

# Governance and Organizing Factors Affecting Crowdsourcing Performance: a Case Study in Policy Contests

ADRIANO SOLIDORO, Università di Milano-Bicocca, Milan, Italy

FRANCESCO ALEOTTI, Università di Milano-Bicocca, Milan, Italy

DAVIDE DIAMANTINI, Università di Milano-Bicocca, Milan, Italy

GIANLUIGI VISCUSI, École Polytechnique Fédérale de Lausanne (EPFL) College of Management (CDM), Switzerland

CHRISTOPHER L. TUCCI, École Polytechnique Fédérale de Lausanne (EPFL) College of Management (CDM), Switzerland

---

## 1. INTRODUCTION

Innovation contests have been used by an increasing number of organizations for knowledge sharing and innovative solutions with the help of the crowd. Such knowledge sharing is particularly important for co-creating, participating, or acquiring innovative ideas. However, there is little consensus in management studies on how to best design a contest in terms of the mechanisms to motivate, engage, and retain crowds. Since the success of a contest depends significantly on the number of participants and the amount of engagement they bring to the table, this paper investigates issues of designing a contest and the management strategy to initiate it: selecting problems where sufficient introductory knowledge is evident so that knowledgeable participants can recognize and understand the challenges; revealing the identity and status of the content sponsors; using members of staff as contributors in the early stages; assigning scores and prizes, and so on. This will result in a number of guidelines for maximizing the innovation contest designer's expected results based on the sense-making process of crowd participants across multiple contests.

## 2. THEORETICAL BACKGROUND

The research on open innovation defined as “a distributed innovation process based on purposively managed knowledge flows across organizational boundaries” [Chesbrough and Bogers 2014, p.27] has moved from a firm-centric perspective to other innovation phenomena not necessarily tied to it [Bogers et al. 2017, p.9]. Accordingly, open innovation research includes the study of knowledge collaboration in online communities [Faraj et al. 2011; Faraj et al. 2016] and practices such as, e.g., crowdsourcing [Afuah and Tucci 2012; Boudreau and Lakhani 2013; Afuah et al. 2018; Leimeister et al. 2009] oriented to engage a collective intelligence [Malone and Bernstein 2015; Malone 2018] in finding solutions or new ideas for innovation problems [Blohm et al. 2011] or policymaking and participatory and deliberative processes [Aitamurto and Landemore 2016]. However, both online communities and crowdsourcing as ways of doing open innovation have raised the question about the kind of organizing forms they eventually require or underpin as well as their novelty, if any [Puranam et al. 2014; Siobhan 2011; Piezunka and Dahlander 2018; Dahlander and Piezunka 2014; Biancani et al. 2014; Linus et al. 2019]. Also, the crowd in “crowdsourcing” has been considered a subject of investigation for moving from talking about “openness broadly, in the abstract” to “a more fine-grained, analytic nuance that is needed to specify when certain forms or governance structures make sense, and when not—and what an organization should be open to and why”, as pointed out by Felin et al. [2015, p.132]. In particular, a stream of research has concentrated on understanding the different dynamics that can lead from groups to online communities or else to open rather than closed crowds in crowdsourcing challenges and ideas competitions [Viscusi and Tucci 2018; Sims and

Woodard 2019; Seidel et al. 2016; Cross et al. 2017; West and Sims 2018]. Moreover, the study of these dynamics in crowd-based problem solving has focused the attention on the factors having an impact on team performance in crowdsourcing. Accordingly, these contributions connect the research on organizing forms in crowdsourcing to the stream of studies that investigate coordination in temporary groups [Valentine and Edmondson 2014] or the management and assembling of experts from the crowd [Retelny et al. 2014; Valentine et al. 2017]. Finally, the analysis of crowd dynamics in challenges or ideas competitions has been considered as relevant to identify how the different configurations (crowds, communities, groups) that may emerge from the activities and interactions of the “solvers” may lower or increase the “crowd capital”. Early conceptualized by Prpić et al., [Prpic and Shukla 2013; Prpić et al. 2015] we define here “crowd capital” as *the total number of crowd units having a demonstrated effectiveness in idea generation or task achievement* [Tucci et al. 2016], where it is worth noting that the terms refers not necessarily only to the winning ideas but also to the other propositions and capabilities that can be forgotten or lost in the different phases of a crowdsourcing initiative.

