

Digital, organizational and managerial tools to support sustainable Open Innovation in improving firm performance

Open Innovation (OI) assumes that firms can advance their technology using external knowledge and ideas and internal ones (Chesbrough, 2003). According to Gassmann and Enkel (2004) definition, OI depends on three processes: inside-out (outbound) process to externalize firm knowledge and innovation, outside-in (inbound) process to access the external knowledge and integrate it into the internal one, and coupled process, a combination of the inside-out and outside-in processes.

The literature, which has mainly investigated the inbound process, agrees to consider the OI processes a way to improve economic and industrial firms' performance (Greco et al., 2016; West and Bogers, 2014). In addition, Bogers et al. (2020) argued that OI processes can improve firm performance in a sustainable manner, "*contributing to development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*"

However, it's not enough for a firm to open up more to external knowledge to improve its performance (Greco et al., 2016; Rass et al., 2013).

Indeed, firms must have the most suitable tools - mainly digital - to transform external information into proper knowledge to be exploited to improve their internal production processes, but also organizational and managerial - to influence the collaborative behaviour of people inside the firm with the external partners, as well as the collaborative behaviour of the partners along the innovation funnel. These tools, supporting OI processes, trigger the actions that improve firms' performance.

Digital tools (e.g., social networks, data mining techniques, and workflow software) are decisive in enabling OI initiatives. Lately, the need is emerging to establish which digital tools are most appropriate to strengthen the firm Absorptive Capacity (ACAP) - the ability to acquire, assimilate, transform, and exploit external knowledge to improve business processes and, therefore, performance. In this regard, notable works link the use of industry 4.0 technologies (e.g., Cloud computing, AI, IoT, and blockchain) to deal with the knowledge flow coming from the external firms' boundaries (Neirotti et al., 2021; Pfefferling et al., 2019; Santoro et al., 2018).

Also, organizational and managerial tools are pivotal in realizing OI. For instance, the researchers discuss how organizational dimensions - such as specialization, formalization and decentralization – influence the OI process and how the combination of routines, practices and incentives can support the OI implementation process (Aloini et al., 2017).

Although the identification of the most suitable tools to support OI processes may guarantee industrial and financial performance improvement, it's not sufficient to ensure that this occurs in a sustainable way.

It's essential that these tools guarantee a good level of the firm processes' sustainability – also considering their social and environmental impact according to the Triple Bottom Line Sustainability framework (Slaper and Hall, 2011) – both for ethical issues and because improving sustainability, acting on technological, managerial and organizational dimensions, generates competitive advantage and positively influence firms' performance (Batista and Francisco, 2018; Schrettle et al., 2014).

Despite the teeming research activity about OI and the centrality of the types of tools mentioned above, their impact on the relationship between OI and firm performance is still open in the literature.

Specifically, the arguments that currently arouse the most significant research interest and that this track aims to pursue are three:

- 1) Identify the most suitable digital tools to support sustainable processes of acquisition, assimilation, transformation and exploitation of external knowledge;
- 2) Identify organizational and managerial tools that can support the firm sustainable OI activities;
- 3) Investigate the role of digital, organizational and managerial tools in the relationship between OI and firm performance;
- 4) Investigate the OI implications regarding economic, social, and environmental sustainability.

Track main topics

Specific topics include, but are not limited to:

- Digital tools for supporting Open Innovation
- Organizational tools for supporting Open Innovation
- Managerial tools for supporting Open Innovation
- Open Innovation and firm performance
- Absorptive Capacity and firm performance
- Digital tools moderator role between Open Innovation and firm performance
- Digital tools moderator role between Open Innovation and Absorptive Capacity
- Sustainability and (Open) Innovation
- Sustainability and Absorptive Capacity
- Sustainability and Dynamic Capabilities
- Information Systems as Dynamic Capability leverage to enhance Sustainability
- The impact of the Information System on Sustainability through the Dynamic Capability lens
- Organizational dimensions and Open Innovation process
- Sustainability and Organizational dimensions
- Information Systems as trigger to increase Sustainability in Organizational Dimensions
- Information Systems for supporting organizational sustainable routines, practices and incentives
- Information Systems and Small Medium Enterprises performance

The track is open to full papers, but it is also possible to submit research-in-progress research or short paper in related fields. Articles exploring new directions or areas are also welcome.

