

Online Crowdsourcing in the Public Sector: How to Design Open Government Platforms

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Abstract: The trend towards “open innovation” has revitalized firm’s interest in tapping into external innovation sources. Firms purposively open their business models to connect internal and external ideas, and to co-create value with partners and users. Internet-based crowdsourcing and co-creation platforms have changed the way how firms implement open innovation. They allow new participatory problem solving and value-creation processes. However, the current discussion on open innovation has hardly touched upon the public sector. This paper investigates if crowdsourcing platforms can be applied in the governmental context, and under which conditions. Results show that crowdsourcing may generate strong interest among citizens and may serve as source of new high quality input. However, our findings also indicate that design principles derived from open innovation projects in the corporate world may not be directly applied in the governmental context; they need to be adjusted and complemented.

Keywords: open innovation, crowdsourcing, virtual co-creation platform, design principles, public management, open government.

1 Introduction

So far, research on open innovation, distributed and participatory problem solving has focused primarily on the corporate world. In a corporate context the ultimate objective of open innovation is to create valuable offerings for a firm’s customers, to profit from investment’s into innovation, and to improve an individual firm’s economic performance [1, 2, 3]. While this research indicates that “unknown” outsiders can constitute an important source for innovation and value-creation, there is hardly any research dealing with the public sector and public organizations dealing with production, delivery and allocation of goods for citizens [4]. Following the origins of

the word “public”, “public” refers to matters pertaining to people of a community, a nation, or state. “Private”, in contrast, is set apart from government as a personal matter [5].

In the lights of this difference, we claim that the public sector and governmental problems constitute an important area of research on distributed and open problem solving, what we call “open government”. Recent case examples on problem solving activities in the public sector undermine the need for openness in governmental processes. The “Stuttgart 21” initiative in Germany - a large urban development and construction project - is just one example that highlights the limitations of closed problem solving activities. The controversial discussions on the decisions to replace the existing railway station with a new infrastructure mostly located underground exemplify that state agencies should consider citizens as users of public services, who wish to be actively involved. Indeed, treating citizens as customers should be an important objective of public management reforms [4]. To bridge this gap, the following paper tackles the question whether or not internet-based crowdsourcing platforms can be applied to the public sector and under which conditions.

2 Conceptual Foundations: Online Co-creation and Crowdsourcing in the Corporate Context

In the open innovation model firms purposively use inflows and outflows of knowledge to accelerate internal innovation, and to expand markets for external use of innovation, respectively [6, p.1]. When opening up to external influences, firms can involve a range of different external actors ranging from suppliers, research organizations, universities [7], customers and users [8, 9]. In fact, the potential impact to be gained from interaction with customers and consumers (and users who may not be customers) during the innovation and value-creation process has widely been recognized. It highlights that consumers and users should not be perceived purely as “value receivers” but also a “value generators” and “co-creators” [10].

However, only when external sources such as consumers and users are willing to engage in co-creation projects and are enabled to share their creative ideas, honestly state their preferences, and comment on existing concepts, valuable contributions that lead to significantly better results can be expected. A compelling and enjoyable co-creation experience is considered as an important success factor and essential prerequisite for valuable external input to co-creation projects [11, 12, 13, 14, 15]. A carefully designed co-creation platform providing engaging and immersive virtual environments is a critical factor in co-creation projects.

Consequently, researchers dealt with the question of how to successfully design co-creation and crowdsourcing platforms that ignite users’ interest in participation, allow for creative collaboration, and help to build lively social networks [11]. For example, Nambisan and colleagues [12, 14, 15] suggested that experience in virtual environments subsumes four components: (1) the pragmatic experience, (2) the sociability experience, (3) the usability experience, and (4) the hedonic experience. Based on these dimensions, Nambisan and Nambisan (2008) suggest a set of practices such as the establishment of rating systems, social interaction tools, participant recognition systems, exclusive forums, process transparency, brand fests, and clean technical flows, companies should consider when designing virtual platforms [15].

Füller (2010) introduced a virtual co-creation framework from a participant's perspective addressing five dimensions: 1) content; 2) process; 3) people; 4) motives; and 5) personal characteristics that should be considered when designing a co-creation platform [16]. Based on this framework he presents practical recommendations to design co-creation and crowdsourcing platforms concerning the offered tasks, intensity and extent of interactions, kind of multimedia-rich environment, interaction among participants, offered incentive as well as preferred interaction partners (Table 1).