### 3. METHOD

In the research discussed in this article we adopt abductive reasoning [Bamberger 2018] to the empirical exploration of patterns emerging from the corpus of data. In particular, an exploratory abduction-based approach was chosen as the primary mechanism to proceed, considering that we are studying a context that has specific characteristics: a contest involving a community of practitioners - organized by a professional association together with a university department - for both education and policy goals. Thus, the abduction-based approach is due to the specific research subject and domain where we are “confronted with puzzling facts, but unable to cleanly apply a theory or theoretical perspective to readily explain them” [Bamberger 2018, p.4]; therefore, we are going to use the “pattern of results to conceive a plausible explanation” (ibid., p.4).

Taking these issues into account, we have built a unique data sets from the different challenges discussed in the case study, this includes both quantitative data and the text from the comments and interactions among the participants. These latter data have been analyzed through a qualitative research approach for eliciting how the different actors make sense of their participation to the contest as members of a crowd, community or a specific group and accomplish the contest as an “organized artful practice” [Garfinkel 1967, p.11]. Accordingly, in this article we couple abductive reasoning to an ethnomethodological perspective [Garfinkel 1967] and a triangulation of data and methods [Jick 1979; Olsen 2004]. To this end, another component of the corpus data is made up of interviews to the organizers and evaluators of the contest considered in the case study as well as memos from the observation of the evaluation setting.

### 4. THE STUDY

The digital platform *Crowdicity* hosted from June 2019 to November 2019 the project “Stati Generali della Formazione e del Lavoro” (General Assembly on Training and Work) a crowdsourcing experience designed for a large community of professional trainers, planned and managed by Università degli Studi di Milano-Bicocca and AIF Academy (Associazione Italiana Formatori), a broad representative association of Italian trainers. The final goal of the initiative was the drafting of the “Libro Bianco della Formazione e del Lavoro”, a White Book to be eventually presented to the Minister of Labor in which the community of Italian trainers summarize the collective re-elaboration and analysis of the present changes in society and in the work context and draft the guidelines and the strategies for future development of the world of training in Italy.

The contest proposes 5 competitive categories (“challenges”): 5 macro-themes whose present changes directly influence the world of training and the work of trainers: *culture, social capital and territory*;

*digital transformation; social innovation and new economies; young people, intergenerational relationship and multiculturalism; institutional value chain and life-long training.* The participants are provided with introductory content in order to be able to frame the themes of the challenges and have a basic common knowledge. After, the crowd is called to post new ideas and solutions to resolve some aspect of the challenges, and therefore discuss and comment the other users' opinions and eventually vote the best solutions. The activities of the crowd are managed by an editorial committee that analyzes the different contributions (their pertinence and relevance) which eventually will be edited in the final White Book. In Italy, trainers are demanded to attend every year professional courses provided by certified agencies in order to obtain the qualification needed to be a professional trainer. AIF Academy is one of agencies providing the qualification, and therefore trainers who participated to "Stati Generali" project were able to apply for their qualification/certificate. To quantify the level of engagement on the platform, it was decided to assign a score to the different activities that each user could perform on the platform: post an idea, comment on other ideas and vote for preferences. Upon reaching a predetermined score, the qualification was assigned to the participants. Therefore, the motivation of the crowd is linked both to the need to acquire a qualification and to the desire of taking part in an uncommon professional experience in the forms of knowledge sharing and social learning.

Each challenge remained open for about 5 weeks, after which it was no longer possible to post ideas or comment. The number of users continued to increase gradually until the closure of the project, when their total number was 246. Nevertheless, the staff's activity was fundamental: a dozen of staff members actively contributed by supporting and stimulating the discussion on the platform. During the project's incubation period, sometimes the number of ideas and comments coming from the staff exceeded those of the users. After some weeks, however, the discussion was self-sustaining within the community and the staff had a more marginal role. From the point of view of the quality of the contributions, there was a great variety of ideas and comments, some definitely in line with the objectives of the project, others less.

