



Paper to be presented at DRUID18
Copenhagen Business School, Copenhagen, Denmark
June 11-13, 2018

Open Social Innovation: Why and How Seekers Use Crowdsourcing for Societal Benefits

Krithika Randhawa

University of Technology Sydney
UTS Business School
krithika.randhawa@gmail.com

Ralf Wilden

Macquarie University

ralf.wilden@macquarie.edu.au

Joel West

Keck Graduate Institute

KGI@joelwest.org

Abstract

Despite the increased research attention on crowdsourcing, we know little about why and how seeker organizations use this open innovation mechanism. Furthermore, previous studies have focused on profit-seeking firms, despite the use of open innovation practices by public sector organizations to achieve societal benefits. In this study, we investigate the organizational and project level choices of government (seekers) that crowdsource from citizens (solvers) to drive open social innovation, and thus develop new ways to address societal problems, a process referred to as "citizensourcing". Using a dataset of 18 local government seekers that use the same intermediary to conduct more than 2,000 crowdsourcing projects, we develop a model of seeker crowdsourcing implementation that links a previously-unstudied variance in seeker intent and engagement strategies, at the organizational level, to differences in project team motivation and capabilities, in turn leading to varying online engagement behaviors and ultimately project outcomes. Comparing and contrasting governmental with the more familiar corporate context, we further find that the non-pecuniary orientation of both seekers and solvers means that the motives of government crowdsourcing differ fundamentally from corporate crowdsourcing, but that the process more closely resembles a corporate-sponsored community rather than government-sponsored contests. More broadly, we offer insights on how seeker organizational factors and choices shape project-level implementation and success of crowdsourcing efforts, as well as suggest implications for open innovation activities of other smaller, geographically-bound organizations.

Open Social Innovation: Why and How Seekers Use Crowdsourcing for Societal Benefits

Abstract

Despite the increased research attention on crowdsourcing, we know little about why and how seeker organizations use this open innovation mechanism. Furthermore, previous studies have focused on profit-seeking firms, despite the use of open innovation practices by public sector organizations to achieve societal benefits. In this study, we investigate the organizational and project level choices of government (seekers) that crowdsource from citizens (solvers) to drive open social innovation, and thus develop new ways to address societal problems, a process referred to as “citizensourcing”. Using a dataset of 18 local government seekers that use the same intermediary to conduct more than 2,000 crowdsourcing projects, we develop a model of seeker crowdsourcing implementation that links a previously-unstudied variance in seeker intent and engagement strategies, at the organizational level, to differences in project team motivation and capabilities, in turn leading to varying online engagement behaviors and ultimately project outcomes. Comparing and contrasting governmental with the more familiar corporate context, we further find that the non-pecuniary orientation of both seekers and solvers means that the motives of government crowdsourcing differ fundamentally from corporate crowdsourcing, but that the process more closely resembles a corporate-sponsored community rather than government-sponsored contests. More broadly, we offer insights on how seeker organizational factors and choices shape project-level implementation and success of crowdsourcing efforts, as well as suggest implications for open innovation activities of other smaller, geographically-bound organizations.

1. Introduction

Open innovation (OI) allows organizations to leverage external sources of innovation to improve performance (Chesbrough and Bogers, 2014; Randhawa et al., 2016; West et al., 2014). One important application of OI has been the use of crowdsourcing by organizations (seekers), engaging an external voluntary crowd of individuals (solvers) via an online intermediary, to obtain innovative ideas and solutions (Afuah and Tucci, 2012; Boudreau and Lakhani, 2009; Howe, 2006). However, our knowledge is limited in two areas. First, the majority of previous work has examined variance in solver-related aspects (e.g., Boudreau et al., 2011; Jeppesen and Lakhani, 2010; Terwiesch and Xu, 2008), with limited focus on the role of seekers in the crowdsourcing process (Dahlander and Piezunka, 2014; Lüttgens et al., 2014; Palacios et al., 2016). Second, most previous crowdsourcing studies have focused on for-profit corporations, despite calls for research on the application of OI practices to government and not-for-profit organizations (Dahlander and Gann, 2010; West and Bogers, 2017; West et al., 2014).

Crowdsourcing has the potential to help government organizations obtain better solutions for a range of problems, and gain citizen buy-in for both the decision process and solutions. For example, after the 2011 New Zealand earthquake devastated much of Christchurch, the city council used an engagement platform to crowdsource citizen feedback, ideas, and designs to rebuild infrastructure. Case studies provide examples of how governments use crowdsourcing to find innovative solutions to societal problems (e.g., Bommert, 2010; Chesbrough and Di Minin, 2014). Yet, as with corporate crowdsourcing, this research has focused on the solver side of the process such as their motivations to contribute to such initiatives (Kube et al., 2015; Wijnhoven et al., 2015). We know far less about why and how governmental organizations (seekers) engage

in crowdsourcing, and how these affect successful outcomes which can help achieve societal goals.

We pose two research questions: Which seeker factors affect crowdsourcing outcomes, and how does crowdsourcing in local governments differ from corporate crowdsourcing? We address these questions using a novel dataset of Australian local governments served by the same crowdsourcing intermediary. From among public sector clients that had conducted at least one crowdsourcing effort, we selected 18 local governments that between them had conducted more than 2,000 crowdsourcing projects. We interviewed both client and intermediary representatives for each of the efforts and use these data to develop a model of seeker crowdsourcing implementation that links the variance in seeker intent, engagement strategies, project team capability and motivation, to differences in engagement behaviors that make their efforts more or less likely to succeed. Our findings provide a better understanding of seekers' crowdsourcing motivations, strategies, and behaviors. We thus respond to the calls of scholars for more research investigating the seeker side of the crowdsourcing process (Lüttgens et al., 2014; Palacios et al., 2016; Piezunka and Dahlander, 2015), and add to research on how corporate OI mechanisms such as crowdsourcing can be applied by public, not-for-profit organizations to deliver societal benefits (Chesbrough and Di Minin, 2014; West and Bogers, 2017).

After a brief overview of prior crowdsourcing research, we present data and results from the sample of Australian local governments. We show how regulatory pressures on the organizations in our sample provide a previously-unstudied variance in the level of organizational intent and strategies, as well as project implementation factors, leading to differences in seeker engagement behavior. From this, we discuss how this variance helps and

hinders the efforts of government entities to utilize OI to improve society, and compare and contrast crowdsourcing in the corporate and government contexts.

2. Literature review and theoretical background

2.1 Crowdsourcing in For-profit Organizations

The rise of the digital era has provided for-profit and non-profit organizations with new modes of value creation by implementing OI through web-based technologies (Piller and West, 2014; West et al., 2014). Crowdsourcing has emerged as one such OI process by which firms co-ideate, co-design, and co-innovate with an external crowd of individuals through an “open call” for ideas and “broadcast search” for solutions to R&D problems via online intermediary platforms (Afuah and Tucci, 2012; Poetz and Schreier, 2012). Research has provided valuable insights into how firms crowdsource innovation via idea competitions (e.g., Piller and Walcher, 2006), innovation contests, and tournaments (e.g., Boudreau et al., 2011; Terwiesch and Xu, 2008), and collaborative communities (e.g., Boudreau and Lakhani, 2009). These studies have demonstrated how crowdsourcing can help firms overcome local search bias to look beyond existing sources of knowledge and tap into new (external) sources of innovation (Lüthje et al., 2005), often through the use of OI intermediaries (Lauritzen, 2017), to solve innovation problems and capture value from OI (e.g., Afuah and Tucci, 2012; Jeppesen and Lakhani, 2010). Most OI research has focused on the solver side of the crowdsourcing process, considering how solver motivations (e.g., Brabham, 2010) and incentives (e.g., Boudreau et al., 2011; Terwiesch and Xu, 2008) affect solutions.

Research on seeker activities has tended to focus on specific aspects of implementing crowdsourcing contests, such as seekers’ managerial challenges in dealing with intermediaries (Sieg et al., 2010), critical activities in problem formulation (Wallin et al., 2017), and project-

level issues faced by seekers and related interventions in running tournaments (Lüttgens et al., 2014). Far less research has focused on the broader organizational aspects of why and how seekers deploy crowdsourcing, and how these choices affect the value that might be realized from these efforts (Dahlander and Piezunka, 2014; Lüttgens et al., 2014; Palacios et al., 2016).

One unanswered question is how seekers engage with solvers to solicit ideas and suggestions (Dahlander and Piezunka, 2014) and integrate these into their internal innovation efforts (Piezunka and Dahlander, 2015) — and even less on the broader organizational factors affecting this seeker engagement (Palacios et al., 2016). As a result, we know very little about the organizational goals and strategies driving seeker engagement behavior. Another limitation of seeker research is how organizational and project team characteristics impact both crowdsourcing project implementation and outcomes. A number of studies have examined the crowdsourcing activities of a single firm, and thus between-firm variance is not available (Bayus, 2013; Leimeister et al., 2009; Poetz and Schreier, 2012; Schemmann et al., 2016). In other studies, the sample includes data from multiple seekers and solvers, but the analysis focuses on solver and task attributes and does not utilize seeker measures (e.g. Boudreau et al, 2011). One exception is Mortara and her colleagues (2013) who examined the technology acquired in eight contests conducted by five large European and American firms. Another is Lüttgens and his colleagues (2014), who in a study of six large German engineering companies that conducted one crowdsourcing tournament each, identified 11 barriers to the success of running and benefitting from their respective tournaments. At the same time, samples of firms that engage intermediaries represent a truncated distribution of firm commitment if (as reported) the cost of such engagement — including both contest prizes and intermediary fees — can range from tens of thousands to millions of dollars (Wen and Lin, 2016).