Table 1. Overview of key design principles of crowdsourcing platforms

Design Principle	Description
Tasks	Provide tasks which differ in kind as well as level of complexity. Enable participants to take on different roles such as designer, evaluator or networker.
Intensity and Extent	Allow consumers to engage more often and on a continuous base. Motivate consumers to leave their fingerprint on the platform.
Tools and Multimedia-rich Environment	Provide supportive and empowering contexts. Provide an immersive but simple-to-explore environment.
Interaction among Participants	Offer platforms which encourage intense interaction among participants. Allow relationships to be established and a community to be built. Social networking functionality enriches the communication between participants. Connection to existing social networks allows the leveraging of existing relationships
Incentives	Give direct and honest feedback Offer additional monetary compensation or prizes related to the performance of the participants.
Partner	Offer a branded platform which allows direct interaction with the company's developer's team.

These co-creation frameworks and design principles for crowdsourcing platforms used in the corporate world – mostly by profit oriented companies - may offer valuable hints also for the design and management of co-creation platforms in the public sector by governmental agencies and public administration. However, they may not be directly applicable. Governments and public administration differ significantly from companies, as they face different challenges and duties. Concepts, which are relevant and get discussed in this context, are the approaches of [17], good public governance [18], civic education, and performance management [19]. Hence, it is not only a discussion on giving citizens more “customer voice” but also a discussion on how to educate the citizens, to enable possibly all of them (reach), and to establish a lasting and bidirectional communication process between the citizens and the political institutions and politicians in order to ensure democratization.

As mentioned above, little is known if and how crowdsourcing platforms can be applied in the governmental context and how those should look like. Thus, our study aims to contribute to a better understanding and close this gap of knowledge.

3 Open Government Platforms in Practice: Results from a German Action Research Project

3.1 The ‘Aufbruch Bayern’ Case Study and Its Research Design

We have chosen the “Aufbruch Bayern” open government initiative to analyze our research question. The initiative represents a unique open government project due to the scope, the functionalities of the platforms, the number of participants and also the output of the open government initiative (<http://www.archiv.aufbruch-bayern.de/start.php>). As this project represents an “outlier” case, we chose a single case study research. As we had access to the platform, we were able to collect rich data and observations. This data provided the basis for an in-depth case analysis.

We choose an action and participatory research strategy [20]; it leverages a combined approach – participatory action research [PAR, see 21]. The review of existing research on crowdsourcing shows that there is a lack of understanding on the role of crowdsourcing in the public sector. In addition, a more detailed understanding on the appropriate design and management is required. Participatory research design supports the researcher to develop and test design principles. It creates direct insights and reflections in practice. In line with action research principles, this research went through the following major phases: *Planning, acting and reflection of actions*. In the planning phase the problem of the open government project was identified. Then, we designed the crowdsourcing initiative based on existing findings on how to design crowdsourcing and co-creation platforms. In the action phase, the research team worked in close collaboration with the representatives of the state agency and directly interacted with the participants of the crowdsourcing initiative. During this phase, observations and experiences of the individual researchers were highly important. After completion of the acting phase, the actions were reflected. The reflections and in-depth analysis of data collected during the action phase support the adaption and refinement of existing design frameworks and principles concerning the specifics of crowdsourcing and co-creation in a governmental context.

3.2 Data Sources and Data Collection

In July and August 2010, the Bavarian State Government, announced an online participation platform. With the publication of the “call for participation”, Bavarian citizens were asked to suggest their ideas, concepts and best practice cases related to three main policy areas: Family, education and innovation. The duration of the initiative was eight weeks. We implemented the crowdsourcing with an online community platform, and thus we had access to a large set of data collected via the publicly accessible platform. Data such as logfiles (visits, amount and form of activity per user), user data (usernames, sent and received messages on profiles) and information on contributions (number of received comments, number and average of received evaluations) were exported from the platform system data base (MySQL). Data such as comments, contributions and ideas were thoroughly analyzed and reflected by the research team. Observations and direct interactions with participants provided a further important source of information.

3.3 The Design of the Crowdsourcing Platform and Evaluation

In our case study we designed and implemented the crowdsourcing platform in a structure process. We relied on existing findings and design principles [15; 16]. We built upon the co-creation framework and design principles introduced by Füller (2010) when designing the crowdsourcing platform [16], and further extended and enriched it. To cater for the specifics of governmental matters and problem solving, and to better analyze our research question, we chose a very comprehensive design approach. The implemented design is presented and discussed in the following:

