

# **CO-CREATING NEW KNOWLEDGE IN TEMPORARY PROJECTS IN DIGITAL WORK PLATFORMS**

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## **ABSTRACT**

Complex problems require expertise not readily available in the organization or in its close networks. Digital work platforms offer a promising opportunity for new forms of organizing to get access to the diverse and distant knowledge. The inexpensive and scalable storage of data in clouds, efficient information processing and the development of social technologies have made it possible to utilize digital work platforms connecting providers and users of work tasks across time and place (Yoo et al. 2010; Faraj et al. 2016).

Fast increasing number of crowdsourcing and digital work platforms such as AmazonTurk, TaskRabbit and upWork connect work seekers to autonomous tasks, yet many complex problems require interdependent teamwork. Our case company Solved ([www.solved.fi](http://www.solved.fi)) provides a digital co-creation platform and design thinking process for temporary teams solving complex sustainability related problems. Solved provides a rare and unusual case example of solving complex problems, for example, designing concepts for innovations on digital work platforms as collaborative projects whereas most of the current digital work platforms focus on autonomous individual tasks.

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Research on digital organizing and related coordination for complex problem solving requiring knowledge co-creation is still scarce (Faraj et al. 2016; with the exception, see Tsoukas, 2015). Solved provides a theoretically interesting and rare field study context for studying knowledge co-creation processes and how to organize and orchestrate temporary projects (Shreyögg & Sydow, 2010; Puranam, 2015; Bakker et al. 2016). Solved composes temporary teams with specialized knowledge related to complex customer problem assignment at hand. Experts having different disciplinary and professional backgrounds engage in ideation, concept design and problem solving both in asynchronous and synchronous modes. Teams' membership and roles are fluid and changing in accordance to open-ended tasks and emerging project goals.

We build theory of digital organizing of dispersed, tacit and specialized expertise to solve complex problems in temporary teams, and more specifically increase understanding of knowledge co-creation as a process, and its orchestration on a digital platform. That is, we want to increase understanding of how diverse and unfamiliar experts share and co-create knowledge during the process, what their practices and the role of digital platform are, and how project leaders orchestrate them.

In this paper, we ask *how concept design process proceeds and experts co-create new knowledge to solve complex problems on a digital work platform? How can knowledge co-creation process be orchestrated?* To answer these questions we studied Solved over two years collecting rich qualitative data by interviews and non-participant observation in projects, workshops and business development meetings. To provide a more nuanced understanding of knowledge co-creation process on a digital platform, its organizing and related orchestration in this paper, we followed closely a 12 week concept design project. This allowed us to study a new form of digital organizing where specific expertise was assembled to a temporary team solving a complex design problem that is a concept design assignment for a city. We made 15 interviews and collected complementary data through two focus groups from 8 project leaders in addition to non-participant observations on synchronous virtual meetings and asynchronous postings and comments on a virtual work platform. Our research approach is abductive and we have analyzed the collected data inductively (Gioia et al, 2012).

In order to understand and explain the knowledge co-creation process in a digital work platform we draw from the literatures on knowledge creation (Nonaka, 1994; Carlile 2002 & 2004), team

knowledge coordination (Reagans et al. 2016), open innovation and mediated crowdsourcing (Majchrzak & Malhotra, 2013), information systems (Jarvenpaa & Leidner, 1999) and digitalization (Yoo et al. 2013) in new forms of fluid organizing (Schreyögg & Sydow, 2010; Puranam et al. 2015). To provide a more nuanced understanding of the highly emerging and ambiguous design process we take the lenses of sociomateriality to study the concept design project as a context where boundary objects and virtual artefacts (Star & Griesemer 1989; Carlile, 2002; Lee, 2007; Nicolini et al. 2012) were used in the knowledge co-creation process and its facilitation (Okhuysen & Eisenhardt, 2002).

Our paper contributes to the discussion of new organizational forms and digitalization (Yoo et al., 2010; Schreyögg & Sydow, 2010; Puranam, 2015). More specifically, we contribute to the discussion of digitalization of work (Colbert et al., 2016) and temporary teams (Bakker et al. 2010; Bakker, 2013; Bakker et al. 2016; Burke & Morley, 2016) by analyzing the knowledge co-creation process where fluid expertise is drawn together to create concept designs to solve a complex problem. Based on our field study of a digital work platform, we first provide a conceptual process model illustrating the knowledge co-creation process consisting of synchronous and asynchronous communication and collaboration benefitting from artifacts and boundary objects. Secondly, we show what type of management and communication practices are used for facilitating complex problem solving, that is, how the knowledge co-creation process is orchestrated.