2.2 Crowdsourcing Open Social Innovation

Only limited research has examined how government and not-profit organizations can implement open social innovation, that is, use OI mechanisms to develop new ways to address societal problems, meet societal needs, and deliver societal value (Chalmers, 2013; Chesbrough and Di Minin, 2014). Given that previous research has alluded to differences in OI practices between government and corporate institutions (e.g., Vanhaverbeke et al., 2014; West and Bogers, 2017), it is even more important to understand how seekers implement crowdsourcing in this context, which has been referred to as citizensourcing (Hilgers and Ihl, 2010; Lukensmeyer and Torres, 2008).

Public sector organizations have started to adopt more open, collaborative avenues for innovation, problem-solving, and societal value creation (Hilgers and Piller, 2011; Nambisan, 2008; Voorberg et al., 2015). Crowdsourcing is such an OI mechanism, by which governments involve citizens to co-create public services, and co-design policies (Hilgers and Ihl, 2010; Lukensmeyer and Torres, 2008), and thus collaboratively solve societal problems (Bommert, 2010; Chalmers, 2013; Chesbrough and Di Minin, 2014). These organizations must move away from contracting solutions to well-defined problems that yield readily implementable solutions, towards a less defined solution provider space in which solutions may be more abstract and possibly not implementable (Mergel and Desouza, 2013). Crowdsourcing represents a potential transformation in the way government delivers societal value, by shifting from employees to citizens for tasks related to public service creation, administration, and policy-making (Certoma et al., 2015; Hilgers and Ihl, 2010; Lee et al., 2012).

The success of crowdsourcing as an OI practice for for-profit firms suggests that crowdsourcing can deliver similar value for the public sector (Chesbrough and Di Minin, 2014;

Vanhaverbeke et al., 2014; West and Bogers, 2017). Yet, OI initiatives in for-profit organizations are mainly aimed at generating competitive advantage and superior financial performance, while public service innovation is aimed at delivering improved service performance and creating societal value (Lee et al., 2012). Governments face challenges coming up with innovative solutions for a variety of systemic reasons, including restrictions imposed by political influences, significant resource constraints, bureaucratic processes, less flexibility and autonomy, top-down management, and a culture that is resistant to change (Alves, 2013; Bommert, 2010; Lukensmeyer and Torres, 2008). Furthermore, existing organizational structures often lead to citizens not receiving the services they wish for, and objectives that are not purely financially-driven (Lamb Jr, 1987).

Previous research has found that while public sector organizations may be open to external knowledge inflows (inbound open innovation), they are reluctant to reveal own knowledge and share findings and feedback with the community (Lee et al., 2012). Also, while citizens are welcome to voice their (dis)satisfaction with service innovations, the actual innovation process remains largely internal to the public service provider (Collm and Schedler, 2012). This raises the question of the underlying *seeker intent* driving public sector organizations to engage with stakeholders for innovation. Although previous research has provided valuable insights into the motivations of citizens as solvers and why they contribute (Kube et al., 2015; Wijnhoven et al., 2015), we know little about the intent of public sector organizations as seekers to engage in crowdsourcing, and how this links with their organizational strategies and project team choices to implement crowdsourcing.

3. Method

3.1 Sample

Our sample of local governments has three main characteristics that make it different from previous research. First, with a balanced range of outcomes, our sample is not biased toward success stories. Second, our organizations provide similar services in the same national context and use the same intermediary as a crowdsourcing platform, controlling for key potential confounds. Finally, in our sampling frame, the national government required local governments to consult with their communities, and for many crowdsourcing via an intermediary is the most convenient way to meet this requirement. This means that our sample includes organizations with varying degrees of enthusiasm to crowdsourcing — as opposed to most studies, where only the most committed organizations expend the resources to hire an intermediary.

Our sampling frame consists of Australian local governments that utilize an intermediary we call Nexus. Established in 2007, Nexus specializes in helping public sector organizations engage online communities by providing digital platforms equipped with a range of online tools, functionalities and services. Nexus was the first to provide crowdsourcing services to Australian public sector organizations, and is the largest provider. From their database of 213 public sector clients, we identified 94 local governments that had conducted one or more crowdsourcing efforts. We used theoretical sampling to select 18 governments (Table 1), maximizing variation for local population, online community size, total projects, project site visits, and when they commenced crowdsourcing projects (Eisenhardt and Graebner, 2007; Guba and Lincoln, 1989).

Insert Table 1 about here

3.2 Sampling variable: Online engagement Behavior

In creating our sample, we sought variation in the level of online engagement behavior as measured by the intermediary's algorithm, because Nexus has found that level to be a predictor of crowdsourcing project success and thus positive societal impact. We validated this through our own examination of seekers' projects, and classified their online engagement behavior into three categories – High, Medium, and Low – based on the following criteria:

- (1) *Nature of projects*: Level of diversity in project topics ranging from strategic (e.g., long-term policy-making) to operational (e.g., community service provision);
- (2) *Platform tools and functionalities used*: Level of diversity in online tools used for ideation and feedback ranging from simple surveys to sophisticated discussion forums;
- (3) *Online communication processes used*: Level of clarity, frequency, user-friendliness and transparency of online information and feedback-sharing via site design, layout, language, progress updates etc.

This classification was undertaken during and after the first phase of interviews with Nexus executives. This led to our sample selection, based on which we moved to the second phase of conducting interviews with Community Engagement managers of local governments.

3.3 Data Collection and Analysis

We collected data over a two-year period: (1) 21 semi-structured interviews with representatives of the local governments and 23 with intermediary managers; (2) online observations of past and ongoing crowdsourcing projects; (3) archival data including local government policy documents, websites, press releases, Nexus blog, best practice client videos and case studies; and (4) follow-up e-mails and informal conversations to track ongoing processes in real-time. The interviewed government representatives and Nexus managers were related in that all governments were

clients of Nexus. Nexus managers included those that directly dealt with the clients on various operational aspects of crowdsourcing projects (e.g., client engagement manager, sales manager, learning & practice manager), but also those who engaged with clients on a more strategic level such as the Chief Technology Officer and Chief Practice Manager. This allowed us to get a rich perspective on the crowdsourcing intent, strategies, and choices of the local government seekers.

The first phase included semi-structured interviews of 8 Nexus executives and reading case studies of relevant projects on Nexus' website. During this initial phase, Nexus explained its algorithm for evaluating seekers' online engagement activities and its criteria for scoring seeker projects — which we validated through our own online observation of projects. We accordingly classified the online engagement behavior of the 18 local government clients. In the second phase, we conducted 11 interviews with Nexus managers and 18 interviews with community engagement managers of local governments. The latter interviews began with open-ended, non-directive questions about their views of organizational crowdsourcing activities, and then asked about their overarching goals and motivation to engage in crowdsourcing, processes and challenges in implementing crowdsourcing, and critical success factors in their crowdsourcing journey. Interviews were supplemented by online observations and archival data. In the third phase, more than a year after the initial data collection, we conducted follow-up interviews with three Nexus and three seeker managers, plus extensively reviewed seekers' online communities (crowdsourcing projects) and archival data to understand outcomes of completed projects. All interviews were led as guided rather than structured conversations (Yin, 2003), lasted an average of 1 hour, and were recorded and transcribed.

Once the first few interviews were conducted, we began looking for initial patterns of how local governments conduct crowdsourcing. We then compared these against emergent

patterns from subsequent interviews, until the themes and insights began to converge and reach theoretical saturation (Yin, 2003). Our analysis followed multiple-case analysis logic (Eisenhardt, 1989), with each case confirming or disconfirming the inferences drawn from the others. We synthesized each organization's data into an individual case history. Based on this, we conducted within-case and cross-case analyses. We compared cases across different levels of online engagement behavior to identify themes and patterns (Eisenhardt, 1989), from which we formed theoretical constructs. We considered theoretical constructs to be relevant when two or more organizations independently described the aspects.

Throughout our analysis, we triangulated our interview findings with data from online observations and archival data, thereby modifying patterns as they developed; to ultimately identify patterns of regularity and recurrence in the data (Miles and Huberman, 1994). We also iterated between data and theory to discern how the emergent themes could be anchored in extant literature (Eisenhardt, 1989). Finally, we informed Nexus of our results which the team concurred with. This data analysis process helped ensure the internal validity of our study (Yin, 2003).

4. Seeker engagement, intent, and strategies for crowdsourcing

Figure 1 summarizes the model derived from our data. Consistent with prior research (e.g., Dougherty and Hardy, 1996), we find that successful projects depend on both organizational and project level choices. The essence of the model is summed up by this remark:

“How each council uses the platform depends on the notion of community/stakeholder engagement within the council. Councils are more inclined to operate more frequently and across a variety of areas, when community/stakeholder engagement is embedded in their culture. The others engage to meet statutory requirements (where governments are

made to engage on specific areas such as community parks). Here, the notion of community engagement is not embedded as a way of thinking, so councils do not recognize the importance and potential of using this across other areas (such as policy and strategic planning.)” (Sales Manager, Nexus)

Insert Figure 1 about here

Our findings show that, at the organizational level, varying seeker intent leads to different engagement strategies for crowdsourcing. Better strategies, through a comprehensive engagement framework, adequate resources, and processes, enhance the capability of project teams to implement crowdsourcing, and thus their engagement behavior. Also, we find that differences in seeker engagement behavior are driven not only by project team capabilities, but also their motivation to proactively implement crowdsourcing projects, which in turn is influenced by the seeker’s crowdsourcing intent. When this intent is well-articulated by senior leadership, employees are more motivated, and which translates into better project implementation, higher seeker engagement behavior, and ultimately better crowdsourcing project outcomes.

