The Power of Many:
A Structured Framework for Collective Innovation

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ABSTRACT

Collective efforts of masses provide access to funding and ideas. While such endeavors in a business-to-customer context are well-described, they are less well understood in other contexts such as business-to-business. A literature review that exacts knowledge and inspiration from B2C crowdsourcing and other forms of collective innovation is used. This review generates new knowledge to close this gap and develops a six-stage innovation framework for collective engagement, intelligence, and innovation (CEI^2) that begins with task specification and concludes with management of inputs generated from the CEI^2 efforts. The framework and the accompanying list of questions may be used by theorists to explore different contexts and for managers to structure B2B or P2P crowdsourcing more effectively. Contributions of this study include exploration of the theoretical areas of open-source innovation that extend beyond a B2C model and new ways of effectively structuring CEI^2. Further research may explore the CEI^2 framework through a case study or test it through quantitative study.

KEYWORDS

Citizen Sourcing, Crowdsourcing, Distributed Innovation, Innovation Clusters

INTRODUCTION

Since Schumpeter (1934), economists, managers, strategists and policy makers have generally accepted that producers originate the best innovation ideas and designs. Expanding innovation efforts beyond solely the enterprise by embracing larger and more diverse audiences or "crowds" yields inherently more robust solutions (Seltzer and Mahmoudi, 2013). Crowds should be sufficiently large, diverse, and knowledgeable, manifesting "strength through diversity", a concept applied to investment portfolio diversification that earned Harry Markowitz a Nobel Prize in Economics (Kolm *et al.*, 2014). Applied to innovation this has birthed approaches such as co-creation, open innovation, distributed innovation, crowdsourcing and related ones such as citizen sourcing and innovation clusters. *Open innovation* is a co-creative paradigm which assumes that as enterprises look to advance their technology they can and should use external as well as internal ideas, and internal and external paths to markets (Chesbrough and Di Minin, 2014). C*rowdsourcing* enables open innovation. In turn, social media can enable crowdsourcing, with *crowdsourcing* commonly perceived as a collection of web-enabled people-centric collaboration methodologies that aim to derive solutions to individual, enterprise, ecological, or societal challenges (Schenk and Guittard, 2011).

In B2C (business-to-customer) markets a distinction should be made between two important streams of customer engagement: *crowdsourcing* and *customer relationship management* (CRM). CRM presumes that enterprises seek relationships with customers as mechanisms that increase customer retention, satisfaction, loyalty, and advocacy. Customers understand this and do not mistake commercially driven exchanges for intimacy. There is evidence in B2C markets that "less CRM" may be preferred to "more CRM": many customers don't want "relationships" with products and services they purchase, nor with enterprises providing those products and services (Dowling, 2002). In contrast, crowdsourcing provides win-win value propositions for both enterprises and "crowds", with the caveat that crowdsourcing may generate two potential negative consumer reactions: feelings of exploitation and of being cheated (Pollok *et al*., 2019). Crowdsourcing efforts should hence be carefully managed to mitigate these possibilities while also maximizing value to both the enterprise and the "crowd".

Crowdsourcing has variations such as citizen sourcing, citizen science, innovation clusters, innovation contests, and peer-production. Together, these mechanisms are categorized under an umbrella term called *collective engagement, intelligence and innovation* (CEI^2), and explored to determine how these can be made more effective. Our examination includes use of incentives, innovation contests, and innovation clusters. Clusters are critical in that focus herein is trained on adaptation of crowdsourcing for B2B and other similar markets (Simula *et al*., 2015). The question of interest is: "*In what ways can crowdsourcing and its variants be more effectively structured in contexts beyond B2C?*"

CROWDSOURCING

Juxtaposed to the "lone genius" is collaboration in inventive teams, social networks, and their hybrid – crowdsourcing (Cooper, 2018) where *crowd* refers to user participation initiatives, whereas *sourcing* refers to procurement practices aimed at finding and engaging service suppliers (Estellés and González-Ladrón-de-Guevara, 2012). Coordination costs of such boundary spanning collaborations are offset by benefits arising from knowledge diversity, especially in novel combinations where social relationships, including social media ties, mitigate lack of geographic proximity (Bercovitz and Feldman, 2011). The authors distinguish between two types of crowdsourcing (Blohm *et al*., 2013):

- collaborative crowdsourcing where a common solution is developed in a collective way;
- competitive crowdsourcing based on creating, collecting and transmitting independent solutions.

