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Crowdsourcing as a Policy Tool: Co-Production in the Digital Era

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Policy-making process based crowdsourcing benefits and types

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Abstract. Crowdsourcing is an emerging online process used by the public sector. This paper focuses on crowdsourcing in the process of policy making. Preliminary findings from a qualitative study of policy making process based crowdsourcing benefits are reported and different crowdsourcing types are identified in each process.

Keywords: crowdsourcing benefits, crowdsourcing types, policy-making process

1. Introduction

Crowdsourcing is an emerging online process used by the public sector. In both national and local governments, for example, it has seemingly been become a preferable choice and has been encountered more often in the policy-making process (Aitamurto & Chen, 2017). Crowdsourcing has been scholarly studied in many aspects and some researchers tried to categorize it by its characteristics (Brabham, 2013a). Therefore, this article mainly emphasizes specific types that are relevant to the policy-making process for pointing out their advantages toward the process.

2. Crowdsourcing and Types of Crowdsourcing

Crowdsourcing is considered an IT-mediated tool, using information technology as a tool, letting targeted crowds, both individuals and groups engage with it. The engagement providing the required information includes, for example, completing tasks, solving problems, and generating ideas. This tool is becoming a preferable choice in the commercial organization and even further influencing the noncommercial ones. Crowdsourcing has recently been adapted and applied in many policymaking fields (Prpic, Taeihagh, & Melton, 2015). As a tool, it has been used to gather the required information for policy-making process, directly and

thoroughly from citizens or even from experts in various fields. This results in the improvement and transparency of policymaking (Aitamurto & Chen, 2017; Warner & Lakewood, 2011). Crowdsourcing of public policy, therefore, is directly related to network communities. It can be initially used by network communities and organizational structure of the civil society and the authorities of the different level (Morozova, 2015).

Brabham (2013b), moreover, also states that crowdsourcing provides a satisfying relations between organization and community, between top-down and bottom-up or between traditional, hierarchical management process and open, creative process. Crowdsourcing, in his main point of view, is considered an online process which acts as a connection between online communities and organizations in order to gather information necessary for future innovation, invention, or problem-solving process. This crowdsourcing can draw the information through specific tools such as new media, including wikis, blogs, social networking sites (e.g. facebook, twitter), mobile apps, mapping software, and so on.

Crowdsourcing can be interpreted into various definitions. However, in 2012, Estelle s-Arolas and Gonzalez-Ladron-de-Guevar analyze its existing definition, and then invent a new exhaustive and global one. They also establish elements of crowdsourcing characteristics in order to be used to identify whether the activity is considered crowdsourcing. A new definition they invent states that is "Crowdsourcing is a type of participative online activity in which an individual, an institution, a non-profit organization, 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. The undertaking of the task, of varying complexity and modularity, and in which the crowd should participate bringing their work, money, knowledge and/or experience, always entails mutual benefit. The user will receive the satisfaction of a given type of need, be it economic, social recognition, self-esteem, or the development of individual skill, while the crowdsourcer will obtain and utilize to their advantage what the user has brought to the venture, whose form will depend on the type of activity undertaken (Estelles-Arolas & Gonzalez-Ladron-de-Guevara, 2012)."

As mentioned before, crowdsourcing has the specific characteristics or elements and the targeted crowd, tasks, crowdsourcers and the rewards from them need to be clearly identified and stated. The goal of the tasks, the answers of the questions, or the expected results gotten from crowd need to be clear. In addition, the participation of the tasks takes place online, involving to the internet. (Estelles-Arolas & Gonzalez-Ladron-de-Guevara, 2012)

Moreover, there are definitions given by the expertise who studies in both fields of crowdsourcing and public policy. Those definitions can be seen as follows.

According to Prpic, Taeihagh and Melton, "Crowdsourcing is an IT-mediated problem-solving, idea-generation, and a production model that leverages the dispersed knowledge of the group and individuals to produce heterogeneous resources for organizations (Prpic et al., 2015)."