- *Purpose and goal of the participation platform:* The aim of the open government platform project was clearly specified. The online participation platform “Aufbruch Bayern” was the first project of a triennial campaign aiming for systematically integrating the citizens with the means of stat-of-the art communication tools, such as crowdsourcing and social media. It was set-up as a contest. The goal of the initiative was to bring the Bavarian State Government and the citizens closer together by collaboratively discussing and evaluating ideas, concepts and best practices. The concept of participation platform enabled citizen to (1) deal with political questions and challenges, (2) to develop an understanding of the given restrictions of political decision making, and (3) thus to potentially reduce the disenchantments with politics, as well as (4) to increase the perceived empowerment. Moreover, the platform was designed to address and finally reach a variety of groups, which are typically very hard to reach by the traditional communication channels, such as print media, radio or television. By applying a comprehensive recruiting strategy both, the politically interested citizens as well as adolescents, emigrants, and academics which are typically hard to get access to, were reached.
- *Functionality and tasks of the participation platform:* In order to involve these different groups, which differentiated in their interests as well as their skills and cognitive capacity, the online participation platform offered a variety of different functionalities and tasks. Besides the rather complex task of proposing and contributing a well-developed concept, the participants were asked to upload single ideas or best practices. In order to enable participants to take on different roles, such as the above mentioned idea contributor, evaluator or networker, the platform supported the upload of different supplemental materials like written concepts, photos or even documents. Furthermore, the platform allowed participants differentiating between comments on the idea and messages on the pin wall. The latter feature can be seen as a very useful tool in order to enable the communicators and networker to keep the community vivid. It allows participants interacting independently from one's own contribution. Members were also invited to vote for already existing contribution with an easy “thumb-up” or “thump-down” mechanism. They were also able to comment to the designs of their fellow participants. Due to the fact that all content could be explored without a registration a large number of silent visitors were able to observe the ongoing discussion (400,000 page visits versus 2,094 registered users). This supported educational objectives and awareness creation of the open government platform.

- *Intensity and extent:* To address intensity and extent, community members were regularly updated about latest developments on the platform. Community managers implemented the following measures to increase intensity and extent: (1) newsletters to reengage “sleepers” into an active community role; (2) an automatic news feed, when somebody commented or evaluated your idea, (3) features of the “latest participants” and “latest ideas” on the front page, which typically has the highest click-rate. These activities helped to engage visitors immediately.
- *Tools and multimedia-rich environment:* The online platform was equipped with a comprehensive portfolio of different social media tools. A twitter channel, the “share” functionality with different social networks, and a separate Facebook fan page, ensured that user generated content could be spread easily and could trigger a “viral” process. Indeed, we observed that participants were highly engaged and also skilled in the production of “creative materials”. At the same time, they manage to drive the distribution of information due to their high web 2.0 literacy. Multimedia enrichment and interconnectivity supported the social and informal exchange of information among users across different communities and via social media, so called word-of-mouth [22].
- *Interaction:* From research on platforms used in a corporate context we know that people participate in crowdsourcing platforms simply because they can interact with other platform members who share similar interests [13]. When we analyzed the click-behavior of visitors and members on the platform, it was obvious that platform visitors are more interested in other members than in content. They typically explored the community members first before they looked into the ideas or concepts. To address this interaction aspect, the platform was designed to encourage intense interaction among participants, and to allow relationships and community building. Users could write messages to other members, and an up-to-date social media connection allowed, encouraged and enabled social interaction. The fact that overall about 450 ideas were shared in other social networks highlights the interest in interacting with members on the platform as well as with private network friends of registered users.
- *Incentives:* We implemented different incentive mechanisms to motivate citizens to participate. Besides intrinsic motivation of individuals, non-monetary extrinsic motives spurred the participation in the crowdsourcing initiative. The three best contributions per category were awarded exclusive prizes and the chance to be part of the next governmental declaration. This selection process was executed by the jury (members of the state government), which considered the community vote in their decision. In order to motivate interested participants who lack the skills for contributing an idea, the activity of participants on the platform such as voting and commenting was also rewarded with non-monetary prizes. It is worth pointing out that profiles of politicians were accessible and also accessed very often. Indeed, numerous questions were addressed to politicians. Apparently, the direct exposure and ability to interact with politicians represents an effective incentive.

- *Partner:* In the private sector research suggests offering a branded platform which allows direct interaction with the company's developer team or even prominent people, such as the star designer or CEO [16]. We transferred this design principle to the public sector and invited well known politicians to the platform, to discussions on the twitter channel and to the Facebook fan page. Overall, the platform was clearly branded as online platform of the Bavarian state government.