Crowdsourcing itself is thus an umbrella term with variations that include crowd-voting, crowdsourcing of creative work, crowd-searching, and crowdfunding. These are applicable in B2B environments where the crowd members function as innovation partners. Enterprises using these technologies to capture and transform customer knowledge into relevant innovations obtain improved performance (Xu *et al*., 2015).

The power of CEI^2 (i.e., crowdsourcing, co-creation, distributed innovation, and open innovation) is "we are smarter than me", where otherwise disassociated co-creative crowds generate more and better ideas, leading to better innovation (Edgeman and Eskildsen, 2012; King and Lakhani, 2013).

While B2C crowdsourcing research is abundant, B2B crowdsourcing research is relatively limited and less well understood (Simula and Ahola, 2013; Simula and Vuori, 2012). This begs the question: *can inspiration from B2C and other forms of crowdsourcing be identified that can enhance innovation in B2B environments*? A conceptual model for B2B CEI^2 as a means of resource generation is now derived.

Crowdsourcing with Conscience: Citizen Participation, Sourcing, and Science

Open social innovation (Chesbrough and Di Minin, 2014) – is a successful and increasingly common method of innovation. Special cases include *citizen participation* or *citizen sourcing* (Seltzer and Mahmoudi, 2012), along with *citizen science* where engaged citizens see solutions to real world challenges as sufficient compensation for their involvement (Land-Sandstra *et al*., 2015). Citizen-sourcing and citizen science are increasingly acknowledged as rich contributors to smart city development (Castelnovo, 2016; Rodríguez Bolivar, 2019). Only rarely is participant remuneration associated with these crowdsourcing variations.

Incentivizing Crowdsourcing: Innovation Contests

Innovation contests are a common form of crowdsourcing wherein an enterprise posts a challenge to a "crowd" of independent agents, providing an award which may or may not include financial remuneration to the agent supplying the most promising solution (Ihl *et al*., 2019; Sawhney *et al*., 2006). Prior economic research suggests that having many solvers (e.g. contestants) work on a given challenge produces a lower equilibrium effort for each agent (Fullerton and McAfee, 1999). More recent research indicates that benefits accrue from larger agent crowds due to heterogeneous submission behavior that brings more diverse and richer possible solutions (Armisen and Majchrzak, 2015; Terwiesh and Xu, 2008). Such diversity of suggested solutions is a statistical phenomenon wherein greater overall variation and variety typically results from more observations.

Crowdfund platforms such as *Kickstarter* solicit ideas that compete to gain funding (Stemler, 2013). A philosophically related funding source is presentation of product or service ideas to panels of potential investors – a source popularized by the internationally popular television series, *Shark Tank*.

Collectively these results suggest that B2C and B2B enterprises should consider greater engagement of users/citizens as part of their innovation policies and practices. Studies of crowdsourcing incentives suggest that each prize should have twice the marginal utility value of the one that follows (Adamczyk *et al*., 2012), the fundamental reasoning behind this is that sufficient differentiation between prize levels more greatly stimulates investment of effort and ingenuity by participants.

Structured Open Innovation: Science Parks, Free Zones, and Innovation Clusters

Science parks derive from unified or similar purpose and are identified with physical locations. In contrast to science parks, *innovation clusters* are – foremost – virtually, rather than physically anchored – though an innovation cluster may be constrained within the physical limits of a science park (Salvador *et al.*, 2013). Formation of research and development collaboration networks is an innovation cluster premium (Broekel *et al*., 2015). Innovation clusters can be interpreted as a crowdsourcing variation, albeit a variation with greater structure. A cluster is a concentration of interconnected companies that both compete and collaborate and in so doing contribute to their own sustainability (Christ *et al*., 2017). The focus of a given cluster provides the structure within which innovation occurs and the "crowd" appealed to as sources of innovative ideas (Bell, 2005). Interfirm cooperation across clusters costs more than cooperation within clusters, yet acceptably so due to additional value clustering creates (Scott *et al*., 2019). Mitigating such costs are service intermediaries that supply "glue" in the network by facilitating inter-cluster engagement and broader B2B knowledge exchange that leverages a "cluster of clusters" (Zhang and Li, 2010).