According to Morozova, "Crowdsourcing is an innovative and interactive mechanism of the interaction between authority and citizens which technologies and resources have developed in the public policy of the modern state (Morozova, 2015)."

Furthermore, many scholars in the area of public sector and public policy try to categorize crowdsourcing into different types. The categorization can also be based on various things, such as the purpose of using crowdsourcing (Warner & Lakewood, 2011), the problem-based approach (Brabham, 2013b), the task-based approach (Aitamurto & Chen, 2017), and activities or technological forms (Morozova, 2015; Prpic et al., 2015). Added to the point that there are increasing in demands of participation and transparency of public policy-making process, crowdsourcing has been paid attention to and becomes a choice of usage in the process, thinking that it can be benefited for every party. Therefore, this paper will mainly emphasize the types of crowdsourcing relevant to each policy-making process.

2.1 Crowddissemination

This type of crowdsourcing is mainly about raising the attention toward some specific topics, leading to a broad discussion over online community. Those topics can be just ideas or even issues. And the discussion will result in turning into the policy agendas or project ideas. This type of crowdsourcing, therefore, can be considered a way or a chance allowing various individuals or groups present their ideas or issues into policy-making consideration. This will make the public policy from the process become more satisfying and creative. With this type of crowdsourcing, citizens can express their support to the public service or political requirement made by other citizens, reject them, evaluate them, or even comment and repost them (Morozova, 2015). Citizens can also report non-emergency issues such as neighbor sightings of clogged storm drains in street, downed traffic lights and stop signs, potholes, and graffiti (Brabham, 2013b).

2.2 Crowdf ormulation

This type of crowdsourcing is mainly about searching and selecting the appropriate way to deal with the specific issues, or the way to improve the existing ideas. Ones that are selected

will become the policy options in the policy-making process. This crowdsourcing can be categorized into 2 subtypes as follows.

2.2.1 Crowdconsulting

Crowdconsulting is benefitting from improving ideas or solutions related to policy issues and problems through the consulting. Ideas and solutions can be improved by resources, knowledge, and experiences of participants of crowdconsulting activities over online community. This helps policy maker able to formulate a stronger policy (Aitamurto & Chen, 2017; Morozova, 2015). Purpose of crowdconsulting is mainly about looking for public comment which is a significant factor in policy-making decision. Crowds can also participate in these consulting activities initially from the very beginning of policy drafting and help revise the draft to the end. By this way, the collaboration can also be more effective (Warner & Lakewood, 2011). Normally, crowdconsulting can be done by online posting the draft document or selected topic, and let the crowds make comments, exchange argument, edit the text, or share information on the specific platform (Aitamurto & Chen, 2017; Warner & Lakewood, 2011)

2.2.2 Crowdcontesting

Crowdcontesting is about searching and selecting the solution of problems and issues through the contest method, using prizes as motivation. In this type of crowdsourcing, the organization will post their problems presented to IT-mediated crowds on the platform, along with posting the fixed amount of prize money, and fixed numbers of prizes which will be given to the crowds that submitted the best solution (Prpic et al., 2015). However, Brabham (2013b) explains that there were two kinds of questions and answers about the solutions and problems. For example, if the answers of the questions about solutions can be evaluated as “empirically right or wrong” such as cost-saving formulas and scientific solutions, public sector will ask citizens for “practical” solutions of the problems. They will post a challenge and the detail briefly covering scientific parameters to an online community. On the other hand, if the answers are “not empirically right or wrong” such as the solution about policy, aesthetic, design, or things relevant to matters of subjective taste or public support, the public sector will ask for “possible” solutions. They will also post a challenge to an online community, and will be empowered to choose among the submitted solutions.

2.3 Crowdadoption

This type of crowdsourcing is mainly about adopting decision made by the online community, whether or not they support the projects or solutions created on the platform. It can be categorized into 2 subtypes as follows.

