



Special Issue Call for Papers

Open Innovation in Science

Guest editors

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Background and Objective

Policy makers and funding agencies increasingly encourage linkages between science, businesses and society in the hopes of improving the societal impact of science and innovation (e.g., European Commission, 2018). To some extent, these ideas are reflected in the increased use of Open Innovation and Open Science approaches in academia as well as in industry and government sectors.

Open Innovation has been defined as a distributed innovation process based on purposively managed knowledge flows across organizational and industry boundaries using pecuniary or non-pecuniary mechanisms (Chesbrough and Bogers, 2014; Franke, Poetz and Schreier, 2014). As such, Open Innovation practices embrace different inbound and outbound processes for facilitating knowledge flows across companies, users, universities or suppliers for the purpose of generating new products, services, processes or business models. Such methods include but are not limited to co-creating innovation with lead users and user innovation communities, open-source software/hardware, crowdsourcing, crowdfunding, patenting and licensing, R&D collaborations or technological competence leveraging (Dahlander and Gann, 2010; Grimpe and Kaiser, 2010; Jeppesen and Frederiksen, 2006; Keinz and Prügl, 2010; Laursen and Salter, 2006; Pisano and Verganti, 2008; Poetz and Schreier, 2012).

Open Science practices have so far mainly focused on the role and value of openly disseminating scientific knowledge and data using mechanisms such as open access publications, open data repositories, open peer review approaches or open educational resources (OECD, 2015). Although Open Science practices continue to evolve, definitions of Open Science increasingly go beyond the open dissemination of scientific knowledge to include the development of scientific knowledge through collaborative networks or public

engagement (Vicente-Saez and Martinez-Fuentes, 2018). In line with this, crowdsourcing and crowdfunding as well as co-creation approaches and open-source software development are increasingly discussed as elements of both domains, Open Innovation and Open Science (Beck, Brasseur, Poetz, and Sauermann, 2019; Franzoni and Sauermann, 2014; Guinan, Boudreau, and Lakhani, 2013; Lifshitz-Assaf, 2018; Sauermann, Shafi, and Franzoni, 2019; Willyyard, Scudellari, and Nordling, 2018; Woelfle, Olliaro, and Todd, 2011).

Despite the growing scholarly attention to Open Innovation as well as Open Science and the partial overlap in their practical application, our understanding of open and collaborative processes in science and the related antecedents, consequences and contingencies remains limited and fragmented. In part this is because activity is scattered across different fields of research and practice. On the scholarly side, Open Innovation and Open Science are investigated using different disciplinary lenses drawing on sociology, economics, management, and policy, as well as the natural sciences. On the applied side, various Open Innovation or Open Science initiatives are currently being implemented by scientists, firms, policy makers and funding agencies. However, these initiatives are partly labelled with more or less related terms such as Citizen Science, Public Engagement, Inter- and Transdisciplinary Research, Third Mission or Responsible Research and Innovation (RRI).

It is time to **better integrate the discussions around Open Innovation and Open Science** and **take the next step in investigating openness and collaboration in the context of science**. For doing so, we propose the concept of ***Open Innovation in Science (OIS)*** as a unifying foundation for understanding antecedents, processes, consequences and contingencies related to applying open and collaborative practices along the entire process of generating new scientific insight and translating it into innovation.

More specifically, we define OIS as a process of purposively enabling, initiating and managing inbound and outbound knowledge flows and collaboration across organizational and disciplinary boundaries for important stages of the scientific research process such as:

- generating novel research questions, hypotheses and proposals
- acquiring funding
- designing research methods and materials,
- collecting, processing and/or coding of data
- analyzing data and writing scientific papers
- disseminating results and eventually translating new scientific knowledge into innovation.

To advance the OIS research agenda, it is important to take a balanced view that recognizes important contingency factors: openness and collaboration are not ends but rather potentially powerful means for improving scientific research in terms of novelty, efficiency and societal impact. But the effectiveness of these approaches may depend on individual, organizational and ecosystem-level factors.

With this OIS Special Issue we aim at encouraging research around this integrated and contingent view on open and collaborative practices in science. We hope to lay the

foundation for fruitful future discussions on these topics, and by doing so, contribute to shaping the science of science.

Research Topics

We invite original scholarly work (conceptual and empirical) that investigates whether, how, and under which conditions applying open and collaborative practices along one or more stages of the scientific knowledge generation and dissemination process influence novelty, efficiency and/or impact of scientific research. Among others, this includes the following aspects:

OIS approaches along the entire scientific research process. Possible topics include, but are not limited to:

- crowdfunding, crowdsourcing and citizen science
- co-production of research with external stakeholders/users
- open data sharing/re-using
- translation of science into practice (e.g., university-industry collaborations, academic entrepreneurship)
- networks, communities and platforms in research

Organizational designs and institutional factors shaping OIS approaches. Possible topics include, but are not limited to, the role of:

- structural and cultural aspects in different types of organizations
- strategy and leadership
- incentive/reward systems
- local and national policies
- intellectual property policies
- funding schemes