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Track Co-Chairs

Name – Surname	Maria Zifaro
(primary contact)	
Title	Phd, Associate Professor
E-mail	maria.zifaro@unimercatorum.it
Affiliation	Universitas Mercatorum (Italy)

Name – Surname	Mohammad H. Eslami
Title	PhD, Assistant Professor
E-mail	mohammad.eslami@ju.se
Affiliation	Jönköping University (Sweden)

Name – Surname	Salvatore Tallarico
Title	MSc Eng, PhD candidate
E-mail	salvatore.tallarico@ec.unipi.it
Affiliation	University of Pisa (Italy)

Maria Zifaro is Associate Professor of Organization Science at the Universitas Mercatorum of Roma. Her research and teaching interests cover the area of Information Systems, and organization studies and Human Resource Management. Her publications regard Information systems and organizational reconfigurations, organizational impact of ERP and CRM Systems, digital transformation of organizations and work, and its consequences at macro, meso and micro level of analysis.

Mohammad H. Eslami is an Assistant Professor and Director of PhD candidates at Jönköping International Business School, Sweden. His research interests are in the field of supply chain and innovation management. He is specially interested in open innovation and supply chain innovation with focus on the role of digital technologies. His research has been published in Journal of Business Research, International Journal of Production Economics, International Journal of Production Research, Industrial Marketing Management and Journal of Business and industrial marketing among others.

Salvatore Tallarico is a biomedical engineer, currently PhD candidate in business administration and management at the University of Pisa. His main research interests are Open Innovation (OI) and Health Technology Assessment (HTA). Specifically, he investigates the role of digital tools in the relationship among OI, Absorptive Capacity, and firms' performance. As a co-opted member of the Interdepartmental Research Centre on HTA, he researches the most suitable tools to support medical device selection in public healthcare organizations.

Track programme committee members

- Roberta Pinna, University of Cagliari, Italy, roberta.pinna@unica.it
- Luisa Varriale, University of Parthenope, Naples, Italy, luisa.varriale@uniparthenope.it
- Paola Briganti, University of Parthenope, Naples, Italy, paola.briganti@uniparthenope.it
- Marco Giannini, University of Pisa, Italy, marco.giannini@unipi.it
- Luca Giraldi, University of Macerata, Italy, l.giraldi@unimc.it
- Walter Castelnovo, University of Insubria, Italy, walter.castelnovo@uninsubria.it
- Luisa Pellegrini, University of Pisa, Italy, luisa.pellegrini@unipi.it
- Maria Zifaro, Universitas Mercatorum, Roma, Italy, maria.zifaro@unimercatorum.it
- Salvatore Tallarico, University of Pisa, Italy, salvatore.tallarico@ec.unipi.it
- Mohammad H. Eslami, Jönköping University, Sweden, mohammad.eslami@ju.se
- Luca Anselmi, University of Pisa, Italy, luca.anselmi@unipi.it
- Simone Lazzini, University of Pisa, Italy, simone.lazzini@unipi.it
- Alessandro Carpenzano, University of Pisa, Italy, alessandro.carpenzano@phd.unipi.it
- Costanza Culmone, Delft University of Technology, The Netherlands, c.culmone@tudelft.nl
- Claudia Cea, Columbia University, USA, cc4387@columbia.edu
- Viola Fanfani, Harvard University, USA, vfanfani@hsph.harvard.edu
- Elisabetta Benevento, University of Pisa, Italy, elisabetta.benevento@ing.unipi.it