2.3.1 Crowdvoting

Crowdvoting is an act depends on crowds' opinions and judgments, whether or not they support the solutions or projects. Those solutions and projects can be submitted by the crowd from the contest involving questions leading to the answers that were not empirically "right" (Brabham, 2013b), or submitted by the organization. Crowdvoting is benefitting for weighting the opinions of the crowd, and can be used in many stages of the process to extract specific information from citizens. The overall interests toward the topics will also be another factor that should be in government's consideration in the decision-making process (Phang & Kankanhalli, 2008).

2.3.2 Crowdfunding

Crowdfunding is mainly about online fundraising for projects. It has variously been used in non-commercial organizations (Morozova, 2015). Civic crowdfunding is one of crowdfunding's subtypes. It has been used as a process that allows citizens, in collaboration with public sector organizations, to make a decision whether to fund projects, providing a community service (Stiver, Barroca, Petre, Richards, & Roberts, 2015), or producing a community's or quasipublic assets (Davies, 2015). Civic crowdfunding can be used regardless in any scale of projects, though normally, the urgent civic crowdfunding projects seemed to be in smaller ones (Stiver, Barroca, Petre, et al., 2015). Crowdfunding will only be considered completed after receiving target amount of fund in the limited timeframe. Processes involving with crowdfunding is the example showing the community members' power in shaping their own society since the projects will be directly judged and funded by those who were affected by them (Miglietta, Parisi, Pessione, & Sevato, 2014).

2.4 Crowdcollaboration

This type of crowdsourcing is mainly about acts of opening call to the crowd, asking them for bidding or volunteering to complete specific tasks. The tasks were mainly human intelligence tasks or microtasks, and the participated crowd will be rewarded in return (can be

amount money or other kinds of rewards). Human intelligence tasks or microtasks, for example, translating, transcription, field information gathering, reading, reporting, finding clues or photos, calling for specific contents for specific events (photos, videos, other tips.), carrying out public service announcement, videos, writing, documenting, or mobile applications (Aitamurto & Chen, 2017; Brabham, 2013b; Prpic et al., 2015; Warner & Lakewood, 2011). These tasks will be posted on the online platform, allowing the online community collaborate and complete the tasks. Calling for volunteers serving public interests is also considered in this category.

3. Crowdsourcing's Benefits in Policy-making Process

Crowdsourcing, a process involving public participation in governance, had been widely used in recent years. It allows government to see the problems and needs of citizens; knowing their ideas, opinions, and determinations toward the management techniques or public policy. Moreover, the public sector can draw necessary information even from citizens who want to engage in government activities for free or a reasonable payment and wanted their ideas to have a chance to be implemented in the public policy (Brabham, 2013a; Morozova, 2015). It can be said that the policy-making process has been most commonly used with five essential activities: agenda setting, formulation, decision-making, implementation, and evaluation (Howlett & Giest, 2013). Crowdsourcing can also be adapted and used to create stronger policies, allowing citizens engage in activities and benefitting both parties in epistemic, democratic, and economic sense (Aitamurto & Chen, 2017; Brabham, 2013a). It is considered one of the significant concepts which policymakers needed to understand their advantages different types can provide in policy-making fields.

3.1 Crowdissemination for better detecting needs and concerns in agenda setting stage

Agenda setting is considered the most critical stage in the policy-making process since it is the initial stage of the policy and has a possibility to affect the understanding toward the policy in the further stage (Wu, Ramesh, Howlett, & Fritzen, 2010). Pointing out relevant problems and issues to be used as inputs in policy formulation is the main purpose of agenda setting. In the early stage, identifying problems and pointing them out in the direction accordingly to citizens' concerns and needs is a very critical factor (Phang & Kankanhalli, 2008).