Our paper responds to the recent calls for understanding better the impact of activities and processes on temporary organizing (Bakker et al. 2016) and knowledge co-creation on the digital platforms (Faraj et al. 2016). Subsequently we aim to make a broader contribution to management literature in general where digitalization (Colbert et al., 2016), time and temporality (Burke and Morley, 2016) have become increasingly important issues. From the managerial perspective our findings can be used as the basis for some practical interventions to enhance knowledge co-creation and design on digital work platforms.

We proceed by discussing first the conceptual background. Then we introduce the research design, data collection and analysis. After illustrating our findings we provide a conceptual process model and discuss our contribution to theory and practice. We conclude by discussing the limitations and further research opportunities.

**Keywords:** New forms of organizing, digital platforms, expertise, temporary group, knowledge co-creation, coordination, complex tasks, concept design

## REFERENCES

- Brown, J. S., & Duguid, P. (2001). Knowledge and organization: A social-practice perspective. *Organization science*, 12(2), 198-213.
- Brynjolfsson, E., & McAfee, A. (2014). *The Second Machine Age: Work, Progress, and Prosperity, in a Time of Brilliant Technologies*. New York, NY: W. W. Norton.
- Carlile, P. R. (2002). A pragmatic view of knowledge and boundaries: Boundary objects in new product development. *Organization Science*, 13(4), 442-455.
- Carlile, P. R. (2004). Transferring, translating, and transforming: An integrative framework for managing knowledge across boundaries. *Organization Science*, 15(4), 555-568.
- Colbert, A., Yee, N., & George, G. (2016). The digital workforce and the workplace of the future. *Academy of Management Journal*, 59(3), 731-739.
- Crampton, C. D. (2001). The Mutual Knowledge Problem and Its Consequences for Dispersed Collaboration. *Organization Science*, 12(3), 346-371.
- Faraj, S., von Krogh, G., Monteiro, E., & Lakhani, K. R. (2016). Special Section Introduction—Online Community as Space for Knowledge Flows. *Information Systems Research*, 27(4), 668-684.
- Frey, C. B., & Osborne, M. A. (2013). The future of employment. How susceptible are jobs to computerisation. Oxford Martin Programme on Technology and Employment, UK.
- Gilson, L. L., Maynard, M. T., Young, N. C. J., Vartiainen, M., & Hakonen, M. (2015). Virtual teams research 10 years, 10 themes, and 10 opportunities. *Journal of Management*, 41(5), 1313-1337.
- Gioia, D. A., Corley, K. G. & Hamilton, A. L. (2013). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational Research Methods*, 16(1), 15-31
- Järvenpää, S. L. & Leidner, D. E. (1999). Communication and trust in global virtual teams. *Organization Science*, 10(6), 791-815.
- Lee, C. P. (2007). Boundary negotiating artifacts: Unbinding the routine of boundary objects and embracing chaos in collaborative work. *Computer Supported Cooperative Work*, 16(3), 307-339.
- Majchrzak, A., Jarvenpaa, S. L., & Hollingshead, A. B. (2007). Coordinating expertise among emergent groups responding to disasters. *Organization science*, 18(1), 147-161.
- Majchrzak, A., & Malhotra, A. (2013). Towards an information systems perspective and research agenda on crowdsourcing for innovation. *The Journal of Strategic Information Systems*, 22(4), 257-268.
- McKinsey report on Independent work: Choice, necessity, and the gig economy (October, 2016) by James Manyika, Susan Lund, Jacques Bughin, Kelsey Robinson, Jan Mischke, and Deepa Mahajan, <http://www.mckinsey.com/global-themes/employment-and-growth/independent-work-choice-necessity-and-the-gig-economy>
- Nicolini, D., Mengis, J. & Swan, J. (2012). Understanding the role of objects in cross-disciplinary collaboration. *Organization Science*, 23(3), 612-629.

- Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5(1), 14-37.
- Okhuysen, G. A., & Eisenhardt, K. M. (2002). Integrating knowledge in groups: How formal interventions enable flexibility. *Organization Science*, 13(4), 370-386.
- Orlikowski, W. J. (2002). Knowing in practice: Enacting a collective capability in distributed organizing. *Organization science*, 13(3), 249-273.
- Schreyögg, G., & Sydow, J. (2010). Crossroads-organizing for fluidity? Dilemmas of new organizational forms. *Organization Science*, 21(6), 1251-1262.
- Star, S. L. & Griesemer, J. R. (1989). Institutional ecology, translation and boundary objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39. *Social Studies of Science*, 19(3), 387-420.
- Yoo, Y., Boland Jr, R. J., Lyytinen, K., & Majchrzak, A. (2012). Organizing for innovation in the digitized world. *Organization Science*, 23(5), 1398-1408.