Why Citizens Engage in Open Government Platforms?

Katja Hutter[1], Johann Füller[1/2], Giordano Koch[3]

[1]Department of Strategic Management, Marketing and Tourism, Innsbruck University School of Management, 6020 Innsbruck, Austria
katja.hutter@uibk.ac.at
johann.fueller@uibk.ac.at

[2]CEO Hyve AG,
AG, Munich, Germany

[3]Chair of Innovation, Technology & Entrepreneurship at the Friedrichshafen Institute for Family Businesses, Zeppelin University, 88045 Friedrichshafen, Germany
g.koch@zeppelin-university.net

Abstract: 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 aims to shed light on what motivates citizens to engage in open government platforms. Surveying 437 citizens participating in the Bavarian open government project, our study reveals need for improvements as additional motive category, besides intrinsic interest like general political interest, or enjoying to meet like-minded peers. Although citizens' motives to engage in open government platforms largely resemble the motive categories of innovative users like open-source programmers or consumers to participate in co-creation projects, our results show some differences. Furthermore the identified motives significantly differ between active and less active citizens and have a different effect on participation behavior.

1 Introduction

The burgeoning literature on “open innovation” has revitalized firms’ interest in purposively opening their business models in order to commercialize not only their own ideas but also external ones [12, 13]. Prominent case studies document that companies have discovered the value to be gained from tapping into external sources of innovation [36, 47] and there is first empirical evidence that open innovation is having a real impact. New information technologies and social media offer quick access to a large “crowd” of creative minds at low cost. Indeed, crowdsourcing has become a popular strategy to implement distributed and participatory problem solving and value creation activities [54].

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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 [12, 13]. Whilst 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 [34]. 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 [53].

We claim that the public sector and "public problems" constitute an important area of research on distributed and "open" problem solving in the public sector, what we call "open government". Recent case examples on problem solving activities in the public sector undermine the need for openness in governmental decision 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 [34].

However, open government as new way to integrate citizens in public problem solving and value creation activities needs citizens who are motivated and committed to contribute and participate in such "open government projects" in order to increase its outcomes. So far no study exists, exploring why some citizens engage in "open government projects" offering web 2.0 functionality and collaboration possibilities known from social networks like Facebook or Open Source Software communities like Apache. The aim of the study is to shed light and widen our understanding on open government platforms and their participants. In more detail we are interested in what motivates citizens to engage in open government platforms and submit their ideas, comments, and/or ratings? Besides this, how do the identified motives affect community members' actual behavior and level of contribution – regarding the number of contributed ideas, comments and evaluations? The German open government initiative "Aufbruch Bayern" served as empirical field for our research.

Our paper is structured as follows: we briefly introduce the concepts of open innovation and crowdsourcing and review the relevant literature on participation in open-source projects, virtual communities of practice, online communities, and virtual consumer integration to identify relevant motives to engage in governmental crowdsourcing activities. Then we present the design of our study and the results of our analysis. Finally, we conclude with a discussion of theoretical as well as practical implications of our findings.

2 Literature Review

When opening up to external influences, firms can involve a range of different external actors ranging from suppliers, research organizations, universities [23], customers and users [9, 65]. In fact, the potential impact to be gained from interaction with customers (and users who may not be customers) during the innovation and value creation process has widely been recognized. It highlights that users should not be perceived purely as "value receivers" but also a "value generators" and "co-creators" [64]. Since the emergence of social networks, wikis, and user generated content portals on the Internet, the vision of open innovation and view of consumers as active and productive co-creators became true.

However, only when consumers 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. According to social exchange theory [7, 22, 29, 35, 61], the reason why people interact with others is because they expect that doing so will be rewarding. Constant et al. [14] were among the first to relate social exchange theory to information and knowledge sharing, especially within organizational environments that make use of technology such as IT systems. They concluded that users will share their knowledge when anticipative outcomes are greater than the sharing costs. In short, this means that active participation takes place when the perceived value of participation is greater than the effort and time spent on participation.

