

Special session proposal for IJCIEOM 2025 conference SPS8

1. Session title:

Unfolding the complexity of supply chain transformation toward circularity and resilience

2. Session objectives:

Nowadays, global challenges foster traditional supply chains to transform their configurations to remain competitive. Geopolitical crises, material shortages, and increased natural disasters force companies to modify their SCs to become more resilient to such a wide range of disruptions. Climate changes, severe biodiversity losses, fast-running degradation of natural resources, coupled with increased governmental pressures for sustainable economies push companies to make their SCs more sustainable and aligned with Circular Economy (CE) principles. Understanding how to successfully initiate and govern transformative processes thus represents one of supply chain managers’ primary concern (Nacchiero et al. 2024). Despite this, the development of studies on this topic is still at an infant stage (Wieland et al., 2023).

Novel theories and holistic approaches are required to understand how supply chain transformations unfold across different industrial sectors. The aim of this session is collecting both qualitative and quantitative studies that capture *multi-level* and *cross-scale* changes driving supply chain transformations towards circular and resilient configurations; investigate dynamic capabilities to be developed for governing specific transformative processes; understand novel coordination mechanisms and management strategies required to handle the augmented complexity of circular and resilient supply chains; and investigate the moderating role of Industry 4.0/5.0 technologies on supply chain transformative processes.

Different methodologies (e.g., agent-based simulations, discrete event simulations, surveys, single and multiple case studies) and theories (e.g., Complex Adaptive Systems, Social Ecological Systems, Dynamical Systems etc.) are welcome.

1. Nacchiero, R., Massari, G. F., & Giannoccaro, I. (2024). Supply chain transformative capabilities and their microfoundations for circular economy transition: A qualitative study in Made in Italy sectors. *Business Strategy and the Environment*.
2. Wieland, A. (2021). Dancing the supply chain: Toward transformative supply chain management. *Journal of Supply Chain Management*, 57(1), 58-73.

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