As described earlier, we define seeker engagement behavior as the activities that seekers’ project team members use to connect with community members on the online intermediary platform. Analyzing online activities, we coded characteristics of engagement across the three levels – High, Medium, and Low – and identify that differences in seeker engagement behavior is reflected in: (1) the nature of projects; (2) platform tools and functionalities used; and (3) online communication processes used (Table 2).

Insert Table 2 about here

4.1 The intent of seeker organizations

While the Australian government requires all local governments to consult with the community, we find that their intent to practice crowdsourcing varies based on the degree to which they place importance on seeking community inputs, which we label *seeker intent*. Our data shows that this seeker intent, as reflected in the top management team's commitment, drives organizational goal-setting. This in turn influences crowdsourcing strategy formulation and implementation. These findings are in line with strategy and innovation research that has established that senior management shapes the organization's strategic intent, and helps translate this into organizational goals (Hamel and Prahalad, 1994; Hamel and Prahalad, 2005; Slater et al., 2014), in turn driving innovation outcomes (Andriopoulos and Lewis, 2009; O'Connor and DeMartino, 2006; Slater et al., 2014). In our data, we found three levels of seeker intent based on the degree of emphasis on community involvement: (1) Perfunctory consultation (low); (2) Symbolic engagement (medium); or (3) Transformative change (high) (Table 3).

Insert Table 3 about here

Results reveal that local governments that place little importance on seeking community inputs view community engagement simply as *perfunctory consultation*, because the top management team seeks to use crowdsourcing to increase efficiency when complying with regulatory requirements rather than an opportunity for innovation. As the Nexus operations manager said "*The original motivation for these councils is to consult with the community as a formality.*" The senior leadership plays a key role in shaping seeker intent:

"[Leaders] don't really understand the value of engagement...community engagement is not truly embedded as a way of life [....] The focus tends to be on involving rather than empowering the community." (Media & Communication Officer, LG17)

Organizations exhibiting medium level of seeker intent (that is, place an average degree of emphasis on community input) use *symbolic engagement*. Rather than create new innovations, the top management team views crowdsourcing as a way to signal to community members that they have a voice in decision-making, and develop a sense of belonging to the community:

“Leadership is a real problem as senior leaders mainly see themselves as risk managers... very few of them are forward-thinking...they tend to have the fear of the unknown, and the fear that the role of the councils is being usurped (thinking that the community is making the decision), and this has a bearing on how they engage.” (Sales Manager, Nexus)

Organizations with high levels of seeker intent use crowdsourcing to achieve *transformational change* for the community. Here, the top management team views crowdsourcing as a robust way to co-create value with the community and maximize societal impact. This requires the top management team to be *“open to using [crowdsourcing and] ... not [be] fearful of engaging with the community” (Corporate Strategic Planner, LG6)*. The leadership of this organization has explicitly declared the seeker intent to ‘make the community a better place’ and thus places high importance on *“involving the community in decision-making for projects having a big impact on them” (Corporate Strategic Planner, LG6)*.

4.2 Seeker engagement strategies

We also found varying levels of engagement strategies: (1) Comprehensive, (2) Transactional, and (3) Compliance-driven; leading to different levels of engagement behavior. In line with previous strategy literature, we find that the chosen engagement strategy is the result of varying strategic intent of organizations (Hamilton et al., 1998; Prahalad and Doz, 1987; Prahalad, 1993). Based on our analysis, we define *seeker engagement strategy* as comprising three aspects: (1) the

quality of the engagement framework (i.e., broad principles and guidelines on how to engage with the community), (2) available and committed resources (e.g., financial and staff resource investments), as well as (3) quality of processes for implementing crowdsourcing (i.e., operating tools and procedures for community engagement) (Table 4). This is consistent with prior research findings that innovation strategy helps build and align internal organizational resources and processes to successfully implement innovation goals (Dougherty and Hardy, 1996), even in collaborative community-based innovation settings (Fjeldstad et al., 2012; Miles et al., 2010; Pisano and Verganti, 2008; Snow et al., 2011).

Insert Table 4 about here

A *compliance-driven* strategy adopted by seekers driven by perfunctory consultation is reflected in projects being implemented on an ad-hoc basis. In these organizations, “*there is no agreed strategic framework for community engagement leading to inconsistency in project approach - some officers just do what the minimum policy requirement is*” (*Engagement Coordinator, LG 16*). These organizations do not make long-term resource commitments to build capacity for crowdsourcing. One seeker explained:

“There is no organizational buy-in for the platform.... the department is paying from their operational budget for it – so it takes away from other projects we could use the funds for.” (Strategic Planning Coordinator, LG15)

Poor workforce resource allocation often results in projects being run by the communications team, which sees engagement as nothing more than a one-way communication channel. In these organizations, there is also lack of focus on developing systematic processes to implement crowdsourcing, or to integrate online and face-to-face interactions.

Seekers using a *transactional* strategy are driven by their intent to merely practice symbolic engagement. While the engagement framework goes beyond minimum compliance requirements, it is still not comprehensive:

“Our policy for consultation is very old-style - it is more a communication framework rather than an engagement framework. We are still working on developing a collaborative, holistic framework.” (Economic & Tourism Development Leader, LG14)

These organizations make limited resource investments, as one seeker revealed:

“We are only two people in the stakeholder engagement team. We do not go above & beyond the framework due to resource constraints – community engagement is resource intensive and time consuming.” (Leader, Corporate Communications & Marketing, LG 11)

As a result, teams neither integrate online and face-to-face interactions consistently, nor have structured processes to monitor the implementation of crowdsourcing projects. These factors restrict the ability of project teams to implement crowdsourcing, in turn translating into medium levels of engagement behavior.

On the other hand, a *comprehensive strategy* driven by the seeker intent to create transformative change is underpinned by a high quality engagement framework:

“Local Government Act & Integrated Planning & Reporting provides legislative requirements for engagement – but compliance is the minimum standard – it is important to go above and beyond. [Our] community engagement strategy is a broader document that outlines the principles for community engagement... [and] engagement projects are built on the basis of this.” (Senior Community Engagement Officer, LG8)

A seeker elaborates how such an integrated framework combines online and face-to-face engagement modes, and also guides the formulation of structured implementation processes:

“We use a stakeholder engagement template for every project to identify stakeholders who should be involved and what is required, based on which the mode of community engagement is decided. A decision is made as to where [online engagement] fits into this overall strategic engagement framework.” (Stakeholder Engagement Coordinator, LG4)

Further, teams are staffed by qualified professionals and have dedicated support for the deployment of crowdsourcing, increasing the capabilities of project teams, in turn translating into high level of online engagement behavior.

4.3 Project implementation

Seeker engagement strategy in turn affects *project implementation*, which we define as a composite of: (1) the extent of project team capabilities and (2) the degree of project team motivation to implement crowdsourcing. We find that better strategies enhance project team capabilities (i.e. the ability of project teams to implement crowdsourcing) through a comprehensive engagement framework, adequate resources, and processes (Table 4). When sufficient strategic resources (both financial and human) are not provided, project implementation suffers. This affects the online engagement behavior and in turn the likelihood of successful project outcomes. In particular, if inadequate resources reduce the hiring of dedicated and competent professionals, this lowers project team capabilities:

“The variety of tools used comes down to resourcing and staff constraints. We need to improve workforce capacity – and have more people doing community engagement – at the moment there is half a person doing it.” (Media & Communication Officer, LG17)

This is in line with resource based theory, which posits that resources need to be bundled and leveraged to form capabilities (Sirmon et al., 2007). Consequently, organizations play a key role in providing individuals and teams with resources to develop project team’s capabilities, so

that the team is able to perform coordinated activities to achieve set objectives (Brady and Davies, 2004). Allocation of resources such as financial and human resources forms the starting point to more synchronised resource orchestration across managerial levels (Sirmon et al., 2011) to increase the project team's capability, in turn leading to higher online engagement behaviour in crowdsourcing projects.

Our findings show that project implementation also includes the project team's motivation to implement crowdsourcing (Table 3), which in turn is determined by seeker intent, and in particular, by the way it is articulated by the top management team. Nexus's Client Experience Manager summarized this link:

“If the senior team uses [our platform] only for compliance purposes, the team that sits underneath them usually will not be motivated to do anything about it because from a cultural point of view it is not valued within the organization. The other way around is when the senior team sees the value in community engagement and embraces it from a cultural point of view, then everybody does it in the organization as well.”

This is consistent with strategy research that holds that top management should translate strategic intent into strategy, and use intent as a rallying point (Hamel and Prahalad, 2005; Slater et al., 2014), to kindle the “...emotional and intellectual energy of every employee” (Hamel and Prahalad, 1994). The compliance-oriented intent in seekers using perfunctory consultation leads to crowdsourcing projects being implemented merely as a formality. In project teams, “...*there is a culture that community engagement is not core to everybody's role – people tend to view community engagement as a secondary job*” (Media & Communication Coordinator, LG 18). This reduced project team motivation translates into low online engagement behavior.

