

Towards a Framework for Crowdsourcing Process Management:

Evidences from Brazilian Leading Experts

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Abstract: Recent studies show theoretical and practical advances in the management of crowdsourcing, however few studies have bothered to explore the issues surrounding the management decisions which take place in the course of a process of crowdsourcing. This paper is part of this theoretical and practical gap of managing crowdsourcing initiatives. Its main goal is to propose a framework for organizing the various steps of building the crowdsourcing process in companies. We adopted the method of design research, articulating the theoretical framework with the empirical evidence in five subsequent steps: awareness of the problem, suggestion, development, evaluation and completion of the framework. This method of research was adopted to articulate the contributions and empirical evidence collected from Brazilian leading experts. The main results of the paper are related to the actions that a company must perform in order to undertake a CW initiative.

Key words: crowdsourcing; open business model; collaboration; networks

JEL codes: M1, D7, L2

1. Introduction

Crowds can help companies solve problems, and also create and improve products and services. Realizing that businesses and professionals constantly resorted to the support of outside supporters to access pictures, music, texts and new information, journalist Jeff Howe introduced the phenomenon of crowdsourcing in an article for the Wired Magazine (Howe, 2006). Based on the idea that the intelligence and the collective knowledge of the crowd of volunteers can solve problems, create content and solutions and develop new technologies, the author conceived the concept of crowdsourcing as the act of offering a work that was performed by an employee or contractor, in a broad and open way to an undefined group of people, usually over the Internet (Howe, 2008).

Although not an entirely new practice, volunteer work has received increased attention in recent years of companies due to the popularity of social networks n the internet, which expanded the scope of their operations and reduced their costs (Benkler, 2006). Recent studies show that problem solution through crowdsourcing can be an interesting alternative when compared to the solutions which are sought internally in the company or by hiring

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an external partner (Afuah, Tucci, 2012). Due to their widespread adoption and their advantages of application, publications directed to business managers emerge in order to help crowdsourcing take place (Dawson, Bynghall, 2011; Sloane, 2011; Brabham, 2013). These publications focus on reporting the example cases, demonstrating the distinctive characteristics of successful initiatives that can be employed by companies to achieve a higher success rate in their crowdsourcing actions. Despite the current theoretical and practical advances in the management of crowdsourcing, few studies have bothered to explore the issues surrounding the management decisions which take place in the course of a process of crowdsourcing.

This paper is part of this theoretical and practical gap of managing crowdsourcing initiatives. Its main goal is to propose a framework for organizing the various steps of building the crowdsourcing process in companies. Grounded in theoretical evolution of issues surrounding the phenomenon, we seek to advance the understanding of its management, deepening the knowledge about the steps and the whole process of crowdsourcing and organizing a framework that can assist and disseminate its adoption. To achieve this goal, we adopted the method of design research (Vaishnavi, Kuechler, 2007), articulating the theoretical framework with the empirical evidence in five subsequent steps: awareness of the problem, suggestion, development, evaluation and completion of the framework.

Thus, this article is structured into seven parts. After this introduction, we will present the theoretical framework that addresses two sessions in the definition of crowdsourcing and the process that companies organize to adopt it. In the fourth section we will present and discuss the method of Design Research, and will be detail methodological procedures used in the study. In the fifth and sixth sections, we present and analyze the evidences found in the two data collections carried out for research. Finally, in the last section, the proposed framework and the final considerations are presented, discussing their main theoretical and practical contributions, limitations and suggestions for future studies.

2. Crowdsourcing

First mentioned by Jeff Howe in an article for the Wired Magazine in 2006, crowdsourcing (CW) is a business initiative that uses the collective intelligence and knowledge of external volunteers to solve problems, generate solutions and develop new technologies to companies (Howe, 2006). The CW is adopted when a company decides to outsource a task, not for another company, but for large communities of people who are organized through personal contact or over the internet, connecting to the contemporary concept of multitude (Hardt, Negri, 2004; Brown, Szeman, 2005).

In the field of business, the conceptual roots of CW are related to the types of online collaboration espoused by Tapscott and Williams (2006). In an economy wiki, companies must rely on the actions of a community for their own benefit, because individuals working remotely, flexibly and independently can generate new ideas and innovations quickly and more efficiently than the rigid business structures (Tapscott, Williams, 2006; Johnson, 2010). Meanwhile, CW is also rooted in the design of open business models, in which companies revise their structures in order to relax their borders to deal with external solutions and innovations (Chesbrough, 2005, 2006; Djelassi, Decoopman, 2013).