DESIGNING AN INNOVATION FRAMEWORK FOR B2B CEI^{2}

B2B crowdsourcing has barriers that are largely non-existent in B2C environments (Kärkkäinen *et al.*, 2012). To determine where B2B enterprises should invest their energy, it is of value to examine successful B2C strategies. Brabham (2008) analyzes cases within B2C in garment print design and stock photographs where combinations of rewards and semi-professional appreciation attract larger

Table 1. The six stages and tasks of B2B CEI^2

Stage/Task	Focus and Considerations	Literature
1. Specify the task.	Specify the task and select the right crowdsourcing business model.	
2. Participant selection and optimization.	Layers in the B2B environment; benefits and barriers; better leverage non-B participants; crowdsourcing configuration.	Afuah and Tucci, 2012; Simula and Ahola, 2013; Simula and Vuori, 2012.
3. Create the environment.	Identify governance mechanism to manage distributed innovation; focus on communities of creation; establish suitable innovation environment.	Nonaka et al., 2000; Sawhney and Prandelli, 2000.
4. Participant motivation and value proposition creation.	Elaborate motivations and rewards; performance-based incentives; match incentives to desired result.	Ariely et al., 2005; Boudreau et al., 2011; Roma et al., 2017.
5. Reach the participants.	Crowdsourcing configuration; crowdsourcing brokers; use of social media to reach non-B crowd.	Chui et al., 2013; Hossain, 2014.
6. Manage the input and communicate value.	Knowledge management motivation and value; technology intelligence.	Gassenheimer et al., 2013.

and more engaged crowds. Similar motivations are less obvious in B2B environments where expectations might instead be expressed as an *expected value proposition* (Helander *et al*., 2014). Due to fewer market participants, B2B enterprises face challenges in generating adequate crowd sizes that can be mitigated via B2(B+C) crowdsourcing that combines businesses and end users (Kärkkäinen *et al*. 2012). Therefore, mechanisms for B2B crowdsourcing require a more comprehensive scope in the form of CEI^2. A review of literature on crowdsourcing behavior both generally and with respect to B2B market environments suggests the six-stage approach to CEI^2 cited in Table 1.

Embraced herein is the view of knowledge and innovation that "knowledge is imperfectly shared over time and across people, organizations, and industries. Ideas from one group might solve the problems of another" (Hargadon and Sutton, 1997), a notion consistent with the five stages of successful innovation cited by Mariello (2007), and the four-step *technology brokering innovation process model* from design firm extraordinaire IDEO (Hargadon and Sutton, 1997) a modified expression of which is provided in Figure 1.

Figure 1 indicates that innovation occurs through novel assembly of existing idea fragments (Hansen and Birkinshaw, 2007). Interacting with people from different industries, experiences, and backgrounds can boost innovation of existing products, processes, systems and services and contribute to new product development (Hargadon and Sutton, 1997). A given group can contain highly diverse individuals, hence via crowdsourcing an enterprise can gain access to knowledge not completely available in its resident assets.

The modified IDEO model of Figure 1 provides a foundation for the '*Framework for Collective Engagement, Intelligence & Innovation*' developed and advocated herein, as portrayed in Figure 2. The model of Figure 2 is intended for B2B companies and cites six essential process stages. The models of Figures 1 and 2 have similarities. In the *Access* and *Acquisition* steps of Figure 1, a group of participants can obtain vital knowledge via interactions to obtain and leverage this knowledge. Interaction might occur as publishing a problem or other request from an enterprise via digital communication. These Figure 1 stages correspond to stages one through five of Figure 2. The *Storage & Retrieval* stage of Figure 1 corresponds to the final stage of Figure 2: *manage the input and communicate value*, with