In organizations using symbolic engagement, teams have just begun to “*realize the power or opportunity of the [engagement] platform...from just being efficient – just bringing numbers up to drive volume – to being a forum for having a more in-depth conversation with the community*” (Client Engagement Manager, Nexus). Yet, project teams design projects to consult the community rather than driving real change in the community. As a result, they are not proactive in maximizing the benefits from crowdsourcing. In seekers driven by the intent to create transformative change, project teams go well beyond the minimum requirements, striving to have real impact. Here, teams implement projects to involve citizens for public service co-creation, strategy planning and policy-making, resulting in high online engagement behavior. A seeker sums up:

“How well people do engagement and whether they go beyond compliance requirement depends on why they engage – whether to just tick a box or to achieve genuine engagement” (Community Engagement Coordinator, LG 1).

4.5 Mapping behaviors to outcomes

To analyze the outcomes of engagement behavior upon project success, we selected the most recently completed crowdsourcing project for each seeker. We considered the project complete if the seeker had: engaged with the solver community to seek ideas and/or feedback; and implemented related changes based on community inputs. From previous crowdsourcing and public sector innovation research, we identified four broad criteria that define crowdsourcing outcomes, and use these to evaluate the outcomes of the chosen 18 projects (Table 5):

- (1) *Quantity of solver inputs*, including the number of solver contributions, number of site visitors, number of active contributors, and solver engagement rate (Bayus, 2013).

- (2) *Quality of solver inputs*: the level of richness in online community interactions, robustness of community ideas/feedback and diversity of solver contributions (Lukensmeyer et al., 2011; Lukensmeyer and Torres, 2006; Martinez, 2015)
- (3) *Seeker implementation of changes*: the extent to which seekers implement changes by synthesizing and reviewing community feedback, and generating actionable insights to inform improvement areas and efforts (Bayus, 2013; Poetz and Schreier, 2012)
- (4) *Tangible impact of changes*: the degree to which the community realized tangible benefits through implementation of the ideas (Hilgers and Ihl, 2010; Lukensmeyer and Torres, 2006; Poetz and Schreier, 2012).

While the quantity of solver input was provided by Nexus, assessment of project outcomes against the remaining three criteria was primarily based on online observations and analysis of crowdsourcing project sites, and triangulated with data from interviews with local governments and Nexus executives, to help validate insights from online observation. Finally, the Nexus team verified our assessment of project outcomes.

Insert Table 5 about here

These outcomes provide an indicator of the level of crowdsourcing project success.

Overall, we find that successful projects are driven by seekers practicing high degree of online engagement activities, in turn producing better project and community outcomes as evaluated against our criteria, and hence having the likelihood of higher degree of impact to society. This implies that strong seeker engagement behaviors are indeed an indicator of future crowdsourcing project success, and in turn for greater societal impact.

5. Discussion

Our study offers three broad contributions. By studying seeker strategies across a large number of contests, it suggests the relationship between seeker engagement factors and processes – both at the organizational and project level – to the outcomes of crowdsourcing projects. Second, it examines the challenges and opportunities of crowdsourcing by smaller, geographically bound organizations. Finally, it compares and contrasts the overall similarities and differences between governmental and corporate crowdsourcing efforts.

5.1 Impact of seeker processes and choices on OI and crowdsourcing

Many previous crowdsourcing studies have focused on managerial choices for solver engagement (e.g., Boudreau et al., 2011; Leimeister et al., 2009). Responding to previous calls to investigate the seeker side of the crowdsourcing process (Dahlander and Piezunka, 2014; Palacios et al., 2016), we contribute to the limited research (e.g., Lüttgens et al., 2014; Mortara et al., 2013) on how differences in seeker factors impact engagement activities and crowdsourcing outcomes.

We believe our sample provides a broader representation than any prior analysis of seeker attributes and behaviors. First, from a sampling frame of 94 local governments, we theoretically sampled 18 seekers with a range of sizes, experience and outcomes that utilized 53,707 solvers participating in 2,182 projects. Second, because of a government mandate for citizen engagement, our sample captures a wide range of seeker intent and commitment to crowdsourcing success that is normally truncated (to only the most engaged) when sampling from paying intermediary customers.

The wide range of commitments and goals in our sample meant that those organizations varied dramatically in their strategies for organizing, governing, and managing their

crowdsourcing efforts. The most engaged seek to achieve transformational change and committed the resources necessary to obtain such change. Others sought symbolic engagement to increase the loyalty of their customers by giving them voice (Hirschman, 1970). Still others made minimal efforts to satisfy a regulatory mandate — as might happen for firms in regulated industries; in this case, citizen involvement is only a way to achieve legitimacy of government decisions rather than co-creating innovative services (Lodge and Wegrich, 2012). More generally, this shows that the decision to initiate crowdsourcing is necessary but not sufficient for organizations to benefit from the “wisdom of crowds” as advocated by prior research (e.g., Brabham, 2009; Surowiecki, 2005).

From our data, we developed a model (Figure 1) to explain seeker engagement in implementing crowdsourcing. A seeker’s successful crowdsourcing effort begins with its intent, reflected in the top management team’s commitment, leading to goals to achieve transformational outcomes. This is consistent with prior research on the role of leadership in project implementation (Pinto and Slevin, 1987) and innovation (Slater et al., 2014), the linkages between strategic intent and innovation (Andriopoulos and Lewis, 2009; Kelley, 2009; O’Connor and DeMartino, 2006), and between management and technology adoption (Tranfield and Smith, 1998). It also confirms earlier conclusions that lack of top management support can be a major obstacle to crowdsourcing success (Lüttgens et al., 2014).

A seeker’s intent influences its *engagement strategy*. Crowdsourcing efforts are more likely to be successful if organizations adopt a coherent strategy to implement an overarching engagement framework, and provide significant resources and managerial processes. Such alignment of processes with adequate resources has been shown to be critical for the success of community-based innovation (Fjeldstad et al., 2012; Miles et al., 2010; Snow et al., 2011), as

well as more broadly in strategic OI planning (Chesbrough and Crowther, 2006; Witzeman et al., 2006) and OI implementation (Chesbrough, 2006; Huston and Sakkab, 2006).

This engagement strategy drives *project team implementation* by enhancing the project team capabilities to implement crowdsourcing. In particular, we find that choices for resource allocation and implementation processes at the organizational level help enhance managerial attention to resource orchestration at the project team level (Sirmon et al., 2007; Sirmon et al., 2011), leading to the development of better project team capabilities (Brady and Davies, 2004; Pinto and Slevin, 1987).

Project team capabilities in turn determine the seeker's *engagement behavior* in crowdsourcing projects. Teams with higher project capabilities exhibit more robust seeker engagement behavior, with these seekers implementing more strategic projects, using a richer range of platform tools and more transparent communication processes, thereby producing more successful crowdsourcing outcomes (e.g., Dahlander et al., 2008; Dahlander and Piezunka, 2014).

Besides project team capability, project implementation also depends on the project's team motivation: when seeker intent is well-articulated by the senior leadership, employees feel a sense of 'reciprocal responsibility' (Hamel and Prahalad, 1989). Here strategic intent distills into organizational goal that "...commands the respect and allegiance of every employee" (Hamel and Prahalad, 1994), which are further translated into objectives that "...inspire organizational members to higher levels of achievement" (Hart, 1992), in turn leading to better engagement behaviors and hence outcomes. Conversely, we found that projects with weak communication and commitment from senior leaders to project teams had weaker behaviors and outcomes.

Overall, our results highlight how organizational factors in seekers shape the project-level implementation and outcomes of crowdsourcing.

5.2 Crowdsourcing by smaller and local organizations

Our sample offers insights into OI activities both for local governments and more generally for other smaller, geographically-bound organizations. Unlike large organizations, the organizations in our sample are small organizations, unable to integrate or replace outside consultants. They have limited in-house expertise, and limited resources to monitor in real-time (or quickly intervene) in the online collaboration activities. Crowdsourcing provides a way to overcome resource constraints by integrating the resources and capabilities by key stakeholders (Alves, 2013; Fjeldstad et al., 2012; Vargo and Lusch, 2008).

Small and medium organizations such as municipal governments often struggle with centralized decision-making; limited management skills and lack of professionalization; performance management systems and operating procedures being frequently not well designed and communicated; a focus on short-term planning; limited financial and technological resources; and possible dependence on external knowledge and services (e.g., Maiolini and Naggi, 2011; Micheli and Neely, 2010). In this regard, our findings may be applicable to small and medium enterprises that share similar resource and in-house expertise constraints: while previous research (e.g., Lee et al., 2010) has examined the technical factors that cause small firms to seek out an intermediary, it has not looked at the organizational issues.

Finally, the municipal governments in our sample have a limited geographic scope, as would other local and regional governments, as well as many retailers and commercial (or nonprofit) service organizations. In such cases, the OI efforts can leverage geographic or other common attributes or identity. Perhaps more significantly, this limited geographic scope

provides the opportunity to use hybrid virtual/physical interactions — whether between the seeker and solvers or directly among the participants. Such hybrid models can leverage the greater richness of face to face interaction and also potentially strengthen the sense of community identity or loyalty (Algesheimer et al., 2005; Lin, 2007; Wellman et al., 2002).

5.3 Differences between government and corporate crowdsourcing

Our data suggests how the strategies and outcomes of the public sector crowdsourcing are similar to and different from those studied for firms. While our data do not allow us to directly observe the latter, we believe the large body of research on innovation contests (e.g., Afuah and Tucci, 2012; Boudreau et al., 2011; Jeppesen and Lakhani, 2010; Leimeister et al., 2009; Stauss et al., 2010; Terwiesch and Xu, 2008) and online communities (e.g., Algesheimer et al., 2005; Piller and Walcher, 2006; Schau et al., 2009; West and Sims, 2017) allow us to offer suggestive findings.

