an open call by online platform [35, p. 200]. A lot of online crowdsourcing platforms are open to everybody who has access to the Internet and no specific training or expertise is needed to become creative partner and suggest on his own an idea or solution [37, p. 1146]. In turn, R.M. Bauer and Th. Gegenhuber [38, p. 664] argue that crowdsourcing does not necessarily rely on the Internet because sourcing actors can broadcast calls to the general public via mass media or public spaces, or disseminate calls to expert audiences (e.g. professional communities) through specialised media channels and professionals' formal and informal networks.

Crowdsourcing can be also partly included in the growing trend of marketing experience, where consumer wants to buy experience in the process of exploring, creating and modifying a product or service [39, p. 102]. Moreover, as a complex and flexible process, it may include sub-processes such as:

- crowdfunding – collecting different resources (funds, money, tangible goods, time) from the population at large through an Internet platform. In return for their contributions, the crowd can receive several tangibles or intangibles, which depend on the type of crowdfunding [40, p. 9];
- co-creation – joint creation of value by the company and the customer or other partners within innovation process; joint problem definition and problem solving [41, p. 8];
- micro-tasking – small tasks of a larger project (such as text recognition) executed by external partners [42, p. 146];
- art-sourcing – advanced form of crowdsourcing where the target community consists of various representants of art and design, including graphic designers, filmmakers, sound engineers, architects [42, p. 147];
- usage of crowd creativity – rational use of creative talent pools to design and develop original art, media or content [43, p. 203];
- usage of cloud labour – leveraging of a distributed virtual labor pool available on-demand to fulfill a range of tasks from simple to complex [43, p. 203; 44, p. 12].

Crowdsourcing within creative clusters can be the flexible process of obtaining feedback from end-users in at least three distinct ways [45, p. 20]:

- firstly, the absolute number of consumers/end-users consulted can be vastly increased, suggestions or developments can come not only from existing customers but from potential customers that previously the firm had no way of contacting;
- secondly, crowdsourcing allows firms to interact with consumers and cluster partners instantly and directly, there is no need for information to filter through (or not) from salespeople or other members of the distribution channels;
- thirdly, instead of consumers providing generalised ad-hoc suggestions on new products, firms can specifically tailor the areas of product development that they ask crowdsourcers to focus upon.

For example, crowdsourcing platforms such as Innocentive, 99designs, DesignCrowd, Sribu, CrowdSpring and many others offer the possibility of co-creation of creative products within creative industry development [46]. Innocentive is an open innovation and crowdsourcing platform that support organisations from all over the world in seeking solutions for different problems, where more than 375 000 registered solvers (with diverse and creative minds) from more than 200 countries work on solutions concepts. The company boasts a high, almost 50%, effectiveness in solving problems reported by customers. This platform offers ample opportunities for creative people, because for creative work they may receive financial awards. For example, by 2012, more than 1,140 ideas were awarded with the amount from 500 to 1 million dollars [47, p. 77]. Main motto of Innocentive as a global leader in crowdsourced innovation and software platforms is „Our Challenge Driven Innovation methodology and purpose-built technology result in fresh thinking and cost-effective problem solving, whether you want to crowdsource solutions from external Solvers or better harness the intelligence of your internal team. We offer a comprehensive suite of externally and internally-focused programs, providing the methodology, technology, expert support and problem-solving network for you to crowdsource solutions to important problems” [48]. In turn, crowdsourcing in cultural heritage area involves public participation in collecting, describing, categorising or curating photographs or manuscripts, as an expression of democratic participation and engagement in heritage, or an attempt to complete professional expertise with the knowledge of the public at large. It takes the form of working on a project for free or performing micro-tasks for a small amount of money [49].

International project of the Creative Commons can also serve as an inspiration for the development of crowdsourcing platforms and open innovation in creative clusters. This project supports free culture, creation and exchange of works treated as a common good and offers free legal solutions and other management tools that help creators to manage copyright of their works. The initiator of this initiative is an American non-governmental organisation founded in 2001 by scientists (mostly lawyers) and intellectuals engaged in the protection and promotion of common cultural property. The main tool offered by the project are the licenses allowing the replacement of the traditional model of "all rights reserved" for the principle of "some rights reserved" while respecting the principles of copyright. Through this solution, author of creative product can define rules on how he wants to share his work with others, having a choice of four different conditions for access to his work, which combine in six different licenses [50, p. 78].