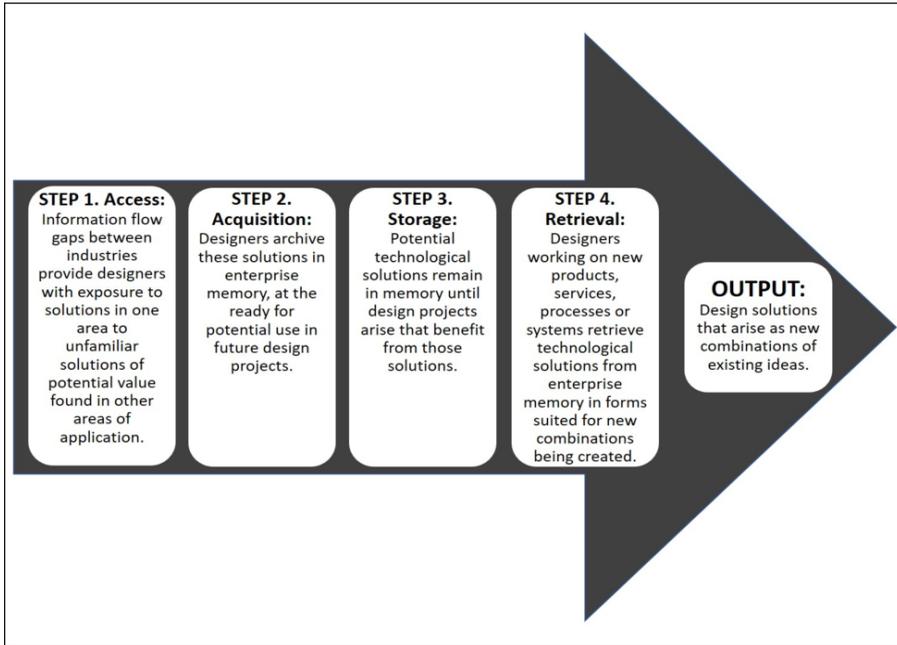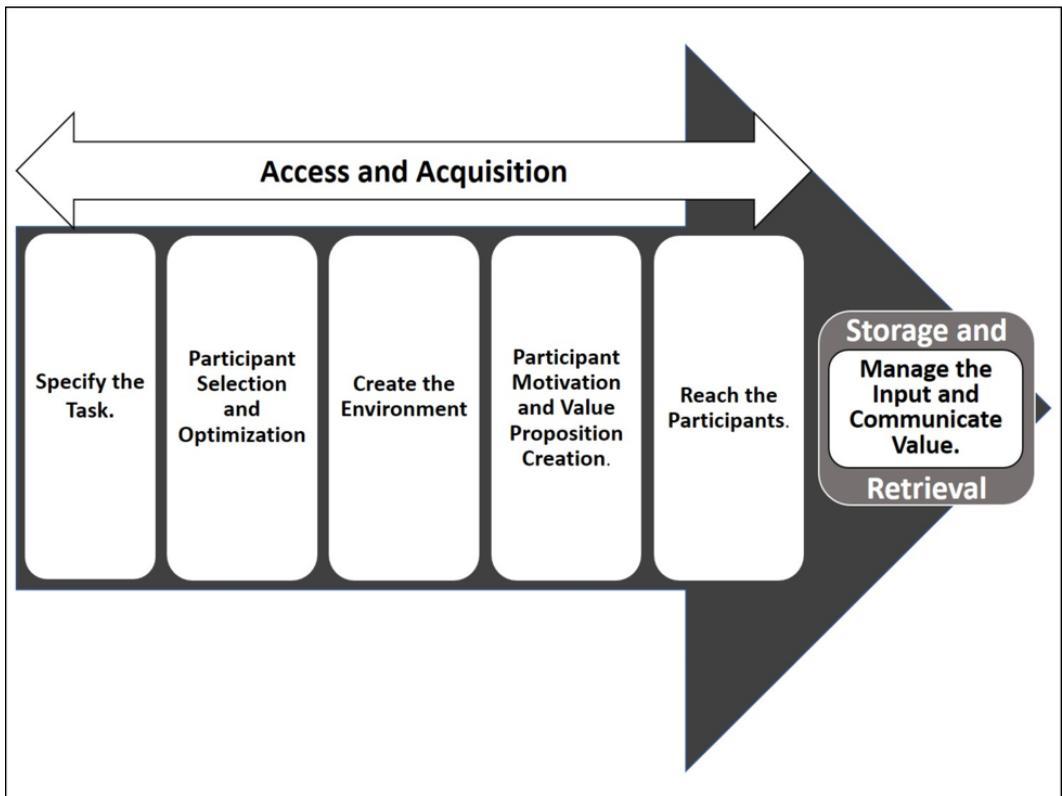**Figure 1. Technology brokering innovation process model (Inspired: Hargadon & Sutton, 1997)**

Figure 2. A framework for CEI^2 **(Source: Original)**

the understanding that some solutions may be suitable for other problems that are currently of low priority or perhaps as yet unknown to the enterprise.

Roadmap Stage 1 – Specify the Task

The first stage of a B2B CEI^2 project shares the same characteristics as projects run by B2C companies. Managers are encouraged to draw inspiration from successful crowdsourcing projects of B2C companies (Boudreau and Lakhani, 2013) and can benefit from carefully considering supplier selection criteria from a B2C perspective (Boyce and Mano, 2018).

