

Potential of civic crowdfunding to the intelligence of cities and social innovation: an exploratory study

Potencial do crowdfunding cívico para a inteligência das cidades e a inovação social: um estudo exploratório

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Abstract

The concepts of smart city and social innovation in combination with the increasing use of ICT by citizens and public authorities could enhance the involvement of people on the decisions that directly affect their daily life. A case study approach was adopted to illustrate the potential of civic crowdfunding for increasing the participation and collaboration between citizens, firms and government. The analysis of two exemplary cases shows that civic crowdfunding platforms could be used by public administration to engage communities in the search of solutions to local problems. Likewise, it could be used to reinforce the community ties and to leverage the bonds among the stakeholders and the partners of the community ecosystem.

Keywords: Smart Cities, Social Innovation, Social Crowdfunding, Civic Crowdfunding, Case Study.

Resumo

Os conceitos de cidades inteligentes, inovação social em combinação com o uso crescente das TCI pelos cidadãos e as entidades públicas pode aumentar o envolvimento das pessoas nas decisões que diretamente afetam o seu quotidiano. O método do estudo de caso é adotado para ilustrar o potencial do crowdfunding cívico para aumentar a participação e a colaboração entre cidadãos, empresas e governo. A análise de dois casos paradigmáticos mostra que as plataformas de crowdfunding cívico podem ser usadas pela administração pública para envolver as comunidades na solução de problemas locais. Do mesmo modo, estas plataformas podem ser usadas para reforçar os laços da comunidade e para alavancar as ligações entre os stakeholders e os parceiros do ecossistema comunitário.

Palavras-chave: Cidades Inteligentes, Inovação Social, Crowdfunding Social, Crowdfunding Cívico, Estudo de Caso.

1. INTRODUCTION

Smart city is on the political agenda of European Union's institutions and has become a trendy concept. This concept highlights the role of information and communication technologies for enhancing the competitive profile of a city. The European Parliament [2014] considers successful smart initiatives to be those that: (i) are able to attract wide support; (ii) have clear objectives aligned to policy goals and existing problems; (iii)

produce concrete outcomes and impacts; and (iv) are imitated or scaled. Furthermore, successful projects are usually embedded in a comprehensive city vision. However, engagement is needed from a wide range of actors belonging to various domains, including the ventures promoted by civil society in order to increase the smartness of the city. Innovation is the base of the development of smart cities and a new approach to growth in a more sustainable way. Social innovation refers to new ideas (related to products, services and business models) that meet social needs and create new relationships or collaborations between citizens and institutions.

The digitalization of the economy is a significant driver of social innovation, particularly in the context of smart cities. This revolution had a democratic impact in the way citizens can use social media communication to question policy decisions and practices of local governments. The economic crisis and the need to find new financial resources, combined with the desire to have closer social ties within the urban community, have encouraged many local governments to follow the path of civic crowdfunding. Civic crowdfunding is a sub-type of crowdfunding through which citizens, in collaboration with government, voluntarily participate in projects providing ideas, funds or other kind of community services.

The field of civic crowdfunding offers an enormous potential for development with a proliferation of new technologies and social media connecting residents in neighborhoods, catalyzing community discussions, changing the way governments and citizens interact, and making government more transparent. These efforts have different goals, strategies and scopes, but all of them encompass new tools to inspire people to take action.

Civic crowdfunding is in the early stages of development and is a promising area for both research and application due to its potential impact on citizen's engagement, as well as its influence on the success of a wide range of civic projects ranging from urban regeneration to the development of amenities and local services. However, the academic research remains scarce and the knowledge about successful civic projects posted to crowdfunding platforms are relatively ignored. Therefore, the objective of this study is to enlarge the empirical knowledge base about civic crowdfunding. The purpose is to investigate successful projects that could be replicate to help solve social problems and increase the participation of citizens in the political decision making process.

The paper begins by presenting the concepts of smart city (section 2), social innovation (section 3) and social and civic crowdfunding (section 4). Section 5 describes the research design and methodology and the next section examines and interprets the selected case studies. The paper ends with the conclusion.

2. SMART CITIES AND THE ROLE OF ICT

2.1. *Concept*

The smart city is a relatively recent concept [Letaifa 2015] in which new policies for urban planning were advocated [Harrison and Donnelly 2011]. Since 2005, the concept has evolved to include the application of complex information and engineering-based systems in the planning, development and management of cities' operations and infrastructures [Harrison and Donnelly 2011].