2.1 Intrinsic and Extrinsic Motivation

The reasons why consumers undergo virtual crowdsourcing or co-creation activities may be manifold and originate from different sets of motives. According to Deci and Ryan [20, 21] engaging in activities and tasks can be considered as a function of intrinsic motivation and self-determined extrinsic motivation.

Intrinsic Motivation: Hobbies like playing chess, dancing salsa, rock climbing, or gardening are considered as playful, interesting, challenging, and exciting activities often executed as a means of an end [20]. Individuals intrinsically motivated may consider their virtual contribution to crowdsourcing or co-creation activities as playful and enjoying and therefore perceive it as rewarding instead of pure effort. It is not the outcome but the activity itself, creative consumers may derive benefit from. Such individuals show a positive attitude towards and are interested in internet-based crowdsourcing activities. Intrinsic motivation can be noticed as interest, involvement, curiosity, satisfaction, or positive challenge [1]. The reason for intrinsic motivation is an individual's very own need for feeling competent and self-determining in dealing with his or her environment [20].

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Extrinsic Motivation: Consumers are extrinsically motivated, if they focus on contingent outcomes that are separable form the activity per se [21]. Deci and Ryan distinguish between 'informational' and 'controlling' extrinsic motivators, depending on its effect on intrinsic motivation. 'Informational' extrinsic motivators that increase someone's sense of competence, need for finding a creative solution, or prevailing task involvement are considered as additional bonus and activity encouraging, reinforcing someone's intrinsic motivation, while 'controlling' extrinsic motivators like status, or job promotion confine self-determination and are considered as counterproductive as they undermine initial intrinsic motivation [20, 21].

2.1 Motives for Virtual Consumer Engagement

Drawing on the rich body of research founded in related fields such leisure [62], and online communities mainly open-source projects [19, 30, 32, 33, 41, 49, 51, 56], virtual communities of practice [2, 3, 18, 43, 44, 57], as well as user innovation communities and virtual consumer integration [25, 26, 31], a number of motives can be identified which may motivate citizens to engage in open government initiatives and are summarized in table 1.

Table 1: Motives for Virtual Consumer Engagement

Autotelic – Playful Task	Individuals engage in tasks because the activity itself is considered as rewarding. Consumers involved in innovation tasks [45] of a certain product category [8], or brand [15, 46] may engage in virtual product developments. According to Belk et al. [5], such tasks may offer a state of 'jouissance' people try to maintain.
Curiosity – Exploration – Arousal Seeking	Curiosity may be defined as the desire for knowledge because of intrinsic reasons [6]. People gain intrinsic satisfaction from relieving curiosity [63]. A distinction can be made between specific and diverse curiosity motivated behavior [6]. The former refers to the exploration of a single stimulus while the latter represents a tendency to seek stimulation from a variety of sources. Consumers may engage in virtual new product development just because they are curious, or because they want to escape boredom.
Achievement – Challenge - Self Efficacy	The opportunity to prove someone's self-efficacy, drives consumers to innovate on the Internet [37]. Consumers that are optimistic about their capabilities to solve a certain task and cope with anticipated difficulties may perceive the activity as a challenge to be mastered. Consumers, just like "Hackers" may be proud of their contributions [40].
Skill Development – Knowledge Acquisition	People are motivated to perform an activity because they are striving to improve their skills and gain additional knowledge [1, 17, 20]. Innovative users get in contact with their friends, peer group members, and producers because they look for complimentary knowledge and professional support, needed to advance their own ideas [39, 66]. Engaging in virtual new product development may enable consumers to learn more about new technologies and products.
Information Seeking	Prior studies show that people participate in online communities because they are looking for information relevant to them [27]. According to [10], online communities offer a possibility to gain access to otherwise obscure or inaccessible information. Consumers may engage in virtual new product development because they are seeking for innovation or product related information.