During the initial crowdsourcing project phase, it is essential to define the overall framework of how the project will be managed as a means of mitigating risks and maximizing benefits. CEI^2 projects should ordinarily have defined outcomes such as specific or anticipated outputs, a timetable, major milestones, and key success indicators that may include key performance indicators (KPIs) and key behavioral indicators (KBIs), with KBIs generally less commonly used and less well understood (Edgeman, 2017; Edgeman, 2018; Edgeman, 2019).

The task being subjected to collective engagement will typically be among the following: crowd contests, macro-task, micro-task, crowdfunding, or self-organized crowd. Each category has different traits and usages. Different types of crowdsourcing tasks are suited to solve different kind of problems (Grier, 2013).

Roadmap Stage 2 – Select the Participants

Participant selection and optimization is key to improving the likelihood of generating an optimal solution. A critical concern for the company is to verify whether problem solving should come from inside the company's network, externally, or using a hybrid approach to solution seeking. Simula and Vuori (2012) have developed a model dividing the B2B market environment into four layers as presented in Figure 3, while Simula and Ahola (2013) have identified four crowdsourcing configurations applied by industrial companies as portrayed in Figure 4.

One participant layer is the firm itself – its human capital, portrayed as darkened circles of Figure 4 and as the innermost layer of Figure 3. A participant group composed solely of enterprise human capital is regarded as 'internal crowdsourcing' (see Figure 4). IBM uses this internal configuration by constructing 'innovation jams' wherein the whole of IBM is encouraged to brainstorm new innovation possibilities (Simula and Ahola, 2013). External crowdsourcing layers are labeled as 'trusted partners' and 'pre-qualified participants and communities' in Figure 3.

On occasion there is a better chance to solve a problem by searching away from the field where the problem was created (Afuah and Tucci, 2012). In this situation the most distant layer of Figure 3, the 'general crowd' should be enlisted – a notion corresponding to either the 'crowdsourcing via a broker' or 'open crowdsourcing' configurations of Figure 4. There are risks associated with crowdsourcing such as revealing future plans and leakage of sensitive information, so that use of reputable brokers can mitigate such risks.

Studies show that open crowdsourcing can be successfully used for B2B innovation (Kärkkäinen *et al*. 2012). This type of crowdsourcing has been successfully applied in many consumer industry settings, but its application by industrial enterprises has been limited. If B2B enterprises want to control the crowdsourcing platform instead of letting a broker handle it, they must create the crowdsourcing environment.

Roadmap Stage 3 – Create the Environment

The SECI model of knowledge creation (*Socialization*, *Externalization*, *Combination*, *Internalization*) via conversion of tacit and explicit knowledge represents four knowledge conversion modes. The central component of a CEI^2 project is knowledge management and the proposed environment should be designed and developed based on the concept of *ba* (Sawhney and Prandeli, 2000). Nonaka *et al.*