In its formal conception, CW is the act of outsourcing a task openly to a crowd, rather than running it internally or hiring a specific outside agency (Howe, 2008; Jeppesen, Lakhani, 2010). The decision of CW leads companies to the unexpected, because the solution sought is not in a locus of expertise, but in a community of

volunteers who will or not be willing to find it. In other words, "crowdsourcing broadcasts the problem over the landscape so that those agents located in the neighborhood of peaks can decide to climb them if they choose to do so" (Afuah, Tucci, 2012, p. 360).

The collaborative work of the crowds had its reach propelled with the popularization of the internet and social networks (Benkler, 2006). With the rise of medias that allow the formation and maintenance of social networks in the internet, companies now have greater access to an international community of participants with more diverse skills and knowledge, that can perform fast and at a low cost (Leimeister, Huber, Bretschneider, Krcmar, 2009). Examples of adopting CW became recurrent in the literature on the subject, demonstrating the benefits it can bring to companies. Goldcorp Inc. has created a global challenge to find gold in their unproductive mines (Tapscott, Williams, 2006). The website Threadless.com outsources the creation of the prints of their shirts in an online competition among participants of their community (Brabham, 2008). In both cases, CW is allowing businesses to create projects to use the community to solve problems or generate new ideas.

To that end, some conditions are necessary. The problem needs to be easy to design and to be broadcasted to the public; the necessary knowledge to resolve the problem knowledge should not be in the company or close to it; numerous volunteers need to be motivated and have enough knowledge to tackle the problem; information technologies and communications should be low cost and widely disseminated in the context of the problem in focus; and the final solution should be easy to evaluate and integrate to the practices of the promoter company (Afuah, Tucci, 2012). Other studies show that CW occurs at the intersection of three factors: a community of volunteers, advanced information technologies and communication, and well-structured process outsourcing (Saxton, Oh, Kishore, 2013). The development of information technologies and communication and community volunteers may be beyond the capabilities of a company, but a process of well structured CW, with initial and final steps, is within the reach of its capabilities.

3. The Crowdsourcing Process

The decision of adopting CW will depend on a set of conditions that makes it preferable to alternatives such as an internal solution or the hiring of a specific business. Thus, the beginning of a process of CW will have its start with the company identifying a task or group of tasks which are subject of outsourcing and which are being implemented internally (Withla, 2009). Therefore, the initial stage of CW is, specifically, to define what activity or activities can be outsourced. It can also be defined initially in accordance to what are the issues that users will respond to (Buecheler, Sieg, Füchslin, Pfeifer, 2010). That is, the company needs to define what answers she seeks when outsourcing an activity or a process to the crowd. Moreover, in accordance to Afuah and Tucci (2012), the successful implementation of CW goes through clearly setting a goal and being able to transmit it clearly, so that participants can understand the problem. Other authors such as Saxton et al. (2013) agree with this statement, arguing that CW is a mechanism to achieve clear objectives, in a way that the problem must also be clear. Thus, the initial steps of the process of CW in a company must accurately identify which is the activity that it should outsource and what goals it aims to achieve.

In a second moment it becomes necessary to identify different profiles of participants (Chanal, Caron-Fasan, 2010). For each profile, the company should seek a form of relationship that comprises aspects such as the motivation to participate, the skills that each participant profile brings to the challenge, and the functions they may exercise in the process. In his study on the CW platform called CrowdSpirit, the authors identified eight profiles

of participants in a challenge of CW: "The idea initiator, the design team member, the investor, the tester, the ambassador, the project leader, the reseller and the customer" (Chanal, Caron-Fasan, 2010, p. 328). Other scholars complement these findings, arguing that only the participants get motivated to contribute when they believe they have enough competences to put in practice the proposals made by the company (WALTER; BACK, 2011. Then, in a process of CW, it is essential that there is adequate diversification and that the profiles of participants for the proposed activities for the community are found (Stieger, Matzler, Chatterjee, Ladstaetter-Fussenegger, 2012).

Also related to the profile of the participants in CW initiatives, it is important to decide whether the focus community should be made up of experts in the subject or not. For Büecheler et al. (2010), the community that will be devoted to the problem does not necessarily need to be composed of experts, because, in order to increase the potential for resolution of an issue, the diversity of the acting group is more important. In their comparative research between users and professionals experts, Poetz and Schreier (2012) found that the solutions found by experts for the outsourced problems have had lower perceived value for the companies than the responses created by users of the products. On the other hand, the solutions brought by users of the products were found to be highly complex to be performed by the company. The authors attributed this to the lack of knowledge of users on the conditions of investment which could be made by company (Poetz, Schreier, 2012). Similar results were found in the research made by Huan, Singh and Srinivasan (2011), which showed that participants in CW initiatives usually underestimate the costs of the company to adopt the suggestions received by users.