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Recognition – Visibility	Consumers may participate in virtual new product development to become visible and get recognition from other participants as well as from the producer. Online community members share their know-how and participate in activities connected to effort for ego gratification motives, fame, and reputation [32]. Further, consumers derive benefits from building up direct relationships with companies due to special treatment, offered self-esteem, and reduction of uncertainty [28]. Strong brands provide additional benefits, as they are relevant for consumers' self-identity creation [24] and serve as a means to express someone's individual lifestyle [15]. Engaging in virtual product developments may enable consumers to become visible and known as (co-) innovator beyond their local boundaries.
Altruism – Community Support	Altruism can be defined as "doing something for another at some cost to oneself" " [52 p.5]. A lively debate is going on as how to define altruism. Without going into the definitions in more detail, altruism may motivate consumer to engage in virtual [32].
Make Friends	Beneath the interest for the topic, the possibility to get in contact with like-minded people is a main reason why consumers engage in virtual communities [38]. Moreover, Gwinner et al. [28p. 104] point out that consumers interacting with companies interpret their relationship with employees as being similar to friendship. This is illustrated by the customer statement "he's like a kind of friend now". Getting in touch with like-minded people – employees and consumers, may be a reason for consumers to participate in virtual NPD.
Personal Need – Dissatisfaction	Sports enthusiasts start to modify or develop their own products because they derive benefit from using their innovation integration [25]. Such lead users develop their own products because they are dissatisfied with existing products available on the market and because they expect attractive innovation-related benefits from a solution to their leading-edge needs [66].. Personal need may motivate consumers to virtually engage in new product developments despite limited influence on the final design.
Compensation – Monetary Reward	Immediate as well as delayed payoffs may be the reason why consumers engage in innovation activities [42]. Consumers engaging in virtual NPD may be interested in the offered monetary incentives such as give-aways, bonus points, prize drawings or monetary compensations delivering immediate benefit. The more time and effort consumers invest, the stronger will be their need for monetary compensation [66]. While monetary incentives may be detrimental for creativity [1], no negative effects on survey response quality have been found [58].

Analogously, we assume that citizens may engage in open government initiatives if they expect that their behavior will be rewarding. They may consider participation as rewarding as soon as the perceived benefits outweigh the invested costs and efforts. Based on the previous findings we identified the following motive categories that seem to be of relevance in the context of open government platforms: For citizens, a number of consequences linked to their participation in the open government projects such as *general political interest*, *acquiring and sharing knowledge and expertise* or *supporting the collective welfare*, or *idealism* may be considered as rewarding. The *enjoyment* of such initiatives and intrinsic satisfaction associated with and derived from the activity within the open government platform may be an additional source of value regardless of its outcome. Further the *personal need or dissatisfaction* with the current political initiatives may be another motivator to engage in the open government platforms.

Latest research not only focused on the individual motivational aspects that lead individuals to engage in a co-creation activities but related these to other variables such as the contribution context, behavioral patterns, personal values as well as personal attributes, respectively characteristics of the individual contributor [19, 51]. The study by Oreg & Nov [51], for example showed that participants in the software context (i.e. open-source software developers) tend to have higher mean scores on reputation-building and self-development motivations, whereas participants in the content context (i.e. Wikipedians) tend to be higher in altruistic motivations. David & Shapiro [19] further show that community members are rather heterogeneous in their motive structures and that that the various motivational profiles of developers significantly influence a developer's preference for different-sized projects as well as actual participation behavior and role within the community. Butler et al. [11] found that the motives of community owners significantly differ from active and silent participants. Social and altruistic motives are much more important for owners than for active or silent participants. In turn, information motives are much more important for silent participants than for the other two groups. Further, motives also significantly impact the participants' activity level, respectively community building work, as well as kind of contributions such as total time spent, social encouragement, content provision, or participation in discussions.