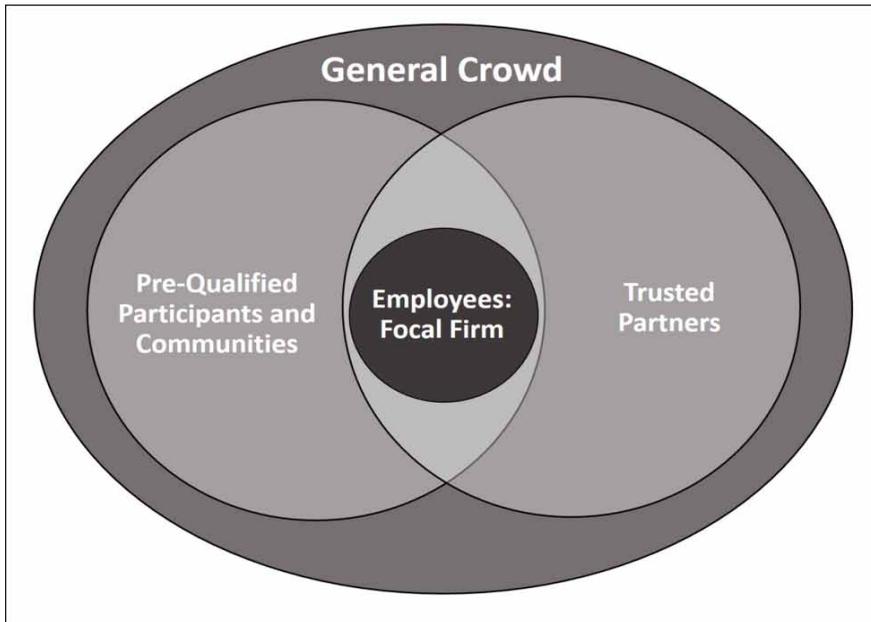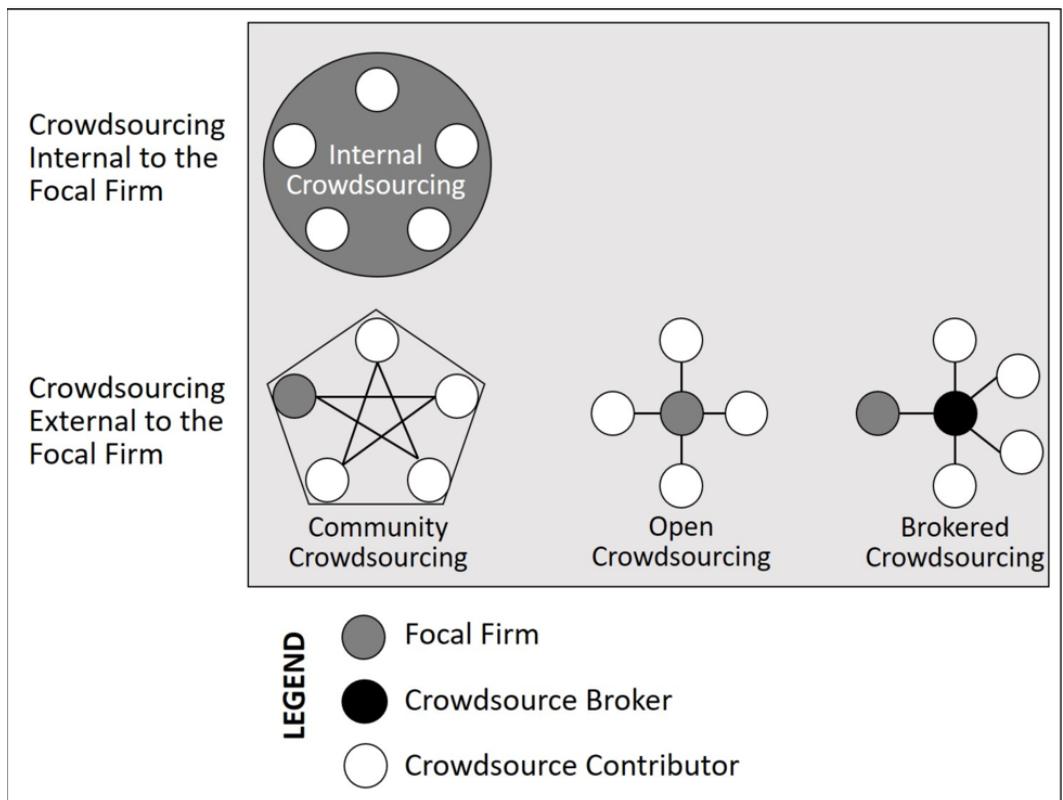**Figure 3. Layers of the B2B market environment (Simula and Vuori, 2012)**

Figure 4. Crowdsourcing configurations (Inspired by Simula and Ahola, 2013)

(2000) assigned a corresponding *ba* or *shared context for knowledge* to each conversion mode. Each *ba* can be virtual or physical, supports a particular conversion mode, and accelerates the knowledge generation process. The originating *ba* represents the *Socialization* phase of Nonaka's SECI model. Literature implies that development of a community of creation requires:

- Common interest;
- A sense of belonging;
- An explicit economic purpose;
- A sponsor;
- Shared language;
- Ground rules for participation;
- Intellectual property rights management mechanisms;
- Physical support of sponsor; and
- Cooperation (Sawhney and Prandeli, 2000).

Roadmap Stage 4 – Participant Motivation and Value Proposition Creation

A contributor in the group can perform work based on a variety of motivations where the motives behind participation in CEI^2 can be broadly categorized as points on a continuum that ranges from *purely intrinsic*, to *internalized extrinsic*, to *purely extrinsic* According to self-determination theory, the basis for all motivation can be covered by three fundamental needs: *autonomy*, *competence*, and *relatedness* (Gassenheimer et al., 2013). This suggests that a B2B enterprise might benefit from aiming its collective engagement efforts at a desired motivation type the enterprise desires the crowd / participants to exhibit (Acar, 2019). Motivations for a person or community to contribute assessments, ideas, knowledge, or other of their endowments can come from many places but core motivations and ethical considerations should be thoughtfully considered (Ariely *et al*., 2006; Resnik *et al*., 2015): if monetary rewards are too high it may lead to decreases in performance, quantity or creativity, so that matching incentives to tasks is critical (Terwiesch and Xu, 2008).