In spite of the increasing relevance of the subject, the concept of the smart city lacks a unique definition [Harrison and Donnelly 2011]. The European Parliament [2014, p. 9] defines a smart city as “a city seeking to address public issues via ICT [Information and Communication Technologies]-based solutions on the basis of a multi-stakeholder, municipally based partnership” aimed at addressing problems of common interest. For the European Commission [2015], “a smart city is a place where the traditional networks and services are made more efficient with the use of digital and telecommunication technologies, for the benefit of its inhabitants and businesses”. According to Cosseta and Palumbo [2014, p. 221] “a city may be called smart when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic development and a high quality of life, with a wise management of natural resources, through participatory governance”.

The concept of the smart city highlights the role of information and communication technologies for enhancing the competitive profile of a city [Caragliu et al. 2009]. As stated by Harrison and Donnelly [2011, p. 6] “through new sources of information cities hope to create insight, innovation, opportunity and real jobs that will increase prosperity and quality of life”. According to Letaifa [2015, p. 1415], on the other hand, a city is labelled as smart when it “can integrate and synchronize formal leadership and endogenous democratic participation in the IT-based urban ecosystem. Smart cities are hybrid models combining democratized open innovation with central city support, coordination, and monitoring. When cities transform their profile into a smart city, they impact the urban quality of life, involving improvements in areas such as housing, economy, culture, and social or environmental conditions [Giffinger et al. 2007].

In brief, the existing definitions stress the role of information and communication technologies. However, smart cities represent a multidimensional concept that goes beyond the purely technological aspect of urban development [Letaifa 2015], [European Commission 2015] and [Steinert et al. 2011]. In this sense, information and communication technologies could be considered (although not unique) enabling factors of a smart city [Vesco and Ferrero 2015]. Letaifa [2015] highlights the fact that an important issue for the transformation of cities into smart cities is the focus on service provision instead of technology. Thus, some definitions of smart cities, in a broader sense, include issues related to socio-economic, governance and multi-stakeholder questions [European Parliament 2014]. The concept also comprises other dimensions such as technology, people and

institutions [Letaifa, 2015]. Human capital is also recognized as a relevant factor [Vesco and Ferrero 2015] and is seen as a source of competences as well as creativity [Negre and Rosenthal-Sabroux 2015], [Zygiaris 2012], which are both critical to the improvement of the “smartness” of the city. In order to attain its ends, a smart city initiative has to employ a range of components, processes and norms or standards [European Parliament 2014]. The components needed may already exist or may be created explicitly to be used in the smart city project [European Parliament 2014]. Lee et al. [2014] argue that three factors are crucial to smart cities: technology (including infrastructures of hardware and software), people (comprising issues like creativity, diversity, and education) and institutions (such as governance and policy). To this list, we could add material, financial and organizational resources [European Parliament 2014]. In fact, as argued by Letaifa [2015], one of the main distinguishing features of smart cities is the fact that they offer a balanced centrality among technology, institutions and people. The relevance of information and technology in the field derives from the fact that they provide platforms that enable cities to manage their services in a more efficient way [Kondepudi and Kondepudi 2015].

The European Parliament [2014] highlights the connection between the cities’ resources, namely the link between human capital, social capital and information and communication technology infrastructure. The connection of these elements enables the creation of synergies, which allows the smart city to achieve its purpose. Thus, the smart city paradigm could be seen as an exploitation of tangible and intangible urban assets [Neirotti et al. 2014]. In this sense, people, technology and strategic vision are indispensable elements of a successful smart program [Dameri and Rosenthal-Sabroux 2014]. As argued by Caragliu et al. [2009], urban performance results from the city’s endowment of hard infrastructure (‘physical capital’) but also, and in a special way, from its human and social capital. It is for this reason that it is important to enforce the city’s endogenous development, based on its strengths, such that advantages in certain key resources can be ensured and extended [Giffinger et al. 2007].