These findings may offer valuable hints also for co-creation platforms in the public sector by governmental agencies and public administration. We assume that motives may influence the level as well as kind of participation. In more detail, we expect that motives will impact the number of visits, submitted ideas, and given comments. In line with previous findings, we assume that the most active participants may mainly be driven by intrinsic motives. Knowing the major drivers and motives to visit, join as well as actively participate in open government platforms may further support open governmental initiatives to aim high participation and high quality contributions. Thus, our study aims to contribute to a better understanding.

3 Open Government in Practice

3.1 Research Context – Crowdsourcing Initiatives in the German Public Sector

In the past, politicians and officials were reluctant to use new information and communication technologies. Nowadays, we observe an increasing interest and adoption of these technologies and media. Transparency, involvement and reliability are just some of the advantages of so called "open government projects" which aim for high participation of citizens in public problem solving and value creation [34]. Our review of existing open government projects reveals that in Germany the number of open government project has increased over the last years.

However, Germany is still less developed than countries such as Great Britain or the United States in terms of "openness" of governmental processes. Indeed, Barrack Obama can be seen as a global outrider for opening governments. His election campaign and first steps as president of the Unites States, where he tried to involve people into the structure of the new government, showed not just innovation, but eagerness to experiment [50].

Recently, researcher efforts on public management and innovation in public services have started to treat citizens as customers and thus, have transferred well elaborated concepts of open innovation, co-creation, and crowdsourcing to the public sector. Hilgers and Ihl creation [34], for example, developed a framework for citizensourcing, which first applies the idea of "crowdsourcing" to governmental matters creation.

3.2 The 'Aufbruch Bayern' Case Study and its Research Design

We have chosen the 'Aufbruch Bayern' participation platform to analyze our research questions. In July and August 2010, the Bavarian State Government, announced an online participation platform. In between eight weeks Bavarian citizens were called to suggest their ideas, concepts and best practice cases related to three main policy areas: Family, education and innovation. The overall aim was to actively integrate Bavarian citizens into the policy development process, to increase awareness towards these policy areas, and to establish a closer relation between the governmental institution and the citizen. The initiative represents a unique open government projects 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.

3.3 Data Sources and Data Collection

A multi-method approach [16, 59, 60] – including an online survey as well as a log server analysis – was applied to gain a deeper understanding. The strength of mixed method research lies in its holistic way of viewing and answering research questions. Hence, mixed method research helps to offset the disadvantages that certain methods have by themselves, thereby enabling to avoid common method bias, and yields the possibility for falsification (i.e. divergent findings) as well as stronger inferences [55].

Log File Analysis: in order to retrieve the actual number of contributed ideas, comments, as well as evaluations we were able to fall back on the log file of the server – the server database that is logging anything happening on the community website [48]. Any time the user logs in again, the system inherently creates data namely leaving a trace of the actions on the platform. Since the server tracks every visit on the platform valuable information can be extracted about the number of contributed ideas, number of returning visits, and other site use and navigation behaviors [48].

Needless to say that researchers have to consider and be in line with the data privacy protection regulations when doing this kind of analysis. All examinations have been conducted on the aggregated level, data was treated on an anonymous level, where no information to the individual contributor can be traced back.

Online Survey: an online survey was launched after the crowdsourcing initiative in order to get further information about the motives of participation and demographics. The questionnaire included 12 motive items adopted from Füller [26] which were slightly adjusted to the political context. All items were measured with a 5-point Likert scale. After an online pre-test with 25 participants, data collection with the final questionnaire was collected over a period of two weeks in October, 2010. 2,094 emails with a link to the online questionnaire were sent and 437 complete questionnaires were returned. This corresponds to a response rate of 21 %. Respondents received no incentives for answering the survey furthermore, the questionnaire was provided in German. To test a possible non-response bias, the means of early respondents and late respondents were compared and no significant differences were found. Therefore, non-response bias does not seem to be a problem [4]. Within the survey sample, 60.8 % of the respondents are male, 39.2 % are female. Moreover, 7% can be described as immigrants in contrast to about 80% German participants. On average, 21% of the participants of the survey had a secondary school qualification and almost 70% a high school diploma. Over 75% (Mean = 4.2; SD = 1.7) of the participants indicated that they go regularly to the polls. Finally, the majority of the survey participants can be described as loyal voters (Mean = 3.0; SD = 1.8) and as experienced in political issues (Mean = 1.7; SD = 0.9).