Roadmap Stage 5 – Reach the Participants

In this stage the focus will be on two crowdsourcing configurations portrayed in Figure 3: 'crowdsourcing via broker' and 'open crowdsourcing'. The first option uses a professional broker or web-based service to source the crowd. When using the broker method an enterprise can cover multiple methods of crowdsourcing, depending on how the enterprise and broker chooses to post the assignment or project to the crowd. Most brokers are web-based and require some form of membership to be able to participate or submit problems or tasks (Hossain, 2014). This implies that the size and quality of the crowd are more or less predetermined by the broker's network and skills: "When crowdsourcing via a broker, the level of commitment between actors varies; the relationship between a focal company and a broker is more formal as contracts are in place between them" (Simula and Ahola, 2013).

Roadmap Stage 6 – Manage the Input and Communicate Value

Content management translates knowledge into usable and actionable information. Nonaka *et al*. (2000) describe content management as knowledge being embedded in *ba* that, if separated from *ba* turns into information, which then can be communicated independently: "Information resides in media, it is tangible. In contrast, knowledge resides in *ba*. It is intangible". To extract this knowledge, cyber *ba* must be established via, e.g., a content management system, as it represents the *Combination* phase of the Nonaka *et al*. (2000) knowledge transfer process. The ability to utilize external knowledge represents enterprise 'absorptive capacity', a central feature of interorganizational learning and critical to knowledge management. The external crowd must be motivated to deliver knowledge, while the

seeker of CEI^2 must have the ability to assess, value and implement knowledge. If the knowledge received from collective engagement is technology-focused or concentrated e.g. product development, new product development, future products or services etc., the framework of Kerr, *et al*. (2006) can be used to evaluate and deploy knowledge.

Managers involved in organizational CEI^2 initiatives can leverage the framework by considering the questions listed in Table 2 below. The questions are derived from a literature review of crowdsourcing and screened for relevance to B2B CEI^2 projects. The goal of this framework is to assist practitioners with substantial time- and cost-savings as they navigate each stage of the process.

DISCUSSION AND CONCLUDING REMARKS

Efforts herein reveal under- or unused and unrecognized potential for B2B companies within knowledge retrieval and CEI^2 efforts for macro- or micro-tasks. Differences exist between B2B CEI^2 and B2C crowdsourcing. Acknowledging these differences and examining the key role of incentives-informed structuring of a *Framework for B2B CEI*^{2} comprised of six stages (Figure 2). Derivation of this framework is principally based on the review of relevant literature. The model addresses the process beginning with task specification, concluding with making use of participant-generated input, and stages between these. Adaptation suggests that relative emphasis on a given stage will vary from environment-to-environment and application-to-application. This is especially true relative to identifying and locating the participants and motivating them afterwards, which requires more attention in a B2B context since the necessary participant groups often differ from the enterprise's normal customers, suppliers and partners. In this regard much can be learned from other sorts of "crowds" and how they are formed, including science parks, innovation clusters, and free zones.

Studies suggest that if a participant is contributing to a CEI^2 project, it is important that incentives align with participant and enterprise motivations. If innovation is the desired outcome, lead users and hobbyists tend to prove more beneficial than participants who are engaged purely for monetary reward. The opposite goes for repetitive tasks as micro-tasks can be, here it is seen that a reward will increase the volume and quality of work performed. Hence, controlling or affecting participant motivation is an important issue in need of further examination.

Different types of crowdsourcing tasks were found to elaborate how a B2B company can improve CEI^2. These types of tasks can influence which kind of CEI^2 configuration an enterprise should use, e.g., enterprises dealing with macro- or micro-tasks should consider using a broker.

Lastly, further research is needed for a more suitable way of knowledge management in the context of B2B CEI^2. To fully support knowledge creation, it is essential for B2B enterprises to understand how to attract and engage participants and to prepare the requisite infrastructure for doing so. These aspects of crowdsourcing projects require more attention.