Prior research has concluded that public sector crowdsourcing either does or should emulate its corporate counterparts (e.g., Bommert, 2010; Hilgers and Ihl, 2010; Lee et al., 2012). In fact, the public sector organizations in our sample and their intermediary use the same seeker and solver model as corporations (Howe, 2006). In our data, we saw some parallels between corporate and government crowdsourcing in the importance of aligning the organization's overall strategy with project level activities, through choices in crowdsourcing implementation processes (Hienert et al., 2011; Lüttgens et al., 2014; Sieg et al., 2010).

However, there are important differences, starting with the motive of improving societal welfare rather than firm performance, as well as goals that correspond to those motives. Unlike firms that use crowdsourcing for improving particular products, government and public sector organizations seek knowledge of their customers (i.e., constituents) and public demand to

support a broader range of service delivery, planning, and policy decisions via citizensourcing. To do this, they seek out contributors — usually from their existing geographic community — motivated by an intrinsic desire to improve that community.

In contrast, the most often studied corporate crowdsourcing approach — innovation contests (e.g., Jeppesen and Lakhani, 2010) — tend to be more short-term, transactional, and based on extrinsic motivation such as prizes. Because of the local ties and shared interest in improving their municipality, the solvers in citizensourcing efforts often collaborate with other solvers to find an improved solution. Rather than a crowd seen in crowdsourcing contests, the solvers in our sample exhibit attributes of an external crowdsourcing community — with similar patterns of shared purpose, identity and peer-to-peer interactions (e.g., Algesheimer et al., 2005).

Our sample is thus more similar to the second of two polar archetypes identified within research in corporate crowdsourcing — contests and communities — that differ based on such identity, motivation, and interaction patterns (Boudreau and Lakhani, 2009; West and Sims, 2017). The first archetype corresponds to the competitive contests, such as idea competitions (e.g., Piller and Walcher, 2006) and innovation tournaments (Füller et al., 2017; Jeppesen and Lakhani, 2010). Previous research on contests has focused on changing the rules of competition, whether rules, rewards, or information flows (e.g., Boudreau et al., 2011; Terwiesch and Xu, 2008).

On the other hand, our study corresponds to prior research on crowdsourcing with external online communities — which can include user enthusiasts, brand communities, open source communities, and software ecosystems (West and Sims, 2016). One of the most often studied categories is the brand community, where large consumer products companies — such as Adidas or BMW — seek to leverage the strong social identity of their loyal customers. These

communities are used both to gain insights into customers through market feedback and cocreation, and also to reinforce their respective offline loyalties and purchase behaviors (Algesheimer et al., 2005; Piller and Walcher, 2006; Schau et al., 2009). Similar benefits of identity and loyalty also apply to internal crowdsourcing among employees who (like community residents) have a direct stake in the success of the seeker strategy (e.g., Malhotra et al., 2017).

Such brand communities — and the interaction between the online community and existing offline relationships — offer parallels to the communities studied here, as local governments often combine online and face-to-face interactions. Therefore, strategies for the former can be informed by our study and its strategies and choices for repeated participation, community loyalty and non-monetary motivation of local residents.

Thus, our data extends the existing typology from two to three archetypes: communities and contests for corporations, as well as communities for local or regional governments (Figure 2). This suggests a 2x2 framework, in which one dimension is the community vs. contests distinction for commercial crowdsourcing (Boudreau and Lakhani 2009; West and Sims, 2016). This dimension appears to be fully orthogonal to a second dimension, the distinction between the goals of profit-maximizing vs. societal improvement (Chesbrough and Di Minin, 2014; Hilgers and Ihl, 2010; Lukensmeyer and Torres, 2008). Thus, this study highlights the importance of understanding both of these dimensions of crowdsourcing: community vs. contest and commercial vs. social motives.

Insert Figure 2 about here

The final cell is for government-sponsored public sector crowdsourcing contests, an area of increasing interest. For these contests, Brabham (2009) recommended that government agencies use crowdsourcing to select a small number of winning entries that are either adopted or

integrated into existing plans. At a larger scale are the grand innovation prize competitions, as when the non-profit X Prize intermediary was used by NASA, a charitable foundation and an insurance company to solve major societal challenges (Murray et al., 2012).

Overall, our results show that government and corporate crowdsourcing share both differences and similarities. We conclude that the non-pecuniary orientation of seekers (and solvers) means that the motives and societal goals of government crowdsourcing are fundamentally different from the commercial motives of corporate crowdsourcing. Yet, in the nature of the solver interactions, and related processes of leveraging solver identity and intrinsic motivation, local government crowdsourcing resembles a corporate-sponsored community (rather than the tournament-style contests seen in corporate crowdsourcing). We also find that — contrary to our expectations and the prediction of the literature — crowdsourcing in our sample is more similar to corporate-sponsored communities than to government-sponsored contests.

5.4 Limitations and Future Research

As with any study, ours has limitations. The organizations were purposively sampled from a pool of 94 municipal organizations that utilized one intermediary in one country, and it was not possible to control for all the confounding differences between these organizations. The campaigns of these agencies were new enough that only indirect success measures were available: in particular, we do not have data on how the differences in motivation and strategies impact long-term success. The attitudes and actions of local governments may not generalize to larger provincial or national governments that are less resource limited.

While this study examined variation between local municipalities, future research should examine variation in both the level of government and the functional orientation. For example, one might expect to see that the importance and level of face-to-face interaction for provincial

governments would be intermediated between municipalities and national governments. Also, one might expect different mechanisms, motivations, incentives, and degrees of engagement depending on the sponsoring agency and goals — whether citizen input for fixing potholes or improving a local senior center will be different for space missions or fighting terrorism. More generally, research could examine whether these findings regarding government crowdsourcing are applicable to that of firms. Research is scarce on crowdsourcing by small firms, but this study suggests that the practice will be qualitatively different for firms without strong in-house innovation and IT capabilities.

Figure 1: Model of seeker crowdsourcing implementation

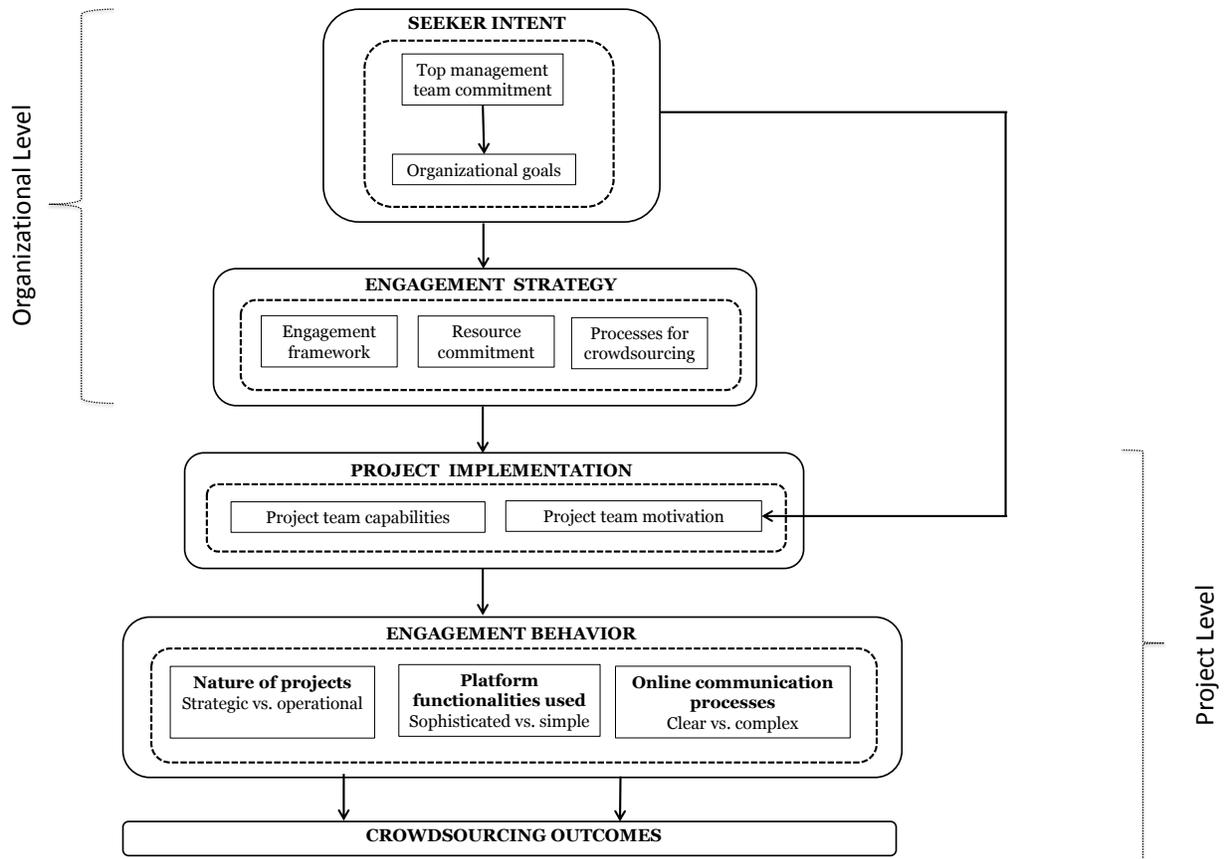


Figure 2: Examples of four modes of crowdsourcing

		<i>Solver interaction</i>	
		Crowd	Community
<i>Seeker motive</i>	Firm performance	Innovation contests	Brand communities
	Societal impact	Grand innovation prize	Local crowdsourcing