Microfoundations of OIS. Possible topics include but are not limited to:

- scientists' motives for engaging in OIS
- skills and capabilities for OIS
- attitudes and behaviors towards OIS
- linkages between the individual and the organizational level
- characteristics and motives of institutional entrepreneurs

OIS outcomes. Possible topics include but are not limited to:

- impact measurement of OIS
- OIS performance effects on the level of individual scientists, scientific research groups/organizations, ecosystems and society in general (e.g., scientific literacy or improved science-society linkages)
- opportunities and risks involved in OIS

Related Events

This Call for Papers has been formulated along the lines of the [1st Open Innovation in Science \(OIS\) Research Workshop in Vienna](#) (May 2019), organized by the Guest Editors, hosted by the Ludwig Boltzmann Gesellschaft's Open Innovation in Science Center (LBG OIS

Center) in collaboration with the European School of Management and Technology Berlin and Copenhagen Business School, and supported by the Austrian National Foundation for Research Technology and Development.

Submission Process

Please submit your manuscript through the online submission system of Industry and Innovation (<https://mc.manuscriptcentral.com/CIAI>) by the submission deadline of November 1, 2019. Publication of the Special Issue is expected for 2021.

Paper submissions will undergo rigorous editorial screening and double-blind peer review. The standard requirements of Industry and Innovation for submissions apply. Please consult the journal submission guidelines available at <http://www.industryandinnovation.net>.

For questions, please contact the corresponding guest editor Susanne Beck (susanne.beck@lbg.ac.at)

References

- Beck, S., Brasseur, T. M., Poetz, M. K., and Sauermann, H. (2019). "What's the problem? How crowdsourcing contributes to identifying scientific research questions." *Proceedings of the Annual Meeting of the Academy of Management*, 79 (1).
- Chesbrough, H. and Bogers, M. (2014). "Explicating open innovation: Clarifying an emerging paradigm for understanding industrial innovation." In: H. Chesbrough, W. Vanhaverbeke, & J. West (Eds.), *New Frontiers in Open Innovation*. Oxford: Oxford University Press, 3-28.
- Dahlander, L., and Gann, D. M. (2010). "How open is innovation?." *Research Policy*, 39 (6): 699-709.
- Franke, N., Poetz, M. K., and Schreier, M. (2014). "Integrating problem solvers from analogous markets in new product ideation." *Management Science*, 60 (4): 1063-1081.
- Franzoni, C., and Sauermann, H. (2014). "Crowd science: The organization of scientific research in open collaborative projects." *Research Policy*, 43 (1): 1-20.
- Grimpe, C., and Kaiser, U. (2010). "Balancing internal and external knowledge acquisition: the gains and pains from R&D outsourcing." *Journal of Management Studies*, 47 (8): 1483-1509.
- Guinan, E., Boudreau, K. J., and Lakhani, K. R. (2013). "Experiments in Open Innovation at Harvard Medical School: What happens when an elite academic institution starts to rethink how research gets done?." *MIT Sloan Management Review*, 54 (3): 45-52.
- Jeppesen, L. B., and Frederiksen, L. (2006). "Why do users contribute to firm-hosted user communities? The case of computer-controlled music instruments." *Organization Science*, 17 (1): 45-63.
- Keinz, P., and Prügl, R. (2010). "A user community-based approach to leveraging technological competences: An exploratory case study of a technology start-up from MIT." *Creativity and Innovation Management*, 19 (3): 269-289.
- Laursen, K., and Salter, A. (2006). "Open for innovation: the role of openness in explaining innovation performance among UK manufacturing firms." *Strategic Management Journal*, 27 (2): 131-150.
- Lifshitz-Assaf, H. (2018). "Dismantling knowledge boundaries at NASA: The critical role of professional identity in open innovation." *Administrative Science Quarterly*, 63 (4): 746-782.
- Pisano, G. P., and Verganti, R. (2008). "Which kind of collaboration is right for you." *Harvard Business Review*, 86 (12): 78-86.
- Poetz, M. K., and Schreier, M. (2012). "The value of crowdsourcing: can users really compete with professionals in generating new product ideas?." *Journal of Product Innovation Management*, 29 (2): 245-256.
- Sauermann, H., Franzoni, C., and Shafi, K. (2019). "Crowdfunding scientific research: Descriptive insights and correlates of funding success." *PloS One*, 14 (1): e0208384.
- Vicente-Sáez, R., and Martínez-Fuentes, C. (2018). "Open Science now: A systematic literature review for an integrated definition." *Journal of Business Research*, 88 (7): 428-436.
- Willyyard, C. Scudellari, M. and Nordling, L. (2018). "Partners in Science: The people who should benefit from research are increasingly shaping how it is done." *Nature*, 562 (4): 24-28
- Woelfle, M., Olliaro, P., and Todd, M. H. (2011). "Open science is a research accelerator." *Nature Chemistry*, 3 (10): 745-748.