Taking the above issues into account, the study could contribute to the debate on crowdsourcing by both underlining some important governance factors involved and providing empirical evidence of the link between management strategies and crowdsourcing success (in terms of number of participants/solvers and value of the content gathered). In this paper, we study two factors influencing the decision of the participants (solvers) to get involved (and in what extend) in a contest and the value perceived in participating (i.e. quality of the problem articulation, additional contextual information revealed, status of the contest proponents).

We argue that these factors affect crowdsourcing performance, measured in terms of participants' behavior and quality of the content produced. Uncertainty reduction theory (URT) provides a useful perspective on the interaction process between proponents (seekers) and participants (solvers), as it helps us to understand the different types of ambiguity that drive participants' behavior. Our core argument is that contest proponents (seekers) can influence participants' decision to get involved by means of management strategies (i.e. selecting problems where sufficient introductory knowledge is in - so that knowledgeable participants can recognize and understand the challenges; revealing identity and status of the content sponsors; using members of staff as contributors at the early stage; assigning scores and prizes, etc.). Nevertheless, since our investigation is still at an early stage further research is in progress and we will be able to gather other data in order to validate our hypotheses and/or carry out other analyses by Spring 2020.

## REFERENCES

- AFUAH, A. AND TUCCI, C.L., 2012. Crowdsourcing as a solution to distant search. *Academy of Management Review*, 37(3), pp.355–375.
- AFUAH, A., TUCCI, C.L. AND VISCUSI, G., 2018. *Creating and Capturing Value Through Crowdsourcing*, Oxford University Press.
- AITAMURTO, T. AND LANDEMORE, H., 2016. Crowdsourced Deliberation: The Case of the Law on Off-Road Traffic in Finland. *Policy & Internet*, 8(2), pp.174–196.
- BAMBERGER, P.A., 2018. AMD—Clarifying What We Are about and Where We Are Going. *Academy of Management Discoveries*, 4(1), pp.1–10.
- BIANCANI, S., MCFARLAND, D.A. AND DAHLANDER, L., 2014. The Semiformal Organization. *Organization Science*, 25(5), pp.1306–1324.
- BLOHM, I., RIEDL, C., LEIMEISTER, J.M. AND KRCCMAR, H., 2011. Idea Evaluation Mechanisms for Collective Intelligence in Open Innovation Communities: Do Traders Outperform Raters? *ICIS 2011 Proceedings*, 4, pp.1–24.
- BOGERS, M. ET AL., 2017. The open innovation research landscape: established perspectives and emerging themes across different levels of analysis. *Industry and Innovation*, 24(1), pp.8–40.
- BOUDREAU, K.J. AND LAKHANI, K.R., 2013. Using the crowd as an innovation partner. *Harvard business review*, 91(April).
- CHESBROUGH, H. AND BOGERS, M., 2014. Explicating Open Innovation: Clarifying an Emerging Paradigm for Understanding Innovation. In H. Chesbrough, W. Vanhaverbeke, & J. West, eds. *New Frontiers in Open Innovation*. Oxford: Oxford University Press, pp. 3–28.
- CROSS, R., ARENA, M., SIMS, J. AND UHL-BIEN, M., 2017. How to Catalyze Innovation in Your Organization. *MIT Sloan Management Review*, 58(4), p.39.
- DAHLANDER, L. AND PIEZUNKA, H., 2014. Open to suggestions: How organizations elicit suggestions through proactive and reactive attention. *Research Policy*, 43(5), pp.812–827.
- FARAJ, S., JARVENPAA, S.L. AND MAJCHRZAK, A., 2011. Knowledge collaboration in online communities. *Organization Science*, 22(5), pp.1224–1239.
- FARAJ, S., VON KROGH, G., MONTEIRO, E. AND LAKHANI, K.R., 2016. Special Section Introduction—Online Community as Space for Knowledge Flows. *Information Systems Research*, 27(4), pp.668–684.