Table 1: Sample of seeker organizations

Organization	Interview Subject	First crowdsourcing project	Online community size	Total projects implemented	Local population	Level of engagement behavior †
LG 1	Community Engagement Coordinator	Sep 2010	19,204	122	1,281,449	High
LG 2	Stakeholder Engagement Coordinator	Mar 2013	3,304	49	101,321	High
LG 3	Communications & Marketing Coordinator	Feb 2010	2,766	263	140,741	High
LG 4	Stakeholder Engagement Coordinator	Jul 2015	619	42	46,244	High
LG 5	Community and Corporate Planner	Mar 2016	1,257	51	13,807	High
LG 6	Corporate Strategic Planner	Jul 2010	4,183	217	76,354	High
LG 7	Community Engagement Coordinator	Feb 2016	589	60	22,918	High
LG 8	Senior Community Engagement Officer	Jul 2011	4,872	541	22,393	High
LG 9	Media & Communication Coordinator	Apr 2015	883	77	30,321	Medium
LG 10	Community Engagement Officer	Mar 2014	2,455	24	367,700	Medium
LG 11	Leader Corporate Communications & Marketing	Apr 2010	4,519	188	79,812	Medium
LG 12	Community Engagement Officer	Apr 2011	4,929	223	205,339	Medium
LG 13	Manager Community Services & Development	Jun 2012	503	58	21,256	Medium
LG 14	Economic & Tourism Development Leader	Jun 2014	449	37	4,700	Medium
LG 15	Strategic Planning Coordinator	Jul 2013	380	38	150,881	Low
LG 16	Community Engagement Coordinator	Dec 2014	1,604	88	226,220	Low
LG 17	Media & Communication Officer	Sep 2011	841	57	25,533	Low
LG 18	Media & Communication Coordinator	Jul 2012	350	47	31,291	Low
<i>Total</i>			<i>53,707</i>	<i>2,182</i>	<i>2,848,280</i>	

† As defined by intermediary (see text)

Table 2: Crowdsourcing activities based on level of seeker engagement behavior

Level of engagement behavior	<i>High</i>	<i>Medium</i>	<i>Low</i>
Nature of projects	Projects range from operational to strategic; including public services and infrastructure, strategic planning and policy-making.	Limited use of projects for long-term strategy planning or policy-making. More focus on tactical aspects of operational areas such as public services and infrastructure.	Focus on day-to-day operational issues around public services; lack of consultation on long-term strategy planning and policy-making issues.
Platform tools & functionalities used	Variety of tools ranging from simple surveys to sophisticated discussion forums to cater for a rich variety of ideation and feedback-sharing.	Surveys as the primary online engagement tool; very limited use of discussion forums and brainstormers.	Almost exclusive use of simple tools such as surveys.
Online communication processes used	Clear and easy-to-understand language; attractive and user-friendly site design and layout; regular updates on progress; feedback loop closed to let participants know how they have contributed to community outcomes.	Unclear and often complicated language; site layout not appealing and user-friendly; infrequent progress updates; lack of consistency in closing the feedback loop.	Complex jargon and language; sparse project details; non-user-friendly site design and layout; lack of progress updates; no focus on closing the feedback loop.

Table 3: Comparing seeker intent and project team motivation

Level of engagement behavior	<i>High</i>	<i>Medium</i>	<i>Low</i>
Seeker intent	Transformative change	Symbolic engagement	Perfunctory consultation
Commitment of top management team	<p><i>Crowdsourcing embraced as a robust way to co-create value with the community</i></p> <p>“Our [council’s] senior executives are open to using it, they are not fearful of engaging with the community, but some [senior executives] are very skeptical of online community engagement” (Corporate Strategic Planner, LG6).</p>	<p><i>Crowdsourcing used as a symbolic instrument for community consultation</i></p> <p>“The way engagement is understood and conducted differs between councils – some senior executives just view it as consultation and not co-creation” (Learning & Practice Manager, Nexus)</p>	<p><i>Crowdsourcing viewed as an efficiency driver for community consultation</i></p> <p>“[Some council leaders] view engagement with the community as useful for efficient decision-making, rather than a way for collaborative innovation. The original motivation for these councils is to consult with the community as a formality.” (Operations Manager, Nexus)</p>
Organizational goal	<p><i>Community transformation & societal value creation</i></p> <p>“Getting community input into decision-making and co-creation is the main motivation for our organization” (Senior Community Engagement Officer, LG8)</p>	<p><i>Citizen empowerment: giving a voice to community members</i></p> <p>“Our [organizational] driver for community engagement is to involve community in the decision-making process. We are responding to feedback from the community asking for more say and voice in the decision-making process” (Leader, Corp Comm & Marketing, LG11)</p>	<p><i>Address regulatory compliance for community consultation</i></p> <p>“[Leaders] don’t really understand the value of engagement. . . community engagement is not truly embedded as a way of life – there are different perceptions of the role of community consultation within the council. . . . The focus tends to be on <i>involving</i> the community and not as much on <i>empowering</i> the community” [emphasis added] (Media & Communication Officer, LG17).</p>
Project team motivation	<p><i>Strive for genuine engagement to improve infrastructure, service, policy & planning</i></p> <p>“We engage with the community because it is best practice to involve community in matters that impact them and taking community inputs into consideration in making decisions” (Stakeholder Engagement Coordinator, LG4)</p>	<p><i>Consult to involve community but not in a fully proactive manner</i></p> <p>“Once clients realize the power or opportunity of the platform [their engagement] goes from just being efficient – just bringing numbers up to drive volume – to being a forum for having a more in-depth conversation with the community, and that’s really when practice starts to change.” (Client Engagement Manager, Nexus)</p> <p>“Most people are not interested in getting trained on it as they don’t have the time and don’t see it as a priority.” (LG14)</p>	<p><i>Meeting formal regulatory requirements for community consultation</i></p> <p>“Our main driver to use online consultation is because there is a legislative requirement for community engagement as part of the Planning & Environment Act. . . . There is a culture that community engagement is not core to everybody’s role – people’s attitude to the jobs that they do is limited – people tend to view community engagement as a secondary job”(Media & Community Coordinator, LG18)</p>

Table 4: Comparing seeker strategies and project team capabilities

Level of engagement behavior	<i>High</i>	<i>Medium</i>	<i>Low</i>
Seeker strategy	Comprehensive	Transactional	Compliance-driven
Engagement framework for crowdsourcing	<p><i>Holistic framework that goes well beyond statutory requirements</i></p> <p>“[Our] community engagement strategy is a broader document that outlines the principles for community engagement... [and] engagement projects are built on the basis of this.” (Senior Community Engagement Officer, LG8)</p>	<p><i>Framework goes beyond minimum compliance requirements but is not robust</i></p> <p>“Our policy for consultation is very old-style - it is more a communication framework rather than an engagement framework. We are still working on developing a collaborative, holistic framework” (Economic & Tourism Development Leader, LG14)</p>	<p><i>No clear engagement framework, and decisions are made on an ad-hoc basis</i></p> <p>“There is no agreed strategic framework for community engagement ... leading to inconsistency in project approach - some officers just do what the minimum policy requirement is” (Engagement Co-ordinator, LG16)</p>
Resource commitment for crowdsourcing (planning and implementation)	<p><i>Competent professionals and dedicated resources</i></p> <p>“We have 4 staff as part of the Community Engagement team responsible for planning, developing, delivering and evaluating community engagement. We design and launch projects, monitor and send reports... we have engagement champions in various program areas.” (Senior Community Engagement Officer, LG8)</p>	<p><i>Limited investment in competent professionals and dedicated resources</i></p> <p>“We are only two people in the stakeholder engagement team. We do not go above & beyond the framework due to resource constraints – community engagement is resource intensive and time consuming.” (Leader, Corp Comm & Marketing, LG11)</p>	<p><i>Lack of competent professionals and dedicated resources</i></p> <p>“There is no organizational buy-in for the platform....the department is paying from their operational budget for it – so it takes away from other projects we could use the funds for.” (Strategic Planning Coordinator, LG15)</p>
Systems and processes for crowdsourcing	<p><i>Integrated modes and structured processes for delivering and monitoring projects</i></p> <p>“We have an evaluation sheet based on the engagement strategy with qualitative and quantitative parameters ... [and] also fortnightly sessions with staff to train and discuss engagement ideas. We develop case studies” (Senior Community Engagement Officer, LG8)</p>	<p><i>Lack of integrated modes and structured processes for delivering and monitoring projects</i></p> <p>“We have a Stakeholder Engagement template...however, we decide on which tools to be used in projects based on the capacity of the engagement staff and time constraints” (Community Engagement Officer, LG10)</p>	<p><i>Absence of integrated modes and structured processes for delivering and monitoring projects</i></p> <p>“It is run by the Communications team who sees engagement as a newsletter. That’s really an efficiency driver – are we broadcasting? - not engagement.” (Client Engagement Manager, Nexus)</p>
Project team capabilities	<p><i>Adequate team capacity to implement crowdsourcing projects in a robust manner</i></p> <p>“We have the Integrated Planning & Reporting framework...we often go beyond this minimum statutory requirement..., to get ideas for facilities improvement and to involve the community in decision-making” (Corp Strategic Planner, LG6)</p>	<p><i>Limited capacity in teams for crowdsourcing project implementation</i></p> <p>“Staff has a lot of demands on their time and resources, and other teething priorities often distract from community engagement” (Manager Community Services & Development, LG13).</p>	<p><i>Meagre team capacity resulting in poor implementation of crowdsourcing projects</i></p> <p>“Staff tends to use the platform in a minimalist way due to lack of resources to dedicate to online engagement.” (Strategic Planning Coordinator, LG15)</p>