After finding the right profile for the acting members of a community, it is necessary to define what kind of motivation can encourage their participation. In accordance to Shirky (2011), each individual has different reasons for doing things, and these motives generate different logics of participation. For Kaufman, Schulze and Veit (2011), volunteers which take part of CW initiatives have two basic types of motivation: intrinsic and extrinsic

Intrinsic motivations are those in which the activity itself is the reward, whereas extrinsic motivations are those whose reward for doing something is external to the activity, and is not the activity itself (Deci, 1971). In CW initiatives, the volunteers motivate intrinsically, based on fun or based of the community. The first gives an overview of the putting in practice the activities that make the company determined produces a sense of fun, while the second says that the dynamics of community motivates the person to participate. In regard to extrinsic motivation, there are three categories: immediate payment, future payment and social motivation. Immediate payment covers any type of compensation received by the performed activities. Future payment is related to all kinds of gain that can be perceived in the future as a new skill or as a lived experience. Finally, social motivation is the extrinsic part of the category based on the dynamic part of the community and primarily linked to the status which rises from social contact made with the other participants (Kaufman et al., 2011). Other authors add to this idea asserting that the motivations to participate of a CW challenge are also linked to altruism and to the desire of belonging volunteers (Afuah, Tucci, 2012).

Research made by Saxton et al. (2013) demonstrated that most CW platforms choose to adopt rewards to encourage community participation and that more than half of the platforms use financial rewards in the form of prizes and cash payments, although they are not the most relevant ways to encourage volunteers to engage in outsourced projects (Brabham, 2008, 2010). According to Walter and Back (2011), the financial rewards increase the number of responses in the challenge, but do not affect the improvement of the quality of the answers delivered by the community for the proposed challenge. So one of the fundamental decisions in the CW process is to choose which reward will bring more motivation to the community of volunteers (Chanal, Caron-Fasan, 2010).

Another important decision concerns the complexity of the CW proposal. Authors such as Yang, Chen and

Pavlou (2010) argue that a low complexity design substantially increases the number of active participants, because it reduces the need for interaction between the company and the community. However, the low complexity facilitates solution summarization and other information sent by the volunteers (Stieger et al., 2012). Thus, one of the requirements of the CW process to its wide dissemination and to obtaining a large number of ideas is being supported by a proposed of simple understanding, which facilitates the understanding of the volunteers and makes tasks the least complex possible so that they can be undertaken.

A next step is to define where the challenge will be announced. Some companies choose to use their own website to promote the activities available to the community. However, some research indicates that online platforms, which already have active communities of volunteer collaborators and problem solvers, tend to generate even more engagement (Jeppesen, Lakhani, 2010).

Furthermore, the use of specialized platforms can also ensure a good relationship with the community and the project, which can be characterized as one important aspect in driving CW initiatives (Saxton et al., 2013). Online platforms in general already have structured an information system that facilitates and optimizes the execution of CW projects and that, when incorporating initiatives from different companies and directors of CW, remains in constant improvement (Majchrzak, Malhotra, 2013). If the company adopts its own CW platform, some authors indicate that it is necessary to conduct tests before the release (Chanal, Caron-Fasan, 2010; Buecheler et al., 2011). These tests can detect flaws in the proposal, aligning the company's expectations to the final result. Through testing, the company can find out if participants understand the problem, how the community behaves on the platform and what kind of answers or ideas can be obtained .

In the CW process, constant feedback from the company to the engaged community enables the company to keep the desired interaction to the qualification of solutions and ideas. For authors such as Saxton et al. (2013), one of the aspects that affect the success of CW initiatives is the company's ability to interact with the community during the process. When feedback is done by the community it is faster and increases the speed of new ideas, when it's done by the company it is more precise and reduces the doubts of the participants, indicating how it's evolving in the CW (Yang et al., 2010). The study conducted by the authors (Yang et al., 2010) showed that companies can encourage user participation by providing systematic feedback. When a member sends his first idea, the value he realizes on the CW project is discounted by the chance he thinks he has to win the challenge. With the assessment, the participant who sends the enhanced idea again comes to believe he has a better chance of winning, expanding his involvement with the project. Thus, it can be stated that feedback enhances engagement, improves the quality of the ideas submitted by the community and reduces the uncertainty of the usefulness of the responses sent by the company (Saxton et al., 2013). Thus, defining beforehand the form of community interaction and of providing feedback to participants is another aspect to be considered in a CW process.

The theoretical discussion presented deepens, but does not exhaust the aspects that are part of the intricate process of conducting an initiative of CW. In order to synthesize and facilitate the full understanding of the issue, we diagrammed, in Figure 1, a first version of the process for CW adoption in companies, which constitutes a suggestion in organizing the various aspects surrounding it. This suggestion is called in this study of Framework F1.



In the next section, we will discuss the method of design research adopted as guiding the construction of the framework for organizing the CW process in companies. There will also be details on the methodological procedures for collection and analysis of survey data in accordance with the assumptions of the research design.