- FELIN, T., LAKHANI, K.R. AND TUSHMAN, M., 2015. Firms, crowds, and innovation. *Strategic Organization*, 15(2), pp.119–140.
- GARFINKEL, H., 1967. *Studies in Ethnomethodology*, Cambridge, UK: Polity Press.
- JICK, T.D., 1979. Mixing Qualitative and Quantitative Methods: Triangulation in Action. *Administrative Science Quarterly*, 24(4), pp.602–611.
- LEIMEISTER, J.M., HUBER, M., BRETSCHNEIDER, U. AND KRCCMAR, H., 2009. Leveraging Crowdsourcing: Activation-Supporting Components for IT-Based Ideas Competition. *Journal of Management Information Systems*, 26(1), pp.197–224.
- LINUS, D., JEPPESEN, L.B. AND PIEZUNKA, H., 2019. How Organizations Manage Crowds: Define, Broadcast, Attract, and Select. In J. L. Bo, J. Sydow, & H. Berends, eds. *Managing Inter-organizational Collaborations: Process Views*. Research in the Sociology of Organizations. Emerald Publishing Limited, pp. 239–270.
- MALONE, T.W., 2018. *Superminds: The Surprising Power of People and Computers Thinking Together*, Little, Brown.
- MALONE, T.W. AND BERNSTEIN, M.S., 2015. *Collective Intelligence Handbook*, MIT Press Cambridge, MA.
- OLSEN, W.K., 2004. Triangulation in Social Research: Qualitative and Quantitative Methods Can Really Be Mixed. In M. Holborn & Haralambos, eds. *Developments in Sociology*. Causeway Press.
- PIEZUNKA, H. AND DAHLANDER, L., 2018. Idea Rejected, Tie Formed: Organizations’ Feedback on Crowdsourced Ideas. *Academy of Management Journal*.
- PRPIC, J. AND SHUKLA, P., 2013. The Theory of Crowd Capital. *2013 46th Hawaii International Conference on System Sciences*, pp.3505–3514.
- PRPIC, J., SHUKLA, P.P., KIETZMANN, J.H. AND MCCARTHY, I.P., 2015. How to work a crowd: Developing crowd capital through crowdsourcing. *Business Horizons*, 58(1), pp.77–85.
- PURANAM, P., ALEXY, O. AND REITZIG, M., 2014. What’s “new” about new forms of organizing? *Academy of Management Review*, 39(2), pp.162–180.
- RETELNY, D. ET AL., 2014. Expert Crowdsourcing with Flash Teams. In *Proceedings of the 27th Annual ACM Symposium on User Interface Software and Technology*. UIST ’14, New York, NY, USA: ACM, pp. 75–85.
- SEIDEL, V.P., LANGNER, B. AND SIMS, J., 2016. Dominant communities and dominant designs: Community-based innovation in the context of the technology life cycle. *Strategic Organization*, 15(2), pp.220–241.
- SIMS, J. AND WOODARD, C.J., 2019. Community interactions at crowd scale: hybrid crowds on the GitHub platform. *Innovation*, pp.1–23.
- SIOBHAN, O., 2011. Organizations in the Shadow of Communities. In L. K. R., C. Marquis, M. Lounsbury, & R. Greenwood, eds. *Communities and Organizations*. Research in the Sociology of Organizations. Emerald Group Publishing Limited, pp. 3–36.
- TUCCI, C., VISCUSI, G. AND GASPARETTO, F., 2016. Distinguishing Crowd Dynamics in Small Teams: A Crowdsourcing Exercise in Higher Education. In *Collective Intelligence 2016*. New York, NY, USA.
- VALENTINE, M.A. AND EDMONDSON, A.C., 2014. Team Scaffolds: How Mesolevel Structures Enable Role-Based Coordination in Temporary Groups. *Organization Science*, 26(2), pp.405–422.
- VALENTINE, M.A., RETELNY, D., TO, A., RAHMATI, N., DOSHI, T. AND BERNSTEIN, M.S., 2017. Flash Organizations: Crowdsourcing Complex Work by Structuring Crowds As Organizations. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*. CHI ’17, New York, NY, USA: Association for Computing Machinery, pp. 3523–3537.
- VISCUSI, G. AND TUCCI, C., 2018. Three’s a Crowd? In Christopher Tucci, A. Afuah, & G. Viscusi, eds. *Creating and Capturing Value through Crowdsourcing*. Oxford University Press.
- WEST, J. AND SIMS, J., 2018. How Firms Leverage Crowds and Communities for Open Innovation. In C. Tucci, A. Afuah, & G. Viscusi, eds. *Creating and Capturing Value through Crowdsourcing*. Oxford, UK: Oxford University Press, pp. 58–96.