4 Findings

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 their ideas, concepts or best practices. Results also indicate that citizens show a strong motivation and commitment to participate in crowdsourcing activities related to public problems. The participations contributed nearly 750 ideas and generated 1,540 pages of content. The community conducted 10,932 community evaluations, and 6,342 contributions to the discussion. Over the period of eight weeks participants spent 760 working days on the platform which accounts to more than 364,800 minutes of residence time on the platform.

However, we have to mention that the quoted 760 working days only contain the hours spent 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 during the two month with the interactive dialogue-platform undermines the tremendous impact of the crowdsourcing initiative. An analysis of the feedback data collected in the post-project survey supports this argument.

The following motives turned out to be the main drivers a for citizens' participation (in descending order). The main motives turned out to be:

TABLE 1

12 Motive Items Ordered According to Strength of Participants' Agreement

I participated in the "Aufbruch Bayern" dialogue platform because…	**Mean**	**SD**
… I want to push/advance Bavaria.	1.78	.97
… I am interested in political issue.	1.79	1.00
… I like to get involved in favor of the common welfare.	1.81	.88
… I want to improve the politics currently dominating the Bavarian state government.	1.82	1.07
… it enables me to address in political issues.	2.02	1.07
… I like to introduce my suggestions within the scope of a public discussion.	2.07	1.08
… I am dissatisfied with the current political situation.	2.22	1.21
… I was curious.	2.26	1.26
… I want to help other members by contributing to relevant discussions.	2.38	1.17
… I want to support the Bavarian state government.	2.75	1.27
… I enjoy meeting like-minded people.	3.17	1.31
… I have previously participated in similar platforms.	3.96	1.30
N= 437		

Principal component analysis with varimax rotation was performed on the 12 items. Using Kaisers' eigenvalue-one criteria a three factor solution was extracted. (All items that did not load high on any factor (> 0.5) or with high cross loadings (> 0.40) were eliminated. Based on these criteria 3 of the 12 items were deleted. Using Kaiser-Mayer-Olkin (KMO) measure for sampling adequacy (KMO =.711) and Bartlett's test of sphericity (p = 0.000) indicated appropriate application of factor analysis. Coefficient alpha and split-half testing was used to test reliability of factor scores. While satisfactory factor reliability should exceed .70 values decreasing to .60 are acceptable, especially for exploratory research (Hair et al. 2010, p.125). Therefore, we retain the identified motivational factors community interest and need for improvement for further analysis, accepting the caveat of a somewhat lower reliability for these to constructs. Future development of additional measures for this concept may be useful. Table 2 presents the final factor solution and contains factor loadings, along with Cronbach α's.

TABLE 2

Summary of Exploratory Factor Analysis and Scale Reliability

	Factor Loading	Alpha (α)
Political Interest		.72
… it enables me to address in political issues	.80	
… I want to push/advance Bavaria.	.71	
… I like to introduce my suggestions within the scope of a public discussion	.70	
… I am interested in political issues.	.65	
Platform / Community Interest		.58
… I was curious	.74	
… I enjoy meeting like-minded people	.72	
… I have previously participated in similar platforms	.70	
Need for Improvement		.60
… I am dissatisfied with the current political situation.	.92	
… I want to improve the politics currently dominating the Bavarian state government	.68	

As the exploratory factor analysis shows, consumers may engage in open government platforms for three reasons: *a) interest in politics:* citizens show an intrinsic interest in the discussion of political issues and generation of ideas for potential solutions, *b) interest in the platform/community:* citizens are not only interested in the political topic but also in the offered platform and the people who frequent such communities *and c) need for improvement:* citizens engage in the political dialogue because they are dissatisfied with the current politics and are aiming to improve this situation.