4. Methodology

In order to achieve the objective of proposing a framework for organizing the process of CW in companies, we decided to conduct an exploratory research based on the design research method. The design research can be defined as a set of analytical techniques and perspectives for investigations that seek the features that facilitate the creation, manipulation and modification of artifacts or frameworks (Vaishnavi, Kuechler, 2007). The design research is motivated by the desire to improve a context by the introduction of a new and innovative artifact and by the very process of construction of this artifact (Simon, 1996). Typically, the artifact is understood as being something physical, but it can also be understood in a more abstract perspective, as creations (vocabulary and symbols), models (abstractions and representations), methods (algorithms and practices), and instantiations (prototype and expert systems) (Hevner, March, Park, Ram, 2004). In other words, the design research is related to two basic activities: the construction and evaluation of artifacts (March, Smith, 1995). Through the adoption of design research, knowledge is generated, used, tested and evaluated in the construction of the action (Järvinen, 2007).

Most commonly used in studies of information systems (Hevner, 2007), the methodological process of design research collects and analyzes data in five subsequent steps (Vaishnavi, Kuechler, 2007). The first step is **awareness** of the problem, in which the researcher identifies the opportunity of creating a framework and starts his investigation. The second step is the **suggestion**, in which mandatory propositions, grounded in the art of the theory of support, are performed to generate initial proposals of frameworks or artifacts.

The third step of the method is the one of **development**, in which the investigator will enhance the suggested framework or artifact. The techniques used will vary according to the artifacts being constructed. The fourth step includes the **evaluation**, in which the suggested and developed proposal is evaluated taking in consideration the criteria that are either implicitly or explicitly contained in the proposal.

Finally, the fifth and final step is the **completion**, in which the framework or artifact is consolidated through the analysis and interpretation of results. Some authors add the sixth step of **communication** (Peffers, Tuunanen, Rothenberger, Chatterjee, 2008), in which the framework is presented in academic and professional publications. The methodological process of design research is outlined in Figure 2.



Figure 2 The Methodological Process of Design Research Source: adapted de Vaishnavi; Kuechler, (2007); Järvinen, (2007).

In this research, there has been the collections of primary data through in-depth interviews with professionals involved in CW projects. In-depth interviews are usually guided by issues related to the research objectives, in a way that it is possible to explore in a more free way, starting at the speech of the interviewee, the topics of interest, being, however, open to new inputs that the interviewee might bring. As Legard, Keegan and Ward (2003), in-depth interviews are intended to cover a list of topics and not only questions, leaving the respondent with complete freedom to respond as he/she wishes. Based on these guidelines, we interviewed two experts and entrepreneurs with experience in the matter. The interviews were conducted in person and by phone, with an average duration of 45 minutes. All responses were transcribed for later analysis.

For this study, we interviewed the following CW experts: Gabriel Gomes, Marina Miranda, Daniel Bittencourt and Victor Reimann: Gabriel Gomes is one of the associate partners at Shoot The Shit, a collective that seeks to engage people in a collaborative way to create projects to make cities more creative. Gabriel also gives lectures for companies and institutions on the power of collective action and collaboration. Marina Miranda is one of the members of the collaboratory Mutopo, a consultancy specialized in crowdsourcing located in the cities of São Paulo and New York. Marina is one of the best-known consultants linked to CW in Brazil. Daniel Bittencourt is a partner at Lung, a company of the city of Porto Alegre which aims to change the reality of people through social technologies. One of her creations is the portoalegre.cc, an online platform that allows the citizens

of the city to collaboratively inform the city's problems that affect their daily lives. Victor Reimann is one of the administrators the collective organization engage.me, which is responsible for implementing various projects of collaborative engagement for companies. Among the projects, we highlight catarse.me, the largest crowdfunding platform for art projects in Brazil. From this point on, respondents will be referred to as R1, R2, R3 and R4.

The methodological processo of design research is characterized by the division in subsequent phases of collection and knowledge validation. In the case of this present research, the study was divided into three parts. The first part was the analysis of the theoretical framework on CW, which culminated in the proposal of framework F1. The second part, called development, occurred based on interviews with experts in the subject, represented by respondents R1 and R2. This step gave us framework F2. The third stage, called evaluation, is based on interviews with entrepreneurs of the area represented by the interviewees R3 and R4, providing us with F3 framework. Finally, the evidence collected were reorganized in the step called conclusion, structuring the framework proposal for organizing the CW process in companies.

5. Development

In this section, we incorporated to the framework F1, suggested in the session regarding our theoretical framework, the contributions evidenced in interviews with experts on the subject of CW. Following the procedural steps of design research, interviews were conducted in order to develop the framework from which respondents deemed important to the CW process. Thus, in this session, we analyzed the main points of the driven interviews focused on framework 1, demonstrating how the claims of the respondents led to changes to the first process created, culminating in a new framework F2.