Caragliu et al. [2009] consider smart cities to share six major features: (i) the use of networked infrastructure to improve economic and political efficiency and to enable social, cultural and urban development; (ii) a focus on business-led urban development (i.e., business orientation); (iii) the intent to attain social inclusion of various urban residents in public services; (iv) the acceptance of high-tech and creative industries as important for the long-run urban growth; (v) the relevance assigned to social and relational capital; and (vi) the acknowledgement of social and environmental sustainability as a major strategic component.

2.2. Smart cities as a community-based ecosystem

Smart city project implementation is usually a bottom-up process, in which several independent players start a smart initiative [Dameri and Rosenthal-Sabroux 2014]. Frequently, the emergence of smart cities relies on community-based and private sector initiatives, living labs, and social ventures [Letaifa 2015]. According to

Letaifa [2015], successful smart cities, while they differ in terms of vision, strategic choices and paths, share an important common point: they engage local communities while providing political and institutional leadership. As stressed by Letaifa [2015, p. 1415], “the archetype of a smart city varies according to the identity and resources of the city”. For that reason, the recognition of the cities’ endogenous resources and endowments is important for the construction of a smarter city. In this sense, those initiatives that pursue a strategy that fits the available resources, competences and external context are more likely to achieve the desired social and economic sustainable impact. Herein, a deeper knowledge of the local specificities is critical. This could be fostered by involving the community and the main stakeholders in the strategy conception and re-design. As emphasized by Caragliu et al. [2009, p. 4], “a smart city will be a city whose community has learned to learn, adapt and innovate”. The citizens’ participation and commitment, as well as local coordination, are important in order to ensure the integration of solutions across the portfolio of existing initiatives. In this context, information and communication technology are regarded as important drivers, since they provide a mean of shared participation in defining the city’s goals and in spreading awareness for stakeholders about its mission and benefits.

Rodríguez-Bolívar [2015], on the other hand, focused on the role played by citizens in the smart city context. In the authors’ view, the transformation of a city in a smarter city starts with smart citizens [p. 6], “who are asked their opinions and engaged in the process of deciding how they are used”. Taking into account the relevance of citizens as stakeholders, the European Parliament [2014, p. 11] recommends that “citizens should be empowered through active participation to create a sense of ownership and commitment, and (...) to foster participative environments that facilitate and stimulate business, the public sector and citizens to contribute”.

Further, in order for cities to become smarter, engagement is needed from a wide range of actors belonging to various domains, including the ventures promoted by civil society. Other important actors are private companies (multinationals and small and medium-sized enterprises), regional and local governments and other public bodies, educational and research institutions, entrepreneurs and civic society [Letaifa 2015], [Steinert et al. 2011].

3. SOCIAL INNOVATION

The relevance of innovation for sustaining economic growth and living standards is recognized by international organizations [OECD, 2014]. Innovation is the pillar of the development of smart cities and the achievement of a more sustainable approach to growth [Letaifa 2015], [Steinert et al. 2011]. According to Hechavarría and Welter’s [2015, p. 237], innovation is “a process that synthesizes extant knowledge and techniques to provide a theoretical basis for a new concept”, which result in the application of better solutions to deal with new requirements or existing needs.

Social innovation refers to new ideas (related to products, services and business models) that meet social needs and create new relationships or collaborations [Cosseta and Palumbo 2014]. The word 'social' is quite relevant for characterizing the term, since it stresses both its ends and means [Cosseta and Palumbo 2014]. As stated by Franz et al. [2012], social innovation is defined as "new, more effective and/or more efficient social practices with social ends and social means". According to OECD [2014, p. 148], social innovation "seeks new answers to social problems by identifying and delivering new services that improve the quality of life of individuals and communities and by identifying and implementing new labour market integration processes, new competencies, new jobs, and new forms of participation that help to improve the position of the individuals in the workforce".

Social innovation is accelerated by the pressures caused by societal changes [Moulaert et al. 2013]. Smarter cities, through the use of creativity and innovation, are engaged in conceiving new models that improve citizens' wellbeing in a sustainable way. The aim is to use creativity "to help solve the myriad problems of the city, with lateral, synthetic, cross-disciplinary approaches" [Landry and Bianchini, 1998, p. 9]. According to Dameri and Rosenthal-Sabroux [2014, p. 6], a smart city is innovative when it is able to "use all the new and higher available technologies to improve the quality of its core components, to deliver better services and to reduce its environmental impacts". As stated by OECD [2014, p. 148], "innovation can make a substantial contribution to dealing with social challenges such as poverty, ageing, social exclusion and health". Therefore, innovation is considered an important driver of growth, whilst it plays a key role in shaping inequalities and in helping to support well-being [OECD 2014].