As mentioned above, we implemented additional functions, features and management processes to cater for the specifics of governmental problem solving. They complement and expand existing crowdsourcing frameworks and design principles:

- *Community management:* We considered community management as a crucial design factor as open government projects usually aim for a sustainable development of an active community. Thus, we emphasized community management, its visibility and also its transparency when designing the platform. Indeed, the “Aufbruch Bayern” project team implemented a very transparent and open communication and community management strategy with precisely defined rules. The team managed to motivate community members to be involved in the management of the community and decision making. This strategy should help to reduce the risk of conflict and to increase the legitimacy of the community management. Observations during the case study and analysis of the contest data also suggested that successful community management requires self-confidence and eventually the courage to resist complaints from members.
- *Combining online and offline events:* Another fruitful tool to recruit and to drive community growth was the combination of *online* and *offline events*. The underlying logic is quite simple. By selecting highly engaged participants and giving them the possibility to meet in “real life” and further develop the ideas and concepts of the platform, especially with the support of politicians, the political institutions gave participants the respect and recognition they deserved. Our observations and analysis of data indicate that such events have a tremendous impact on the activity and motivation of the community. The challenge is to successfully connect the offline event and the platform. The “Aufbruch Bayern” initiative had a special subpage where pictures, comments and ideas of the workshops were gathered. During the offline event the community managers posted live on Facebook and used the twitter channel actively. Afterwards the workshop participants were encouraged to spread their thoughts and experiences into the community.

The discussion above highlights that our design of the open government platform embraced design principles known from the corporate world and additional complementary design aspects. The platform design was comprehensive and took into consideration the specifics of “Aufbruch Bayern”, a public initiative.

4 Concluding Discussion: Successful Design and Management of Open Government Platforms

Overall, the crowdsourcing project was well received and showed a high participation. Indeed, it generated a strong interest among Bavarian citizens. 2,094

participants registered on the platform in order to contribute 750 ideas, concepts or best practices and generate approximately 1,540 pages of content. The community provided 10,932 community evaluations, and 6,342 contributions to the discussion. This indicates that citizens showed a high interest in contributing to the crowdsourcing initiative. Over the period of eight weeks participants spent 760 working days on the platform which sums up to more than 364,800 minutes of residence time on the platform. From phone calls, emails and postings we know that participants spent much more additional time at home developing and discussing their ideas within the family or own circle of friends. This high commitment of time indicates the high interest of citizens to be actively involved in governmental problem solving activities. It shows that citizens should not be treated “just as tax payers” or receivers of public services but rather as active participants and problem solvers in a governmental context. The fact that more than 400,000 viewers grappled over the period of two month with the interactive dialogue-platform undermines the impact of the crowdsourcing initiative in terms of awareness creation. An analysis of the feedback data collected in the post-project survey supports this argument. On average, participants evaluated the design of the platform positive both in terms of functionality and “innovation”. While descriptive figures on the quantity of user generated content highlight a high activity, awareness towards and interest in the initiative, we also looked into the quality of the “output”. In our case study, our observations suggest that user generated content had a positive and constructive connotation. Although there was some criticism, comments were not destructive or even insulting. In addition, officials of the Bavarian State Government stated that ideas and concepts showed a high quality. They also assessed the innovation potential of these ideas and concepts as high.

When implementing the action research project, we built upon Füller's (2010) design principles for crowdsourcing in the corporate world [16]. Indeed, our reflections indicate that these design principles also matter in public problem solving. However our study also revealed that existing frameworks applied in the private sector do either over- or undervalue some design aspects, or completely lack important ones. Table 2 highlights our adapted design principles suggested for the public sector.

Summarizing the identified results, we can state that design frameworks derived from research on open innovation platforms and crowdsourcing in the corporate world can support the development and implementation of crowdsourcing in the context of open government. However, for some design dimensions of Füller's (2010) framework we identified deviating emphasis and slightly different means to best design the respect dimension [16]. In addition, we added two new dimensions, namely “community management” and “offline-events”, which should additionally be considered in future crowdsourcing projects in the public sector.

Overall, our research proposes first ideas for an adapted framework to design and implement open government projects. These design principles need to be examined more rigidly in future empirical research. At the same time, they are of high practical value as they guide the design of future open innovation platform projects.