In a general way, the two respondents agreed that the first step is to analyze whether it makes sense for the company to adopt CW in some of its activities. R1 respondent agreed with the proposed point, stating: "I think the first step is to understand the reasons for the move to outsource something to a community." R2 respondent added: "The first step is to understand what area or department would most benefit from crowdsourcing." Endorsing the theoretical postulations of Whitla (2009), R1 and R2 respondents converged on the idea that the company should define how CW will be used and how and where it can be better used, otherwise it may not achieve the goals for which it accomplished its CW project (Saxton et al., 2013).

When we analyzed the profile of the participants that the company should seek, respondents presented two different views. R2 respondent argues: "If the goal is to create, for example, a specific solution via crowdsourcing, you have to talk to people who are able to contribute to this project. It makes no sense to talk with everyone." His statement confirms the proposition made by Chanal and Caron-Fasan (2010), that states that the skills and potential contributions of the participants should be mapped in advance by companies. With a different point of view, R1 respondent argued that each project must have a target audience, but that the company should not limit contributions only for volunteers who meet a certain profile. In his words: "Whether or not every project will have a desired audience. The communication should be for that profile, but I think that the company should also find a way to encourage participation of people who are not of that profile." Thus, respondents show that the company should also find a way to consider whether the project requires specific types of volunteers, but questioned whether the project would have greater diversity of responses if other profiles could also bring their contribution to the construction of the solution.

Right after this, we analyzed, together with experts, the aspect of motivation for engagement. In this respect, the two respondents agreed that financial compensation is an important motivational factor, but not an exclusive

factor of engagement. In a certain way, respondents reinforce the theoretical propositions of authors such as Kaufman et al. (2011), and Afuah and Tucci (2012), that sustain altruism, the desire of belonging and of gaining status in the community as factors which are equally motivational. However, R1 respondent also highlighted the fact that major awards can bring higher quality in community participation: "You can call quality through the award. A person who is a great designer, for example, may be attracted by the challenge because it will deliver R\$50,000 at the end." Therefore, we can notice the importance of the company to pay attention to the intrinsic and extrinsic motivations of engagement (Deci, 1971; Shirky, 2011).

Both respondents pointed out the importance of specific CW platform. They agree with the authors who argue that these platforms are more effective in disseminating the CW project than the company's website or traditional media (Majchrzak, Malhotra, 2013), including the fact that they are already targeted to communities that routinely engage (Jeppesen, Lakhani, 2010). In addition, respondents also value the use of social networks on the internet. R1 respondent said: "Social media is important too. It is essential to find this public in social networks to advertise the project", while R2 respondent added, arguing that "it is important for companies to advertise where the target audience of contributors to the project is. Be it in social media, in a community or in other types of medi. It is important to advertise in these places." These evidence reinforce the importance of the company to disclose the design of the CW project on specific platforms and medias focused on the crowds that usually contribute with outsourced solutions and ideas.

Another aspect in which the opinions of respondents converged was the project's complexity as an inhibitor of participation. Complexity is a factor which, in accordance to the focused theory (Yang et al., 2010) and the respondents interviewed, affects the intensity of the participation of volunteers in this stage of the design research. On the other hand, when respondents were asked about the quality of participants' responses, the opinions changed. R2 respondent stated that the quality of participation is related to the challenge, which should make sense and instigate participants. In the words of R2 respondent, "you must have a challenge that makes people think, that really instigates participants to solve it." R1 respondent emphasizes this point, noting also that the novelty of the challenge is also important: "I think the beacon of quality participation is the challenge?". Thus, respondents indicated that the company should seek to establish issues which are easily understandable in order to enlarge the amount of volunteers, but that it should also try to instigate qualitative participation through projects that make sense and that challenge the community.

The theoretical reference pointed out that companies can encourage user participation by providing systematic feedback (Yang et al., 2010). Feedbacks also increase the quality of the ideas submitted by the community and reduce the uncertainty of the usefulness of the responses sent by the company (Saxton et al., 2013). While agreeing with the importance of feedback, respondents disagreed about the approach that the company should adopt. For R1 respondent, for example, the company must relate to the community to keep providing it with continuing feedback. In the words of R1 respondent: "Crowdsourcing is a collaborative process. So it is between the community and the company. If the company is absent, it is outside the community".

So, the feedback system has to be smart, stressing that the company is also part of the community of contributors. With another view of the matter, R2 respondent states that the best way is to make the community itself validate the responses and ideas of the CW project. According to R2 respondent, "if the project is too big, you have to do something more general about feedback, not very customized. Or you can even make the community itself evaluate the ideas of every person." Evidences suggest, therefore, that the company should really

provide feedback on the CW process, but how this feedback should be used will vary on each project type.