Social innovation is highly contextual and path dependent, since it is strongly embedded in the social-cultural and social-political context [Moulaert et al. 2013]. It is also socio-spatially embedded and time bound [Moulaert et al. 2013], since it is closely interlinked with the stakeholder ecosystem and embedded in local systems and territorial networks [Cosseta and Plumbo 2014]. Therefore, as stressed by Dyck and Broeck [2013], innovation should be conceived under their spatial-historical context, taking into account the material and the social dimension of territories. Furthermore, social innovation can emerge from the actions taken by communities in order to alleviate social, political and/or material issues [Moulaert et al. 2013].

Social innovation refers to the way in which individuals, groups and communities act in order to address the problem of unsustainable practices and unsatisfied social needs [Mehmood and Parra 2013], and therefore it can occur in any sector of society [Franz et al. 2012]. It is often a bottom-up process and is closely associated with the empowerment of society [Mulgan 2012]. The internet and information and communication technology are significant drivers of innovation and growth (particularly in the context of smart cities), since they "accelerate the diffusion of information, boost communication efficiency, facilitates networking among firms, and reduce geographical distance" [OECD 2014, p. 18]. Further, human capital plays a crucial role, as innovation requires developing and mobilizing a broad range of skills throughout workplaces and society.

These skills comprise personal attributes such as relevant general and specialized knowledge, general problem-solving, creative thinking skills, and behavioural and social traits (such as self-confidence, teamwork, leadership or attitudes toward change) and facilitate the creation of personal, social and economic well-being [OECD 2014].

4. SOCIAL AND CIVIC CROWDFUNDING

Traditionally, government subsidies and private altruistic donations are the main sources of financing for the social sector. Due to the increased number of social organizations and the need of the European countries to reduce their deficits, the social sector has experienced some difficulties in gaining access to traditional private funding (pension funds, private banks, risk capital) when trying to launch their activities. The main reasons are peculiar to the social sector as the financial instruments are not designed for organizations with the aims, size, form of governance and legal status that are intrinsic to the social sector [Guézennec and Malochet 2013]. First, because the aims are not to maximize the return on investment of the social projects but generally pay the lending. Also, because the perception of high risk associated with social projects is enough to deter potential investors whose aversion to risk has been significantly reinforced by the financial and economic crisis. Such a perception can be explained by both the very nature of the activities in the social sector, aimed at the most vulnerable and least solvent section of society, and by the ignorance of potential investors concerning the sector. Thus, in the eyes of the classical investor, there is a lack of credibility, a lack of conviction in the projects' viability, and very often a lack of guarantees. The small and medium size of social organizations is another element that constrains the access to private funding as initial funding requirements are often considered costly to be interesting to private investors. Finally, the legal status of social organizations can also be a deterrent on accessing private funding, as most of the status excludes the possibility of remunerating the investors [Guézennec and Malochet 2013].

New ideas that simultaneously meet social needs and create new social relationships or collaborations are needed for social development. They are innovations that are not only good for society but also enhance society's capacity to act [European Communities 2011]. These innovations usually happen by trial and error, learning-by-doing, and exchanging ideas within groups where exchange of opinions assures new ways of functioning.

The crowdfunding (CF) platforms for social purposes or social CF combine the latest developments of the digital economy with technologies and finance that could be an innovative response to problems and needs of the society. Most of the CF projects are based on the lending model in which funds are offered as a loan, with the expectation of some rate of return on capital invested [Belleflamme et al. 2014], [Schwienbacher and Larralde 2012]. Social CF efforts, such as humanitarian projects, follow a patronage model, placing funders in the position of philanthropists, who expect no direct return for their contributions [OECD 2014]. The patronage model is donation-based and materializes when a crowdfunder (the giver) receives no-rewards for his funding