Logistic regression analysis was conducted to determine the influence of the different motives on citizens' contributions. Contributed ideas, contributed comments, and contributed evaluations served as dependent variables with the value 0 as no contribution and 1 as at least one contribution. Table 3 shows the results of logistic regression analysis.

The results show, political interest is the main driver for citizens' active contribution to open government platforms such as 'Aufbruch Bayern'. Political interest has a significant influence on the probability to submit an idea as well as to submit a comment. While interest in the platform/community and need for improvement as further identified motivators have no significant influence on the probability to submit an idea or submit a comment, they do have a significant influence on the probability to contribute some evaluations. Interestingly, political interest has no significant influence on the probability to contribute an evaluation.

TABLE 3

Summary of Regression Analysis: Contributed Ideas/ Comments/ Evaluations

	Dependent Variables		
Independent Variables	Contributed Ideas	Contributed Comments	Contributed Evaluations
Factor 1: Political Interest	.512 ***	.456 **	.096 n.s.
Factor 2: Platform/Community Interest	.106 n.s.	.019 n.s.	.193 †
Factor 3: Need for Improvement	.093 n.s.	.071 n.s.	.229 *
Chi^2	15.567 **	8.795 *	6.115 †
-2log likelihood	536.645	516.612	489.196
Cox & Snell R^2	.037	.021	.015
Nagelkerke R^2	.050	.029	.021

† p< 0.1; * p<0.05; ** p < 0.01; *** p<0.001

5 Discussion and Implications

The contributions of our findings are manifold. First, we tried to apply the concept of open innovation platforms to the political context and explore their applicability in this context. Second, our research enables to describe and better understand the motive structures of citizens to participate in open governmental initiatives. Third, they show how the different motivators such as political interest, platform/community interest, and need for improvement effect citizens contribution behaviour. It seems that such platforms are especially attractive for citizens which show a certain interest in the political debate. Such citizens are willing to bring in their ideas and openly comment the suggestions of others. An open political discourse emerges among these participants that may offer the opportunity to gain rich insights in the opinions and views of naturally interested citizens. Citizens more interested in the platform, or enjoy meeting like-minded peers or feeling a need for improvement of the political situation may play a more passive role on such platforms. They tend to rather read and evaluate the user generated content of other citizens than actively contributing their ideas or comments. Nevertheless, such driven citizens may also provide valuable insights as they may offer some evaluations based on the wisdom of this crowd. Several implications may be derived from these findings.

The initiators of platforms such as 'Aufbruch Bayern', for example may offer certain comment and evaluation functionalities which are especially tailored to participants heterogeneous in their motivations encouraging various citizens to engage in open government platforms. Further, specific strategies may be developed to raise participant's levels of active contributions by addressing citizen's specific motives. For example, politically less interested citizens may be provided with various evaluation tasks before they may be asked to start contributing their own comments. The main challenge of open government platforms may be to take the ideas and suggestions of interested citizens seriously and to ensure their follow-up, otherwise participants may be frustrated and attack the official government instead of actively supporting it through their constructive suggestions. Although this study comes up with first insights, some unanswered questions remain: What is the effect of different motives on citizen's level of contribution; it would be interesting to further explore for example the consequences of citizen's participation. Does it really increase their political skills, reduce their disenchantment of politics or create a better understanding of the current political situation. Such questions may be addressed by future research investigating how citizens may be openly integrated into governmental processes and activities. At this point we would like to encourage the research community to pick up the limitation of this research effort, such as the focus on one single case, the absence of a qualitative research approach, as well as the already mentioned weaknesses of statistical quality criteria.

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