Table 5: Crowdsourcing project outcomes

Seeker	Engagement behavior †	Sample project	Project Outcomes						
			No. of site visitors	No. of active contributors	Solver Engagement Rate	No. of solver contributions	Quality of solver contributions	Seeker implementation of changes	Tangible impact of changes
LG 1	High	Accessible and Inclusive City Action Plan	887	98	11%	111	*****	*****	*****
LG 2	High	Playground Improvement Plan	3062	303	10%	303	*****	*****	*****
LG 3	High	Skate Space Design	1485	247	17%	287	*****	****	****
LG 4	High	Parking Strategy	729	89	12%	122	*****	*****	*****
LG 5	High	Swimming Raft Deployment	256	42	16%	42	****	*****	*****
LG 6	High	Park Upgrade	2102	426	20%	426	****	*****	*****
LG 7	High	Local Planning Strategy	843	117	14%	121	****	*****	*****
LG 8	High	Access and Inclusion Strategic Priorities	1188	72	6%	72	*****	****	****
LG 9	Medium	Playground Upgrade	509	38	7%	38	****	*****	****
LG 10	Medium	Visitor Strategy	553	30	5%	30	****	****	****
LG 11	Medium	Forecourt upgrade	151	16	11%	19	***	***	**
LG 12	Medium	Reserve Landscape Redevelopment Masterplan	184	21	11%	21	***	**	***
LG 13	Medium	Organic Waste Management Attitudes and Practices	102	20	20%	20	***	**	***
LG 14	Medium	Place Branding Strategy	556	14	3%	15	****	***	*****
LG 15	Low	Library Forecourt Upgrade	177	16	9%	16	***	**	***
LG 16	Low	Community Strategic Plan	531	17	3%	17	**	*	**
LG 17	Low	City Centre Redevelopment Project	824	37	5%	37	**	**	**
LG 18	Low	Arts & Culture Plan	90	8	8%	8	*	**	*

Note: ***** = high; * = low

References

- Afuah, A. and Tucci, C. L. (2012) Crowdsourcing as a solution to distant search. *Academy of Management Review*, **37**, 355-375.
- Algesheimer, R., Dholakia, U. M. and Herrmann, A. (2005) The social influence of brand community: Evidence from European car clubs. *Journal of marketing*, **69**, 19-34.
- Alves, H. (2013) Co-creation and innovation in public services. *The Service Industries Journal*, **33**, 671-682.
- Andriopoulos, C. and Lewis, M. W. (2009) Exploitation-exploration tensions and organizational ambidexterity: Managing paradoxes of innovation. *Organization Science*, **20**, 696-717.
- Bayus, B. L. (2013) Crowdsourcing new product ideas over time: An analysis of the dell ideastorm community. *Management science*, **59**, 226-244.
- Bommert, B. (2010) Collaborative innovation in the public sector. *International Public Management Review*, **11**, 15-33.
- Boudreau, K. and Lakhani, K. (2009) How to manage outside innovation. *MIT Sloan management review*, **50**, 69.
- Boudreau, K. J., Lacetera, N. and Lakhani, K. R. (2011) Incentives and problem uncertainty in innovation contests: An empirical analysis. *Management Science*, **57**, 843-863.
- Brabham, D. C. (2009) Crowdsourcing the public participation process for planning projects. *Planning Theory*, **8**, 242-262.
- Brabham, D. C. (2010) Moving the crowd at threadless: Motivations for participation in a crowdsourcing application. *Information, Communication & Society*, **13**, 1122-1145.
- Brady, T. and Davies, A. (2004) Building project capabilities: From exploratory to exploitative learning. *Organization studies*, **25**, 1601-1621.
- Certoma, C., Corsini, F. and Rizzi, F. (2015) Crowdsourcing urban sustainability. Data, people and technologies in participatory governance. *Futures*, **74**, 93-106.
- Chalmers, D. (2013) Social innovation: An exploration of the barriers faced by innovating organizations in the social economy. *Local Economy*, **28**, 17-34.
- Chesbrough, H. (2006) *Open business models: How to thrive in the new innovation landscape*: Harvard Business Press.
- Chesbrough, H. and Bogers, M. (2014) Explicating open innovation: Clarifying an emerging paradigm for understanding innovation In: Chesbrough, H., Vanhaverbeke, W. and West, J., eds., *New frontiers in open innovation*, Oxford: Oxford University Press, 3-28.
- Chesbrough, H. and Crowther, A. K. (2006) Beyond high tech: Early adopters of open innovation in other industries. *R&D Management*, **36**, 229-236.
- Chesbrough, H. and Di Minin, A. (2014) Open social innovation In: Chesbrough, H., Vanhaverbeke, W. and West, J., eds., *New frontiers in open innovation*, Oxford: Oxford University Press, 169-188.
- Collm, A. and Schedler, K. (2012) Managing crowd innovation in public administration. *International Public Management Review*, **13**.
- Dahlander, L., Frederiksen, L. and Rullani, F. (2008) Online communities and open innovation. *Industry and innovation*, **15**, 115-123.
- Dahlander, L. and Gann, D. M. (2010) How open is innovation? *Research policy*, **39**, 699-709.
- Dahlander, L. and Piezunka, H. (2014) Open to suggestions: How organizations elicit suggestions through proactive and reactive attention. *Research Policy*, **43**, 812-827.

- Dougherty, D. and Hardy, C. (1996) Sustained product innovation in large, mature organizations: Overcoming innovation-to-organization problems. *Academy of Management Journal*, **39**, 1120-1153.
- Eisenhardt, K. M. (1989) Building theories from case study research. *Academy of Management Review*, **14**, 532-550.
- Eisenhardt, K. M. and Graebner, M. E. (2007) Theory building from cases: Opportunities and challenges. *Academy of management journal*, **50**, 25-32.
- Fjeldstad, Ø. D., Snow, C. C., Miles, R. E. and Lettl, C. (2012) The architecture of collaboration. *Strategic management journal*, **33**, 734-750.
- Füller, J., Hutter, K., Hautz, J. and Matzler, K. (2017) The role of professionalism in innovation contest communities. *Long Range Planning*, **50**, 243-259.
- Guba, E. G. and Lincoln, Y. S. (1989) *Fourth generation evaluation*: Sage.
- Hamel, G. and Prahalad, C. (1994) *Competing for the future* harvard business school press. Boston, MA.
- Hamel, G. and Prahalad, C. K. (1989) Strategic intent. *Harvard business review*, **May-June**, 63-76.
- Hamel, G. and Prahalad, C. K. (2005) Strategic intent. *Harvard business review*, **83**, 148-161.
- Hamilton, R. D., Eskin, D. and Michaels, M. P. (1998) Assessing competitors: The gap between strategic intent and core capability. *Long Range Planning*, **31**, 406-417.
- Hart, S. L. (1992) An integrative framework for strategy-making processes. *Academy of management review*, **17**, 327-351.
- Hienerth, C., Keinz, P. and Lettl, C. (2011) Exploring the nature and implementation process of user-centric business models. *Long Range Planning*, **44**, 344-374.
- Hilgers, D. and Ihl, C. (2010) Citizensourcing: Applying the concept of open innovation to the public sector. *International Journal of Public Participation*, **4**.
- Hilgers, D. and Piller, F. (2011) A government 2.0: Fostering public sector rethinking by open innovation. *Innovation Management*, **1**, 1-8.
- Hirschman, A. O. (1970) *Exit, voice, and loyalty: Responses to decline in firms, organizations, and states*: Harvard university press.
- Howe, J. (2006) The rise of crowdsourcing. *Wired magazine*, **14**, 1-4.
- Huston, L. and Sakkab, N. (2006) Connect and develop. *Harvard business review*, **84**, 58-66.
- Jeppesen, L. B. and Lakhani, K. R. (2010) Marginality and problem-solving effectiveness in broadcast search. *Organization science*, **21**, 1016-1033.
- Kelley, D. (2009) Adaptation and organizational connectedness in corporate radical innovation programs. *Journal of Product Innovation Management*, **26**, 487-501.
- Kube, M., Hilgers, D., Koch, G. and Füller, J. (2015) Explaining voluntary citizen online participation using the concept of citizenship: An explanatory study on an open government platform. *Journal of Business Economics*, **85**, 873-895.
- Lamb Jr, C. W. (1987) Public sector marketing is different. *Business Horizons*, **30**, 56-60.
- Lauritzen, G. D. (2017) The role of innovation intermediaries in firm-innovation community collaboration: Navigating the membership paradox. *Journal of product innovation management*, **34**, 289-314.
- Lee, S., Park, G., Yoon, B. and Park, J. (2010) Open innovation in smes—an intermediated network model. *Research Policy*, **39**, 290-300.
- Lee, S. M., Hwang, T. and Choi, D. (2012) Open innovation in the public sector of leading countries. *Management Decision*, **50**, 147-162.