The crowdsourcing concept in creative cluster can be implemented both at the macro and micro level. For instance, at macro level it is related to cluster and cluster organisation (cluster coordinator) and could be linked to the creation of organisational innovations (that improve cluster management) or marketing innovations (joint cluster offer). At micro level it is referred to cluster members and their autonomous organisations. Generally, the final aspect of the decision on implementing crowdsourcing within cluster at micro level or macro level is looking at the field from the perspective of tangible outcomes, i.e. how can different crowdsourcing model contribute to the working practices and what can different initiatives offer as real outcomes [43, p. 206]. The potential benefits of using crowdsourcing within creative cluster can include e.g. [34, p. 84; 37, p. 1145; 38, p. 668; 51, p. 9; 52, p. 10]:

- creative collaboration beyond the boundaries of organisations;
- faster design and prototyping, higher quality, greater elasticity;
- reduced lead time to market for new products and services by transforming the fuzzy frontend of new product development;
- access to new sources of external talents;
- flexible virtual network model for innovation;
- better engagement and retention of internal talents;

- lower costs R&D, including experimentations while simultaneously improving the quality of output;
- blending the best aspects of open source philosophy and the benefits of global business (including its outsourcing component);
- offering individuals in the crowd a chance at entrepreneurship, or at the very least an outlet for creative energy and creativity training;
- generating value from otherwise inaccessible creative expertise and critical items, as well as from increased execution capacity and bargaining power, non-mutually exclusive types of value;
- can be used not only for idea generation but for a whole range of tasks;
- helping to resolve challenges across products and processes, markets and business models;
- unrefined ideas can be converted faster into crystallised ideas that are aligned to product strategy by making them transparent across the enterprise, assisted by automation;
- helping to track ideas and make them visible to the right stakeholders early in the product development cycle for efficient collaboration;
- improving the success rate for new products and services by aligning innovation with customer expectations and strategic business priorities;
- encouraging to generate and develop ideas in order to create a culture of innovation – across the extended community of cluster including employees, partners, suppliers, and members through a system of incentives, collaboration and gamification;
- potential for grave economic and social impact.

Crowdsourcing can generate many valuable benefits. However, the idea of using the wisdom of the crowd cannot be taken indiscriminately. The main issue is the appropriate management of communities created for this purpose and optimal use of their collective intelligence [53, p. 184]. The correct implementation process of crowdsourcing at macro and/or micro cluster level can promote more efficient use of internal resources and acquire the necessary knowledge resources from the proximal and distal environment. The key advantages of crowdsourcing within cluster are related to the access to potentially huge amount of external creative labor that cluster members can have to execute their tasks, saving time and costs at the same time [45, p. 25]. Additionally, crowdsourcing can help to create, maintain and strengthen the creative community around the cluster brand and create a network of involved, committed people who will be the ambassadors of the brand or solution in the future [54, p. 28]. Based on crowdsourcing platforms, commitment in cluster development through knowledge transfer, is a way of achieving personal ambitions in cluster members, their need for self-realisation, building self-esteem, prestige and position in the cluster. Often, these factors are as important as the financial benefits resulting from the cooperation in the cluster environment.

Conclusion

Today, functioning clusters (including creative clusters) need effective solutions for a better coordination of knowledge management and innovation in internal environment. Many of the public institutions, interacting directly and indirectly through the cluster policies, highlight the need for continuous improvement in the cluster management. For cluster managers and cluster organisations (institutional cluster coordinators) this creates several new challenges, including those of strategic importance. An example of such a challenge, is to stimulate the involvement of cluster members in the design of open innovation using crowdsourcing.

Literature review indicates that implementation of crowdsourcing, can provide numerous benefits for cluster members, such as fast-gaining information of strategic importance for development (for instance, consumer and stakeholders preferences and needs, solutions for specific problems, ideas for creative products) or its use in designing appropriate changes. Thus, in order to ensure that the cluster has relatively stable conditions for development, it is necessary to exploit the potential that lies in the cluster collective intelligence and its external stakeholders.

Often, the advantage of creative clusters, essential for efficient implementation of crowdsourcing platforms at micro level (in specific cluster members' organisations) and macro level (in the cluster organisations responsible for the cluster development) is the presence of ICT companies that can design appropriate crowdsourcing platforms for clusters and its members. Moreover, they themselves and/or in cooperation with external companies, can provide full support in the implementation, information management, development and use of content. It is important to have ICT solutions that can be aligned to the specific needs of the cluster. The role of the cluster manager in this situation is to raise funds for this project and then, choose the best

offer. ICT companies - as cluster members and platform creators - know cluster organisation, key stakeholders and its value chain so that they are able to develop crowdsourcing platform considering not only technological parameters, but also cluster needs and expectations. It is important to highlight that this process requires close cooperation between the cluster manager and cluster members, integration of operations and setting mission and purpose of the project, so they feel part of the process. This kind of approach will increase their commitment and eliminate potential imperfections of this kind of platform, for knowledge transfer. Furthermore, the common experience in designing and implementing crowdsourcing at the macro level (cluster coordinator) can be transferred to micro level (autonomous organisation of the members of the cluster). Running this type of platform may be a strategic factor, both at macro and micro level, for enhancing level of competitiveness, enabling better communication in real-time and better understanding of their business challenges. Cluster members will have a real opportunity to co-create valuable solutions for cluster development through mutual knowledge sharing, experience and creativity in the virtual platform of knowledge.

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