besides altruism, generosity or personal and corporate promotion [Mollick 2014]. It can not only provide necessary funds for social projects, but may also lead to a higher legitimacy of these through early societal interaction and participation [Lehner and Nicholls 2014]. According to Gajda and Walton [2013] the difference between donation-based CF and traditional fundraising is that social entrepreneurs can use the social CF platform to collect and ear-marked donations for a dedicated project. This could help raise higher amounts per donor, because funders know that their money will be used on a specific project. Such donors also tend to give recurring donations if the social organization keeps them updated about the progress of the project. Social CF is most applicable to community-related projects and microfinance to micro development [World Bank 2013]. One of the natural developments of crowdfunding is the civic crowdfunding, which is part of the movement that tends to bring offline the community formed online in forms of cooperation and public participation in the local political decision-making process. Civic crowdfunding is the funding of projects which, directly or indirectly, benefit from government funds, assets, or sponsorship, and may include the development of public assets such as public parks, sidewalk maintenance, and wireless Internet [Davies 2014 2015]. Civic crowdfunding has attracted attention for its capacity to partner project creators with municipalities, organizations, and individual citizens interested in online and offline contributions [Stiver et al. 2015]. It is an appealing alternative source of funding at a time of constrained government budgets [Bernardino, Meira and Freitas Santos 2015]. Additionally, civic crowdfunding has great potential for non-financial benefits such as facilitating networking, and encouraging collaboration between citizens and government [Stiver et al. 2015].

5. RESEARCH DESIGN AND METHODOLOGY

Smart cities are often built on community-based initiatives for which a high engagement from local citizens is critical. Social and civic crowdfunding have an important role to play in this context since it helps to mobilize (collective) resources to projects which aim to solve problems of common interest to the city's inhabitants. This qualitative study examines different initiatives of civic crowdfunding in order to illustrate the potential of this tool for social and political development. To achieve this goal, we adopt a case study methodology. Case study research in some areas, such as social innovation, is a very useful method of gaining insight about well-managed initiatives known for their ability to innovate and execute in cases where there is little theory available to serve as a guide [Eisenhardt 1989], [Ghauri et al. 1995], [Yin 2013]. Further, innovation is a social fact [Cosseta and Palumbo 2014], and therefore it should be considered as a process embedded in a given context and society.

To capture innovative initiatives that connect residents in neighborhoods, catalyze community discussions, change the way governments and citizens interact, and make government more

transparent a multiple case design is adopted. This approach is considered appropriate as we can observe the unique characteristics of the case and gain useful insights about the phenomenon [Ghauri et al. 1995]. The use of qualitative methods offers the opportunity to conduct a scan of different case studies that could provide empirical grounding for future theoretical developments [Doz 2011]. As Dyer and Wilkins [1991] noted, if executed well, case studies can be extremely powerful, particularly when authors are able to describe a general phenomenon so well that others have little difficulty seeing the same phenomenon in their own experience and research.

The evidence for this study was collected from secondary data gathered by the authors from desk research, as well as information displayed by the website of the organization covered in the case. The cases were selected from four main sources: Network Impact [2016]; Vanhille and Juliussen [2014]; BCC [2015]; Brodersen and Birkmose [2016] and Ramos [2014]. The cases selected cover different areas of activity, initiatives and geographic locations in order to gain a more comprehensive knowledge about the field. However, to attain the purpose of this exploratory study we selected two cases that better illustrate the contribution of civic crowdfunding for the smartness of the city.

6. SELECTED CASE STUDIES

6.1. Ioby

Ioby.org is an American online community which aims to make urban neighborhoods a better place to live. Ioby supports the development of initiatives which make neighborhoods stronger, safer, greener, more livable, more sustainable and also more fun. Based on the principle of “local is best”, Ioby recognizes neighbors as those who have more knowledge about the community needs and the best strategies to deal with its problems. The mission of Ioby is “to mobilize neighbors who have good ideas to become powerful citizen leaders who plan, fund and make positive change in their own neighborhood”. To accomplish the mission a crowdfunding platform was made available in order to collect ideas to create change and to connect the ideas with the resources required to make the change happen. This crowd-resourcing platform enable citizens to collect and organize all kinds of capital, such as cash, social networks, in-kind donations, volunteer time and advocacy. By means of this neighbor-funded community projects, Ioby fosters the ability to pool small online donations to a specific cause at the same time it strengths civic leadership and active engagement. The different small, neighborhood-scale actions are able to have far-reaching and long-lasting impact on places and on people’s lives. In addition to this, Ioby also offers training in online fundraising and other important skills for the development of social initiatives.