Looking up closely, it can be seen that the weakness of agenda setting mostly resulted from the failure of critical public problems to reach the official policy agenda and the poor framing of public problems. This will make government fail to properly react toward public issues, according to citizens' expectations (Wu et al., 2010). Only a handful of public problems

in policy agenda will be taken into the government's account due to its limit of time and resources. Moreover, some public problems gotten high priority in public agenda may not be in the same priority level in government one. Poor framing of public problems is also leading to the problem. It leads to ineffective problem dealing, making the problem unable to be completely solved. Furthermore, if the government misjudges the priority of policy issues, the initial stage of developing policy will become harder, and even more harder in the stage of the policy process (Wu et al., 2010).

Agenda in dissemination-crowdsourcing is a systemic or unofficial public agenda which all issues are commonly known by the members of the community as priority issues should be taken care by public sector or government. Crowddissemination can be the exchange of information about public problems such as crime, health care, water quality or wilderness preservation (Howlett & Giest, 2013). It can also be the reports of sightings defects and problems by citizens who are able to interact directly with local administration. These defects and problems can, for example, be things about infrastructure such as street lighting, traffic and road infrastructure, construction defects, regulatory offenses, etc. In addition, discussions, notifications, and complaints in crowddissemination were considered first and fair approach, allowing the public sector to see the concerns and needs of citizens in a more nuanced level directly from the primary sources of information. By this way, policy-makers will be better at detecting and understanding citizens' s concerns and needs, be able to obtain citizens' views on the relatively under-explored policy issue, and to encourage effective collaboration between policymakers and citizens for a sustainable political agenda setting (Aitamurto & Chen, 2017; Hilgers & Ihl, 2010; Phang & Kankanhalli, 2008).

For agenda in crowddissemination, the issues occurred in non-government groups as the public, systemic agenda, therefore, tend to be taken into the account and used in the policy-making process as a formal, institutional agenda, according to the outside initiation pattern (Howlett & Giest, 2013). This agenda seemingly influences a relevant problem-solving policy, leading to a more efficient policy-making process, and to more satisfying results of policies. Moreover, by this way, citizens will feel like they are treated properly as customers and users of good public services, allowing them to make complaints and suggestions for further development. The fact that public services can provide easy, convenient approaches, and deal with issues effectively can surely lift the satisfaction of citizens (Aitamurto & Chen, 2017; Hilgers & Ihl, 2010).

3.2 Crowdf ormulation for caution, creativity, and innovations in formulation stage

Policy formulation is the key stage of the policy-making process. This is a stage where plausible policy choices of solutions will be addressed, and a stage where policy choices will be evaluated the efficiencies and possibilities. The formulation is complicated due to its consisting of various actors with different ideas about and different interests in the promotion of specific solutions to policy problems (Wu et al., 2010). These actors are crowded or knowledge-based community members such as state policy-makers (administrative, political, and judicial), members of non-governmental organizations (NGOs) concerned with the subject, members of the media who report on the subject, academics who follow or research the area, and numbers of the general public who, for whatever reason, are participants in the crowdsourcing. In many issue areas, the policy community also involves numbers of other organizations such as businesses, labor unions, or various formalized interest groups or professional associations concerned with government actions in the sector concerned (Howlett & Giest, 2013).

Crowdconsulting provides advantages in the policy making for characteristics of producing knowledge. It allows crowdsourcers, often be state policy-makers, to ask crowd largely and diversely for the information, and allows crowd to share its knowledge or experience to the policy. By this way, crowdsourcers will be able to (1) understand more about citizens' conditions and perspective towards issues, (2) access to a broader spectrum of knowledge, (3) see a clearer picture of the issues, and (4) increase legitimacy of policy making. Moreover, participants who possess professional knowledge can also provide expertise-based knowledge and present the expert's view toward the issues (Aitamurto & Chen, 2017). Mostly, the targets of call for participation will be widely and broadly like public members for it can be expected that a propensity for new, radical, alternatives to the status quo or innovation might be generated in the policy formulation process when numbers of members of crowd and communities are larger. In some cases, however, crowdsourcers will only want knowledge specifically from invited experts or the boarder public. This way, the participant will be targeted specifically, and numbers of participants will be divided into smaller groups, including the differences between each group been easier to notice (Aitamurto & Chen, 2017; Howlett & Giest, 2013).