- Leimeister, J. M., Huber, M., Bretschneider, U. and Krcmar, H. (2009) Leveraging crowdsourcing: Activation-supporting components for it-based ideas competition. *Journal of management information systems*, **26**, 197-224.
- Lin, H.-F. (2007) The role of online and offline features in sustaining virtual communities: An empirical study. *Internet Research*, **17**, 119-138.
- Lodge, M. and Wegrich, K. (2012) The ‘californication’ of government? Crowdsourcing and the red tape challenge *School of Economics and Political Science, Centre for Analysis of Risk and Regulation* London.
- Lukensmeyer, C. J., Goldman, J. and Stern, D. (2011) Assessing public participation in an open government era. *IBM Center for the Business of Government*.
- Lukensmeyer, C. J. and Torres, L. H. (2006) *Public deliberation: A manager's guide to citizen engagement*: IBM Center for the Business of Government.
- Lukensmeyer, C. J. and Torres, L. H. (2008) Citizensourcing: Citizen participation in a networked nation. *Civic engagement in a network society*, 207-233.
- Lüthje, C., Herstatt, C. and Von Hippel, E. (2005) User-innovators and “local” information: The case of mountain biking. *Research policy*, **34**, 951-965.
- Lüttgens, D., Pollok, P., Antons, D. and Piller, F. (2014) Wisdom of the crowd and capabilities of a few: Internal success factors of crowdsourcing for innovation. *Journal of Business Economics*, **84**, 339-374.
- Maiolini, R. and Naggi, R. (2011) Crowdsourcing and smes: Opportunities and challenges In: D'Atri, A., Ferrara, M., George, J. F. and Spagnoletti, P., eds., *Information technology and innovation trends in organizations: Itais: The italian association for information systems*, Heidelberg: Physica-Verlag HD, 399-406.
- Malhotra, A., Majchrzak, A., Kesebi, L. and Loram, S. (2017) Developing innovative solutions through internal crowdsourcing. *MIT Sloan Management Review*, **58**, 73.
- Martinez, M. G. (2015) Solver engagement in knowledge sharing in crowdsourcing communities: Exploring the link to creativity. *Research Policy*, **44**, 1419-1430.
- Mergel, I. and Desouza, K. C. (2013) Implementing open innovation in the public sector: The case of challenge. *Gov. Public administration review*, **73**, 882-890.
- Micheli, P. and Neely, A. (2010) Performance measurement in the public sector in england: Searching for the golden thread. *Public administration review*, **70**, 591-600.
- Miles, M. B. and Huberman, A. M. (1994) *Qualitative data analysis: An expanded sourcebook*: Sage.
- Miles, R. E., Snow, C. C., Fjeldstad, Ø. D., Miles, G. and Lettl, C. (2010) Designing organizations to meet 21st-century opportunities and challenges. *Organizational dynamics*, **39**, 93-103.
- Mortara, L., Ford, S. J. and Jaeger, M. (2013) Idea competitions under scrutiny: Acquisition, intelligence or public relations mechanism? *Technological Forecasting and Social Change*, **80**, 1563-1578.
- Murray, F., Stern, S., Campbell, G. and MacCormack, A. (2012) Grand innovation prizes: A theoretical, normative, and empirical evaluation. *Research Policy*, **41**, 1779-1792.
- Nambisan, S. (2008) Transforming government through collaborative innovation. *Public Manager*, **37**, 36.
- O'Connor, G. C. and DeMartino, R. (2006) Organizing for radical innovation: An exploratory study of the structural aspects of ri management systems in large established firms. *Journal of Product Innovation Management*, **23**, 475-497.

- Palacios, M., Martinez-Corral, A., Nisar, A. and Grijalvo, M. (2016) Crowdsourcing and organizational forms: Emerging trends and research implications. *Journal of Business Research*, **69**, 1834-1839.
- Piezunka, H. and Dahlander, L. (2015) Distant search, narrow attention: How crowding alters organizations' filtering of suggestions in crowdsourcing. *Academy of Management Journal*, **58**, 856-880.
- Piller, F. and West, J. (2014) Firms, users, and innovation: An interactive model of coupled open innovation. *New Frontiers in Open Innovation*. Oxford University Press, Oxford.
- Piller, F. T. and Walcher, D. (2006) Toolkits for idea competitions: A novel method to integrate users in new product development. *R&D Management*, **36**, 307-318.
- Pinto, J. K. and Slevin, D. P. (1987) Critical factors in successful project implementation. *IEEE transactions on engineering management*, 22-27.
- Pisano, G. P. and Verganti, R. (2008) Which kind of collaboration is right for you. *Harvard business review*, **86**, 78-86.
- Poetz, M. K. and Schreier, M. (2012) The value of crowdsourcing: Can users really compete with professionals in generating new product ideas? *Journal of Product Innovation Management*, **29**, 245-256.
- Prahalad, C., K and Doz, Y. L. (1987) The multinational mission: Balancing global integration with local responsiveness. *New York, NY*.
- Prahalad, C. K. (1993) The role of core competencies in the corporation. *Research-Technology Management*, **36**, 40-47.
- Randhawa, K., Wilden, R. and Hohberger, J. (2016) A bibliometric review of open innovation: Setting a research agenda. *Journal of product innovation management*, **33**, 750-772.
- Schau, H. J., Muñiz Jr, A. M. and Arnould, E. J. (2009) How brand community practices create value. *Journal of marketing*, **73**, 30-51.
- Schemmann, B., Herrmann, A. M., Chappin, M. M. and Heimeriks, G. J. (2016) Crowdsourcing ideas: Involving ordinary users in the ideation phase of new product development. *Research Policy*, **45**, 1145-1154.
- Sieg, J. H., Wallin, M. W. and Von Krogh, G. (2010) Managerial challenges in open innovation: A study of innovation intermediation in the chemical industry. *R&D Management*, **40**, 281-291.
- Sirmon, D. G., Hitt, M. A. and Ireland, R. D. (2007) Managing firm resources in dynamic environments to create value: Looking inside the black box. *Academy of management review*, **32**, 273-292.
- Sirmon, D. G., Hitt, M. A., Ireland, R. D. and Gilbert, B. A. (2011) Resource orchestration to create competitive advantage: Breadth, depth, and life cycle effects. *Journal of Management*, **37**, 1390-1412.
- Slater, S. F., Mohr, J. J. and Sengupta, S. (2014) Radical product innovation capability: Literature review, synthesis, and illustrative research propositions. *Journal of Product Innovation Management*, **31**, 552-566.
- Snow, C. C., Fjeldstad, Ø. D., Lettl, C. and Miles, R. E. (2011) Organizing continuous product development and commercialization: The collaborative community of firms model. *Journal of Product Innovation Management*, **28**, 3-16.
- Stauss, B., den Hertog, P., van der Aa, W. and de Jong, M. W. (2010) Capabilities for managing service innovation: Towards a conceptual framework. *Journal of Service Management*, **21**, 490-514.
- Surowiecki, J. (2005) *The wisdom of crowds*: Anchor.

- Terwiesch, C. and Xu, Y. (2008) Innovation contests, open innovation, and multiagent problem solving. *Management Science*, **54**, 1529-1543.
- Tranfield, D. and Smith, S. (1998) The strategic regeneration of manufacturing by changing routines. *International Journal of Operations & Production Management*, **18**, 114-129.
- Vanhaverbeke, W., Chesbrough, H. and West, J. (2014) Surfing the new wave of open innovation research In: Chesbrough, H., Vanhaverbeke, W. and West, J., eds., *New frontiers in open innovation*, Oxford: Oxford University Press, 281-294.
- Vargo, S. L. and Lusch, R. F. (2008) Why “service”? *Journal of the Academy of marketing Science*, **36**, 25-38.
- Voorberg, W. H., Bekkers, V. J. and Tummers, L. G. (2015) A systematic review of co-creation and co-production: Embarking on the social innovation journey. *Public Management Review*, **17**, 1333-1357.
- Wallin, M. W., Krogh, G. v. and Sieg, J. H. (2017) A problem in the making: How firms formulate sharable problems for open innovation contests In: Afuah, A., Tucci, C. and Viscusi, G., eds., *Creating and capturing value through crowdsourcing*, Oxford: Oxford University Press.
- Wellman, B., Boase, J. and Chen, W. (2002) The networked nature of community: Online and offline. *It & Society*, **1**, 151-165.
- Wen, Z. and Lin, L. (2016) Optimal fee structures of crowdsourcing platforms. *Decision Sciences*, **47**, 820-850.
- West, J. and Bogers, M. (2017) Open innovation: Current status and research opportunities. *Innovation*, **19**, 43-50.
- West, J., Salter, A., Vanhaverbeke, W. and Chesbrough, H. (2014) Open innovation: The next decade. *Research policy*, **43**, 805-811.
- West, J. and Sims, J. (2017) How firms leverage crowds and communities for open innovation In: Afuah, A., Tucci, C. and Viscusi, G., eds., *Creating and capturing value through crowdsourcing*, Oxford: Oxford University Press.
- Wijnhoven, F., Ehrenhard, M. and Kuhn, J. (2015) Open government objectives and participation motivations. *Government information quarterly*, **32**, 30-42.
- Witzeman, S., Slowinski, G., Dirks, R., Gollob, L., Tao, J., Ward, S. and Miraglia, S. (2006) Harnessing external technology for innovation. *Research-Technology Management*, **49**, 19-27.
- Yin, R. K. (2003) Case study research, 3. Aufl., *Thousand Oaks*.