After the analysis of experts in this development stage, the framework suggested in the previous section can be improved from the collected and analyzed evidences. Figure 3 shows the new developed framework now based on the theoretical framework and interviews with experts.



Figure 3 Development of the Framework for the Process of Crowdsourcing in Companies

In this framework, we developed the aspects deemed relevant to the process of composing CW. Six new steps were added: analyzing which areas of the company can benefit from CW; identifying patterns of motivation of the community in targeted in the CW project; if there is financial compensation, defining how it will be granted; mapping the digital social networks which can be more appropriate to the dissemination of the project; analyzing whether the proposed challenges are stimulating to qualitative participation; and establishing continuous feedback

by the company or the community itself. These six steps were highlighted on Image 3 in order to facilitate the understanding of their position in the CW process. The steps suggested in the previous phase were also relocated to give sense of the new CW process. In the next section, following the methodological procedures of the design research, the stage of evaluation of proposed framework will be developed and carried out, having as its base the evidence collected with entrepreneurs linked to CW.

6. Evaluation

In this section, we incorporated into the F2 framework, developed in the previous section, the contributions evidenced in the interviews with venturers who work with CW, giving rise to a new F3 framework. Following the procedural steps of the design research, the interviews were conducted in order to validate the previous framework, improving it from what respondents believe is important in the CW process. To that end, we made a triangulation between the CW theory that justified the F1 framework, the contributions made by experts who generated the F2 framework and the evidences collected in this step along with respondents R3 and R4.

In the beginning of the interview, R3 respondent addressed the company's CW decision. From his point of view, the company should, first of all, question the need for CW and analyze whether any department within it will be responsible for organizing and conducting the project, supporting the CW decision in the long run. This view of the respondent R3 is convergent to the respondent R2, which argued that the organization should study and analyze which area of the company will be benefited by the project. This view of R3 respondent is convergent to the organization should study and analyze which area of the company will be benefited by the project. This view of R3 respondent is convergent to the one of R2 respondent, which argued that the organization should study and analyze which area of the company will be more benefited by the project. There is a ratification of the company's need to wonder about the alignment of CW to its culture and to its organizational structure. Therefore, the self-questioning as to the real utility of CW for the company and the benefits against possible alternatives (AFUAH; TUCCI, 2012) should be part of this framework, thus changing the wording of the first step of the framework to "analyze the usefulness of CW for the company and the advantages against the alternatives".

The second and third steps were validated by respondents R3 and R4. In accordance to the respondents, the second step is consistently positioned after the company's decision to do CW. Companies need to have this second step to filter the various possibilities for CW in a way that the company can focus its efforts on the most appropriate possibilities. The third step concerns the definition of the objectives of CW was pointedly valued by the respondent R4. His opinion corroborates the theoretical assumptions (Saxton et al., 2013) that the goal is a crucial step of the whole CW project, and therefore it should be immediately defined and clearly stated. However, the respondent also highlighted the goal difference for the results:"The goal has to be defined and has to be clear, but the company cannot open a CW project waiting for specific results, because the results are always uncertain." Both steps were then held in the framework.

Another aspect discussed in this step was the company's relationship with the community of volunteers. In accordance to R3 respondent, the company needs to know well the group of people with which it will interact in the project because, in his words, "I have to know very well that the audience will interact with me, because only then I will know how these people can help me with what I want to develop." Although his statement is aligned to the view of the R2 respondent, it deviates from the theoretical contributions of Büecheler et al. (2010). To the authors, the community does not necessarily have to be composed only of experts, because the resolution of a question is often linked to the quantity and diversity of volunteers. R3 respondent solved this dilemma of what

kinds of audiences should interact proposing a previous analysis in which the company links the identification of participants based on the objectives of the CW project. In the words of R4: "There are many examples of CW that are open to the general public such as My Starbucks Idea, which is a project based on generic knowledge about cafés, but in projects of specific knowledge, such as Netflix, you need to focus in already established communities that have expertise in the area." This body of evidence incentived the inclusion of a further step in the framework in order to decide, based on the goals of CW, if the project will be directed to a specific community of experts or if it will be fully open to the participation by volunteers.

Evidence collected from the interviewed entrepreneurs also helped enhance the aspects covering volunteer compensation and motivation. As discussed in the theoretical framework, engaging in CW projects depends on intrinsic and extrinsic motivation (Deci, 1979; Shirky, 2011). As R1 and R2 respondents in the previous section, R3 respondent corroborates with these assumptions stating that: "The compensation is closely linked to what you want. The money is compensation in most projects, but sometimes people just want to do good." Improving the framework was suggested by the merge of steps "to identify patterns of motivation of the community" and "examine ways of motivation" in just one that came to be described as "identifying the possibilities of intrinsic and extrinsic motivation".