Crowdconsulting can lead to an open deliberation of the identified policy problems (from the agenda setting stage) and provide understanding toward problems in deeper levels and more angles (Phang & Kankanhalli, 2008; Wu et al., 2010). So it can positively influence and provide more, better choices for the consideration and selecting process. Crowdconsulting acts as a channel for sharing knowledge, experience, and ideas between state policy-makers and citizens. It also provides a channel for communication and discourses between the crowd, or

knowledge-based policy community members. To create the mutual understanding, opinions, views, and ideas will be exchanged and deliberated between the parties that possess different positions and rationales. State policy-makers can make use of crowdconsulting to allow citizens to participate in a direct exchange of information in an open manner, and to create an environment for easy and open communication between the crowd, or knowledge-based policy community members (Phang & Kankanhalli, 2008). For example, crowdconsulting has been used to create the opportunity to collaborate within the process of drafting laws and bills by using the wiki style of editing. Citizens can edit their demands and proposals into laws. Moreover, these activities can also be considered an opportunity for agencies to enhance the quality and efficiency of their regulatory practice in the policy-making process. And this enhancement will make citizen understand more about the process, and lead to larger numbers of participations (Hilgers & Ihl, 2010).

Policy-makers seem to be accustomed to their usual choices of actions and tools. They will normally not present or suggest new or innovative options and tools. Therefore, open competition or consultation with other members of the policy community can fix this problem and be effective here in the policy formulation process. Crowdcontesting, for example, can initiate and introduce innovations in the policy process, and policy will be innovated, which are vital sources for future policy choices. This way, in the formulation stage, the crowd will be able to participate and initiate innovative projects consisting of “developing something entirely new or useful or, as is more common, employing existing practices or arrangements in new ways for new uses (Wu et al., 2010)”. Not only it creates the most effective policy options, but it also influences the modernization in some dimensions of activities in daily life (Morozova, 2015).

3.3 Crowdadoption for better decisions-making and community projects

The decision-making stage of the policy-making process is the stage where the decision whether to take a course of action or non-action, to deal with policy problems is needed to be made. Compared to the previous stages, this stage is not only more political, but also more technical in many dimensions. International, intergovernmental, or interagency bodies will be established to make the policy consideration become the horizontality, which is suitable to the fact that many contemporary policy problems were multidimensional in nature. If the conversation, consultation, and cooperation of every party related to policy making process are effective, the decision made after them will become more appropriate (Wu et al., 2010).

Crowdfunding, especially for Civic Crowdfunding, can possess characteristics of the horizontality, which is an effective way to deal with recent policy problems in many challenging

levels. It is a process, letting the policy community and citizens to involve in government's problem-solving management, or even in the policy decision-making process (Hilgers & Ihl, 2010). In addition, decisions will be made through funding, donations, volunteering, resource supporting from society (Aitamurto & Chen, 2017). Civic Crowdfunding allows local government, organizations, or citizens to establish projects and present them on the platform to call for supporting from a government body, for-profit or not-for-profit businesses or organizations, and individual backers. Projects in the civic crowdfunding process will be judged by local backers and nearby neighbors since they will be the ones who were affected by the projects when they were done. So, self-and-others-interest can be considered as a factor influencing the success of civic crowdfunding (Stiver, Barroca, Minocha, Richards, & Roberts, 2015). In other words, those interests are the key factor whether or not projects will be supported.

The advantages of using crowdfunding as a tool in the decision making process, either about policy or projects, is that it can strongly strengthen and enhance social interactions within communities. This is due to the facts that projects and ideas, purposely invented from crowds and for crowds, were correspondingly addressed. It can also even encourage citizens' activeness in their neighbor (Miglietta et al., 2014).