6.2 Crowdculture

Crowdculture.se is a Swedish digital infrastructure launched in 2010 by Fabel Kommunikation in collaboration with cultural producers, cultural consumers and the research laboratory Swedish Institute of Computer Science (SICS) [Ramos 2014]. Its main objective is to connect social capital with economic capital by micro financing cultural projects. The members' votes control the distribution of contributor funds, triggering bottom-up initiatives that favor democratic practices in financing small scale projects. As stated in the project's site "it is the members' voices that control where the public money goes. Once a member votes on a project, it corresponds with money from the public pot. The correspondence between public and private financing depends entirely on how strong members support cultural projects" [crowdculture.se].

The platform supports cultural innovation allowing producers and more established ensemble, group or association, to share a project description of the production which they wish to realize. Public money goes to those projects which attract large support. Citizens participate in launching cultural projects and influencing the distribution of public funding.

The local nature of the projects implies being in contact with a nearby concrete reality, in which people have high physical and emotional engagement to cultural events. This allows citizens to value principles of cultural attainment and proximity. As stated by the manager of crowdculture, involving the audience in a local project enforces transparency and promotes efficient distribution of public funds [crowdculture.se]. Therefore, the user participation is understood as a pre-condition for democratization and efficiency is more attached to democratic practices than to sharing knowledge and experience.

The platform's challenges are to: i) consolidate its cooperation pattern with the public administration and to explore the viability of crowdfunding practices in other policy domains; ii) avoid the political control that public administrations could exercise over cultural activities [Ramos 2014].

6.2. 6.3 Reflections on the case studies

The analyses of the two case studies provides evidence of the active engagement and involvement of the local community; the reinforcement of community ties and the ability to leverage the emotional bond between community, territory and (local) public entities.

The civic crowdfunding ventures are based on the power of ideas, on the importance of the community and on the social tools that allow targeting all potential supporters of the idea. According to the analysis of the case studies, a common trait could be underlined, that is, the critical role that local community and communication management has on the success of the venture.

Another relevant aspect, common to all cases, is the ability that digital platforms have to get together individuals belonging to the same community (and which are often physically distant). Civic crowdfunding platforms foster collaborative and inclusive processes, since all the citizens are asked to participate in the

conception and implementation of new social solutions. Also, the crowdsourcing strategy contributes to the improvement of collective wellbeing by involving the people on the actions taken in the community. Thus, civic crowdfunding plays a very important role on the development of an innovative ecosystem and on the reinforcement of the smartness of urban areas. Likewise, the cases illustrate the relevance of using digital platforms for civic engagement and to enhance the participation of the citizens in the local public decision-making process. In both cases, efficiency and local wellbeing are improved by means of the participatory and democratic processes.

Not to forget, it is the fact that the local community is not only composed by "innovators" or literate people in terms of digital technology or active in the Internet or connected to the Internet. The protagonists of the city, as we have already mentioned, are many and varied: citizens, associations, companies, industries and administrations. Therefore, it is necessary to involve them, make them aware of the project, show them the benefits of a clever use of technology, or use the platform to express themselves, evaluate, comment, finance and develop participatory and joint planning processes, and finally, above all to show the potential of the method of civic crowdfunding.

Accordingly, a project of civic crowdfunding should not be limited to the mere online dimension of the platform, but it must be brought physically within the city, made known through events and marketing activities. Having contact with people, not only it becomes possible to tell more about the initiative, but also raise additional contributions.

7. CONCLUSION

The objective of the paper was to explore civic crowdfunding within the smart cities and social innovation framework. The analyses of the two successful case studies showed that civic crowdfunding is a step that can lead to positive results, as well as benefits in terms of social innovation, major awareness of the practice and the strength of creating more cohesive and inclusive communities. The civic crowdfunding platforms support local communities in the implementation of new projects.

Civic crowdfunding represents a promising path for the development of (smart) cities. They offer a common platform in which citizens are stimulated to sharing, dialogue and participate. As the cases has showed, digital technologies have a great potential for reducing the gap between individuals belonging to the same community and public institutions (public governance), to promote the involvement of individuals which are not reached by means of the traditional face-to-face communication, to attain a more efficient distribution of funds and to improve public projects' transparency.

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