In regard to the compensation of volunteers, our respondents validated that the maintenance of two steps, grounded in the theoretical contributions of Chanal and Caron-Fasan (2010), cover the choice of compensation more in line with the expectations of volunteers. Nevertheless, R4 respondent complements them, arguing that the choice of remuneration should also be grounded in the principles CW. In accordance to R4 respondent:"In projects in which the objective is the co-creation, as the ones of Quirky, compensation is financial. In other projects the reward is purely reputation and recognition in the community." Grounded in these new evidences, the steps were rewritten in order to emphasize the relevance of the objectives in choosing the form of compensation. The new wording is "choose the type of compensation based on the goals of CW" and "if necessary, propose financial remuneration aligned with the objectives of the CW project".

Regarding the discussion between the platforms in which the project will be disseminated and implemented, R4 respondent emphasized that this is a matter of the company maturity on CW. Companies that are in their first CW initiatives should use the established platforms, while the more experienced can now create their own. In accordance to R4: "For companies who want to start a movement of CW, it is best to use platforms that already exist. It is a way to test the CW. Thereafter, if the CW really brings gains for the company, it should start thinking about its own platform." In regard to the disclosure of the CW project, the evidences collected by R3 respondent indicate that the company should not discard any media type, because they reach different audiences and thus complement each other. However, R3 respondent also argued that identifying media focused on the specific public of the CW project increases the effectiveness of its disclosure (Whitla, 2009). This review promoted a change in a way that it indicated that "mapping the most appropriate digital social networks for the project's disclosure", which received a new wording more aligned with evidences: "to identify media types focused on the specific audience of the CW project".

In regard to the complexity of the CW project, entrepreneurs validated the importance of simplicity to the success of the process. However, they also evaluated that complexity should be more analyzed in the beginning of the process and not at the moment in which the decision is being taken as to in what media the project should be disclosed. Thus, the step "to reduce complexity in the CW project", contained in the F2 framework, was rewritten to "analyze the complexity of the CW project" and moved to the beginning of the process right after the definition of the goals of the company.

The matter of stimulus that the CW challenge brings to the participation of volunteers was also evaluated by respondents. In particular, R4 respondent highlighted the importance of the company taking into account when drafting the CW project. In his words: "This is the central point of the challenge, because it defines the degree of engagement of people in the CW." With regard to the structuring of the CW process, it was suggested that the assessment of the challenge is also done at the beginning of the project, after the analysis of its complexity. Thus, the step was relocated to the initial part of the process and rewritten to "assess whether the proposed challenges are stimulating quantitative and qualitative participation".

In the final part of the CW process, special attention was given to the company's relationship with the community involved. In accordance with recent theoretical contributions (Yang et al., 2010; Saxton et al., 2013), R3 respondent said that the quality of the company's relationship with participants is one of the determinants of the final outcome of a CW project. R4 respondent, in his turn, confirms the importance of the relationship between company and community: "If the company simply provides a challenge and creates an environment for collaboration and does not get involved, she ends up putting a different level of volunteers. This is not good as it creates a gap that undermines CW." These evidences validate both the theoretical basis and also the empirical claims collected from respondents R1 and R2. Therefore, the feedback from the company to the community involved was also noted (Yang et al., 2010). For R3 and R4 respondents, the more feedback the company is willing to give, the better for the project CW. This position reinforces the claims of R1 respondent and goes against the position of R1 and R3 respondents, who believed to be very difficult and laborious for the company to maintain constant feedback to large numbers of people. Therefore, R3 and R4 respondents indicated the need to structure the company to give these feedbacks to the participants.

Furthermore, R4 respondent adds the controversial question of implicit moderation in this relation between company and community: "There also needs to be moderation, but this is a very controversial topic." For him, this could be one of the roles of the company on a CW project: "If a company creates a CW initiative and participants discuss topics unrelated to the objectives, CW will not bring results. But if people deem that this is the space they have for it, what to do? I do not have an opinion." Regardless of how the issue of moderating the community will be faced by the company, respondents emphasized the importance of it being considered in the CW process. From these evidences, the last steps of the framework have been rewritten and relocated in their sequence. The step "defining the forms of interaction and feedback between company and community". The step "establish continuous feedback" was brought forward to before the tests and rewritten to incorporate the issue of moderation: "to establish ongoing community feedback, assessing the need for moderation". The step "performing tests on the CW platform" was maintained and positioned at the end of the process.