Table 2. Adapted design principles of Open Government crowdsourcing platforms

Design Principle	Description
Tasks	Since political issues are typically very complex and rather difficult to explore, we observed that tasks should be designed in a visual manner so that they can be addressed with photos or stories.
Intensity and Extent	The dimension intensity and extent did not show any specifics in terms of platform design but should be taken into account seriously. The “Aufbruch Bayern” case showed that citizens are very cautious to shelter their private sphere when they participate in open government projects. The virtual environment has to ensure this additional requirement.
Tools and Multimedia-rich Environment	The “Aufbruch Bayern” case showed that citizens are very cautious to shelter their private sphere when they participate in open government projects. The virtual environment has to ensure this additional requirement.
Interaction among Participants	In a political context, the number of lengthy messages and comments was extremely high; Feedback and comments via “thumb-up” or “thumb-down” were hardly used; they don’t seem to be that attractive in governmental matters. Long and intense discussions were the dominant mode of interaction
Incentives	Citizens are often politically or societal motivated. These motives should be considered in addition to the recommended incentives.
Partner	Indeed it was considered to interact with a trustworthy partner. The participation of known politicians was important
Community Management	We added community and event management as further principle to the framework as it turned out to be crucial for success. Even it may not be seen a platform feature it has to be considered as community managers should have access to special features in order to guide, steer, and manage the community. Interesting features are mechanisms to connect similar ideas with each other, or to mark ideas and members in order to get back to them. Statistics like incoming and outgoing links provide further interesting information for the management.
Combining Offline & Online Events	We further added the dimension offline & online events as policy making is characterized by in-depth and lengthy discussions on complex problems and topics. We found that a combination of an online platform with offline events (e.g. workshop with politicians) serves as a (1) motivator for participants; (2) multiplier in the context of participant recruiting; and (3) enhances the quality of the content due to offline workshops

References

1. Chesbrough, H.W.: A better way to innovate. *Harvard Business Review* 7, 12–13 (2003)
2. Chesbrough, H.W. (ed.): *Open innovation. The new imperative for creating and profiting from technology*. Harvard Business School Press, Boston (2006)
3. Chesbrough, H.W.: In: Chesbrough, H.W., Vanhaverbeke, W., West, J. (eds.) *Open innovation: Researching a new paradigm*, pp. 1–12. Oxford Univ. Press, Oxford (2006)
4. Hilgers, D., Ihl, C.: Citizensourcing: Applying the Concept of Open Innovation to the Public Sector. *The International Journal of Public Participation* 1, 67–88 (2010)
5. Perry, J., Rainey, H.: The Public-Private Distinction in Organization Theory: A Critique and Research Strategy. *The Academy of Management Review* 2, 182–201 (1988)

6. Chesbrough, H.W.: Open business models. How to thrive in the new innovation landscape. Harvard Business School Press, Boston (2006)
7. Fabrizio, K.R.: Absorptive capacity and the search for innovation. *Research Policy* 2, 1–13 (2009)
8. Brockhoff, K.: Customers' perspectives of involvement in new product development. *Int. J. Technology Management* 5/6 (2003)
9. von Hippel, E.: Sticky information and the locus of problem solving. Implications for innovation. *Management Science* 4, 429–439 (1994)
10. von Hippel, E.: The sources of innovation. Oxford University Press, New York (1988)
11. Franke, N., Piller, F.: Value creation by toolkits for user innovation and design. The case of the watch market. *Product Innovation Management*, 401–415 (2004)
12. Nambisan, S., Sawhney, M.: A buyer's guide to the innovation bazaar. *Harvard Business Review* 6, 109–118 (2007)
13. Nambisan, S., Baron, R.A.: Interactions in virtual customer environments: Implications for product support and customer relationship management. *Journal of Interactive Marketing* 2, 42–62 (2007)
14. Nambisan, S., Baron, R.A.: Different Roles, Different Strokes: Organizing Virtual Customer Environments to Promote Two Types of Customer Contributions. *Organization Science* 2, 554–572 (2010),
<http://orgsci.journal.informs.org/cgi/content/abstract/21/2/554>
15. Nambisan, S., Nambisan, P.: How to profit from a better virtual customer environment. *MIT Sloan Management Review*, 53–61 (Spring (2008))
16. Füller, J.: Refining Virtual Co-Creation from a Consumer Perspective. *California Management Review* 2, 98–122 (2010)
17. Moore, M.: Creating Public Value: Strategic Management in Government. Harvard Business School Press, Boston (1995)
18. Stowers, G.N.L.: Becoming cyberactive: State and local governments on the world wide web. *Government Information Quarterly* 1, 113–114 (2000)
19. Holzer, M., Kloby, K.: Public performance measurement. An assessment of the state of the art and models for citizen participation. *International Journal of Productivity and Performance Management* 54, 517–532 (2005)
20. Checkland, P., Holwell, S.: In: Kock, N. (ed.) *Information Systems Action Research*, pp. 3–17. Springer, Boston (2007)
21. Whyte, W.F. (ed.): *Participatory Action Research*. Sage, Newbury Park (1991)
22. Kozinets, R.V., Wilner, S., Wojnicki, A., de Valk, K.: Networks Of Narrativity: Understanding Word-of-mouth Marketing In Online Communities. *Journal of Marketing* 2 (2010)