Table 2. Questions for managerial consideration

Stage/Task	Relevant Questions	References
Specifying the Task	Is the task/problem conditioned for crowdsourcing?	Boudreau & Lakhani (2013); Schenk & Guittard (2011)
	Is it beneficial for the organization to crowdsource the task?	Muntes-Mulero et al. (2012); Thuan et al. (2016)
	What are the probable risks? Do the potential benefits outweigh the risks?	Kannangara & Uguccioni (2013); Chandler, Paolacci & Mueller (2013)
	Do the organizational environment, resources and technology align with the crowdsourcing of the task?	Bal et al. (2017); Elia & Margherita (2018)
	Which type of crowdsourcing method is the most suitable for the task *(e.g., tournament vs. collaboration)*?	Blohm, Leimeister & Krcmar (2013)
Participant Selection & Optimization	Should the participants be sourced internally, externally, or using a mix of the two?	Malhotra, Majchrzak, Kesebi et al. (2017)
	What type of contributions will be required from the participants?	Prpic, Shukla, Kietzmann et al. (2015)
	How homogenous or heterogenous (i.e., diverse) should the participants be?	Brunswicker et al. (2017)
	Do the participant characteristics and capabilities share a good fit with the demands of the task?	Erickson, Petrick & Trauth (2012); Rouse (2010)
Creating the Environment	What will be the terms and conditions governing the ownership rights, originality of solutions and intellectual property?	De Beer, McCarthy, Solimon et al. (2017); Alexy, Criscuolo & Salter (2011)
	Which type of platform will deliver the best result *(e.g., integrator-, product- or multisided-platform)*?	Boudreau & Lakhani (2009)
	How open or proprietary should the crowdsourcing platform be?	King & Lakhani (2013)
	What should be the scale of platform in terms of participants, interactions, and value units? How will we enable and optimize interactions among the participants?	Kohler (2015) (2018)
Participant Motivation & Value Proposition Creation	What type of incentives are the most appropriate for the specified task and participants?	Blohm, Zogaj, Bretschneider et al. (2018)
	How to communicate the core value proposition to the participants so that a shared purpose can be developed?	Kohler (2015)
	When sourcing from multiple and diverse groups, does the value proposition align with the interest of each group?	Chanal & Caron-Fasan (2010)
	Which type of motivation will be the most relevant to the participants *(e.g., extrinsic, introjected, identified, integrated, intrinsic)*? Can rewards be performance-contingent?	Zhao & Zhu (2014); Terwiesch & Xu (2008)
	What mechanisms can be used to deliver superior value to the participants *(e.g., providing design toolkits and establishing feedback loops)*?	Tauscher (2017)
Reaching the Participants	How will the task be delivered to the participants *(e.g., through internal platform, third-party services, broker/agent)*? Are there any spatial or logistical components involved?	Schmidt & Jettinghoff (2016); Zhao & Han (2016); Guo et al. (2018); Mladenow et al. (2015)
	What are the potential benefits vs. drawbacks of utilizing an intermediary/innovation broker?	Silva & Ramos (2012)
	How to identify high-value participants? *(e.g., The Pareto Principle: 20% of constituents deliver 80% of the results)*	Tauscher (2017)
	How to prepare a high-quality problem statement or RPF (Request for Proposal)?	Pollok, Luttgens & Piller (2019b); Gefen et al. (2016)
	Which social media B2B role is the most appropriate for this project *(e.g., communication, collaboration, connection, completion, or combination)*?	Jussila, Karkkainen & Multasuo (2013)
Managing Input & Communicating the Value	What metrics will be used to measure the outcomes/performance?	Cullina, Conboy & Morgan (2015)
	How will the crowdsourced data be evaluated, assimilated, and disseminated *(i.e., absorptive capability to integrate the solution)*?	Blohm, Leimeister & Krcmar (2013)
	What will be the level of internal employee participation in knowledge assimilation?	Brunswicker et al. (2017)
	How will we identify and eliminate potential "social bias" in the solution *(i.e., selection of a flawed solution due to the hype generated by a few participants)*?	Hofstetter et al. (2017)
	How will we prevent issues such as "crowdthink" *(a frivolous attitude of the crowd towards the task)* and "crowdhijacking" *(the crowd pushing its own agenda on the firm)*?	Wilson, Robson & Botha (2017)
	What type of articulation and codification of internal knowledge flows must occur to ensure the success of the project?	Pollok, Luttgens & Piller (2019a)

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