3.4 Crowdcollaboration for supporting public tasks in implementation stage

Implementation is a process occurring in the policy making process when the projects or the policies are approved. Policy implementation is considered network governance since the implementation requires coordination with many groups of actors. One of strategies for enhancing the network implementation is to decide the suitable structure to construct implementation. One of the choices is to manage and assign integrated implementation tasks to ad hoc task force, to agency in the similar kind of fields or to a nongovernmental or private market unit via delegation or contracting (Wu et al., 2010). And the way they complete tasks will also be considered a function of crowdcollaboration.

Normally, the government requires a very large administrative capacity in order to reach significant numbers of policy targets. They require a large number of authorities, treasures, and organization to do so. However, crowdcollaboration is proved very helpful when the government lacks of required resources or equipment. The collaboration tools includes, for example, incentive or propaganda, relying on existing voluntary and even community or family-based instruments (Howlett & Giest, 2013). Not only the crowd can assist in public tasks' success, but they can also indirectly help improve the public policy process to be more effective (Hilgers & Ihl, 2010).

3.5 Multi-types of crowdsourcing for better evaluation and social learning

Policy evaluation is the act of consideration about the means employed and the objectives served by a policy in practice. The result or suggestion provided by the evaluation will be used to improve the future policy-making process, and to enhance the caution and the capability in processes such as design and implementation. It sometimes can turn the tides of the policy or even negate it. Evaluation can be made based on the current knowledge base, or can be found a new one. Although, to generate significant results, finding or establishing a new knowledge base to be used in the evaluation can take more timeframe, budgets, and seemed to have a higher chance that errors will occur (Wu et al., 2010). The information about policy's performance can be available, and can allow citizens, governments, and knowledge-based policy communities to reach the information. Therefore, the crowd can express their opinions toward the policy on crowdsourcing platforms and their opinions, worries, or complaints will be further taken into consideration (Phang & Kankanhalli, 2008).

Moreover, crowdsourcing in evaluation process that opens to the public can be benefited for being a significant place for social learning. This social learning will be available when ideas and events in the policy community affect policy evaluations. The community will be able to directly observe and learn about both official and unofficial evaluations through their participations (Howlett & Giest, 2013).

4. Conclusion

Crowdsourcing is the fulfillment of traditional approaches. It possesses effective abilities as new infrastructures and collaboration models, being able to increase the effectiveness of valued creation, and at the same time, properly dealing with the challenging demands of very complicated public community (Hilgers & Ihl, 2010; Seltzer & Mahmoudi, 2012).

Crowdsourcing actually has been being used in the public policy-making processes (Prpic et al., 2015). This paper, therefore, tried to analyze and point out four types of crowdsourcing, which normally appeared in policy-making process, and tries to point out the advantages of using crowdsourcing, which can be proved helpful in each challenging policy-making process. However, the benefits from the types of crowdsourcing are not limited or strictly specified to be used only in any process. In each process, more than one type of crowdsourcing can be used, or each type of crowdsourcing can also be used more than in only one stage. This depends on adaptation and the purposes of using crowdsourcing (Phang & Kankanhalli, 2008). Crowdvoting, for example, can be used in any processes such as formulation, decision-making, or evaluation.

Nevertheless, this paper had one limitation because there are no example platforms currently used or studied case showed in this paper. This is actually the intention of our researcher. The objective of having no example platforms is to let those who interest in the content look up for the accustomed platforms according to their individuals' context. Then, these platforms can be analyzed whether they are in any categories, and how they provide benefits toward policy-making processes. This way, readers can experience the presented contents in their real life, results in stage of further study, and also can prove the accuracy of the contents in this paper at the same time. And if there is information sent back to the researcher, this act may be considered one type crowdsourcing.

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