Image 4 shows the layout of the F3 framework of 15 steps to the process of crowdsourcing in companies. In the scheme, we highlight with darker lines the steps that were changed after the evaluation stage provided for in the design research method. The wording of the first step of the framework was changed to "analyzing the usefulness of CW for the company and the advantages against the alternatives". The steps "deciding what activities the company will outsource to the crowd" and "defining which goals are pursued by the company in the C" were unchanged. The steps "analyzing the complexity of the CW project" and "assessing whether the proposed challenges are stimulating quantitative and qualitative participation" were allocated for the initial part of the process and rewritten. We also included the step "directing the project to a specific community or making it fully open to participation", while we kept step of "detailing the profile of the participants".

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Figure 4 Final Framework for the Accomplishment of the Crowdsourcing Process in Companies

In addition to these changes, a merge was also made between steps "identifying patterns of motivation of the community" and "examining ways of motivation", transforming them in the step of "identifying potential intrinsic and extrinsic motivation". The following steps were the steps that were rewritten to "choose the type of compensation based on the goals of the CW" and "if necessary, propose financial remuneration aligned with the objectives of the CW project" in order to emphasize the relevance of the objectives in choosing the form of compensation of the project.

Based on the evidences of the evaluation process, the step of "mapping the most appropriate digital social networks to the project's disclosure", was also rewritten to "identify medias focused on specific audience of the CW project". The last two changes regarding the F2 framework relate to the firm's relationship with the participating community. They were anticipated in the order of the CW process and rewritten as "structuring the company to maintain a steady relationship with the community" and "establishing ongoing feedbacks to the community, assessing the need for moderation", with the intention of incorporating the evidence collected from the entrepreneurs interviewed. The final framework for the accomplishment of the crowdsourcing process in companies, shown in Image 4, consolidates these changes. In the next section, the completion step will be taken, in which we describe the main contributions of the paper, as well as the limitations and suggestions for future studies.

7. Conclusion

The contemporary concept of crowd gives opportunity TO a new form of relationship between companies and their consumers. In this context, CW is one of the approaches that are beginning to be adopted in order to incorporate the voice of the crowds in company decisions. The initiatives reported in technical and scientific publications show that the CW can bring benefits to companies if well organized. Thus, opportunities for research that address the organization of CW are open. This paper is part of this opportunity, proposing a framework for the accomplishment of the crowdsourcing process in companies sustained in the recent theoretical contributions to the issue. The method of design research was adopted to articulate such contributions to the empirical evidence collected from four Brazilian leading experts.

The main results of the paper are related to the actions that a company must perform in order to undertake a CW initiative. Actions mentioned in the literature on the subject, including the analysis of the utility of CW for the company, the definition of the project's goals and the identification of the profile of community focus and of its motivations for engagement, were corroborated by empirical evidence. Other evidences raised actions which still have been long studied by academics. Noteworthy is the evaluation of the proposed challenges. CW projects should be exciting by their very nature, however, there are still gaps for the discussion regarding the difficulty of the challenge and its relationship with the quantity and quality of volunteer participation (Kaufman et al., 2011; Brabham, 2013). Equally important was the controversial need for moderation of the crowd. Crowd management and crowd monitoring issues are still poorly researched and their results still do not indicate clear paths to entrepreneurial action. Regardless of that, the importance of the company's relationship with the participating community was emphasized by respondents, reinforcing that this is a rich way for theoretical approaches (Yang et al., 2010; Saxton et al., 2013). As a result, the main contribution of this paper is the organization and systematization of the set of necessary actions in a framework for the implementation of the CW process in companies.

Taking in consideration that the CW is still a recent approach in the field of research in management, this paper presents theoretical and practical limitations. Among its limitations, there is the fact that the article adopted a company-centered bias. Its construction did not include the perspective of volunteers participating. While this approach is justified in order to encompass concerns that managers and consultants have in respect to the process, the views of users would enrich the framework and could bring answers to the unresolved issues such as moderation. Another limitation concerns the fact that evidences are associated with leading Brazilian experts only.

Thus, opinions suffer from bias resulting to the adherence to this context. The evidences presented here also represent a small set of experts who work with CW in Brazil. Therefore we encourage the accomplishment of new empirical investigations that include a larger number of experts and, of course, the participants of CW initiatives.

With regard to the proposed framework, we suggest that studies are conducted to deepen the flowchart of corporate actions. In some steps, the framework indicates multiple options in the choice of actions. This may point to paths with bifurcations in the sequence of company's actions that are not addressed in this study. Finally, we point out two opportunities for improvement of the framework. The first refers to its length. Since the proposed framework here follows the company just until the project's implementation, we suggest that studies are conducted to broaden the scope covering actions after results, finding out how to assess what went right and what went wrong during the process and identifying the steps in which the company succeeded or not. The second concerns its applicability. Studies that analyze the steps of the framework in action can bring insights to resolve open issues and, mainly, to illuminate the practical aspects of its implementation in the reality of companies.

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