

# Contemporary challenges in supply chain management: introducing the ADACI SMART dialogue among Italian scholars and practitioners

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The ADACI SMART project consists of biennial cycles of activities aimed at stimulating the dialogue among Italian scholars and practitioners on the contemporary challenges in supply chain management (SCM). Within the last two years, physical meetings and webinars aimed to reduce the distance between the scientific debate and industrial needs. The final goal was to stimulate the design of SCM studies where ADACI's associates act as stakeholders or, sometimes, even participants.

This Special Issue collects eight papers presented in the ADACI SMART Conference held in September 2020 in collaboration with SIMA - Italian Society of Management. These papers originate from various interactions with companies and lay solid foundations for potential follow-ups and further collaborations between the Academia and industry.

Despite focusing on a variety of facets of the evolution of SCM, these studies reflect the increasing concern towards operating SCM in connection with the broader contextual business environment.

Global value chains and socio-ecological crises exert increasing pressures on procurement professionals and introduce new risks of supply chain disruptions. Furthermore, as Wieland (2021) highlighted, supply chains can become vulnerable and harmful systems when not appropriately operated.

The selected papers have the merit of drawing the attention of scholars and managers to the need to integrate methodologically sound analyses into decision-making processes in response to the complex challenges mentioned above. In so doing, they have a shared ambition to prove that scientific theories and research methods can usefully add value to the empirical experiences that supply chain managers develop in their daily practice.

In detail, the papers in this Special Issue deal with relevant topics related to modern SCM that refer to three main thematic areas: technology and Industry 4.0; risk management; sustainability. These areas reflect, respectively, the drivers, the processes and the goals of the recent evolution of SCM and, thus, provide a pretty comprehensive view on contemporary transformations in a business function that, differently from how it appears today, only a few years ago, was mainly referred to as an organisational structure suffused of primarily administrative and non-strategic responsibilities.

The first three papers in the Special Issue investigate the dynamics involved in the digital transformation of supply chains (SCs). To this end, they seize the opportunity to observe the adoption of Industry 4.0

technologies in Italian companies. As a result, these papers help better understand the enabling conditions and the paths that determine the possibility for the procurement function to “collect, analyse, and process data within the organisation and its internal and external environment and to become a strategic interface to support organisational efficiency, effectiveness, and profitability” (Bienhaus and Haddud, 2018).

In the paper “SMEs @ Industry 4.0: A comparison between the top and average performers”, Marco Bettiol, Mauro Capestro, Eleonora Di Maria (University of Padova) and Stefano Micelli (Ca’ Foscari University) analyse whether economic and financial firm’s performance influence the adoption of Industry 4.0 technologies. The paper contributes to the literature on barriers and drivers of Industry 4.0 implementation on SMEs (Horváth and Szabó, 2019), showing the results of quantitative research comparing the top and average performers in adopting Industry 4.0 technologies. The paper concludes that top and average performers present similarities in technology selection, implementation barriers, and motivations. Moreover, adopters show higher technological maturity than non-adopters, which is thus a key discriminant for adopting Industry 4.0 technologies.

Niccolò Fiorini (University of Siena), in his paper “New value creation opportunities for Start-ups with I4.0: resources and capitalisation capabilities and effects on the Value Chain”, provides some first insights on the opportunity of value creation generated by Industry 4.0 (Xu *et al.*, 2018) for start-ups. The results of the qualitative research allow identifying three value creation opportunities granted by Industry 4.0, based on the prevalence of internal or external resource/capabilities or their combination. Moreover, the paper highlights how these start-ups adopt new business models coherent with the adopted Industry 4.0 technology. To this end, the authors discuss the company’s role in the supply chain, the value created, and the source resources and competencies.

Silvia Bruzzi (University of Genoa), Nicola Balbi (ADACI Lombardy-Liguria), Leonardo Barcellini (Ernst&Young), and Vincenzo Genco (ADACI Lombardy-Liguria) are the authors of the paper “Toward the Strengthening of Enabling Technologies in Italy: Results of the Second Survey on Procurement 4.0”. This study shows the results of the second survey conducted on Procurement 4.0 concerning the adoption level of enabling technologies, the main characteristics of adopters, the procurement function’s engagement, and the skills involved (Bals *et al.*, 2019). The results confirm that, from a system perspective, enabling technologies passed their infancy stage and started their introduction phase, with greater involvement of the procurement function. Furthermore, the authors highlight the need for more robust training on soft and digital skills.

The second thematic addressed by two papers in this Special Issue is risk management. Nowadays, all business functions acknowledge the importance of managing risks in the pursuit of business continuity and sustained business performance. Given that a risk-oriented mindset has generated and well-elaborated specialised tools, SC managers are increasingly involved in trans-functional teams to provide intelligence on the dynamics at the interface with suppliers (Heckmann *et al.*, 2015).

This group of papers discusses the changes in the procurement function in Italian firms that occurred to improve organisational risk management capabilities.

Marco Perona (University of Brescia) authored the paper titled “Supply Risk Management: a perspective on the Italian manufacturing sector”, providing preliminary results on supply disruptions and their causes in the Italian context. This study fills a research gap related to the likelihood of sudden and unforeseen interruption of supplies (Revilla and Saenz, 2017), providing an empirical observation of their nature and frequency. Furthermore, the findings outline that suppliers’ financial default is the most frequent cause and that firm size and industrial sector influence occurrence likelihood and breakdown origin.

Elisa Martinelli (University of Modena and Reggio Emilia), Federica Dallanoe (ADACI) and Giampiero Carozza (Gruppo Amadori) in their paper “Business resilience and risk management during the Covid-19 pandemic: the Amadori case-study” explore business resilience during the Covid-19 pandemic from a risk management standpoint, contributing to the combination of these two research topics (Berkes, 2007). Through a case study approach, the paper provides a specific focus on the procurement area and outlines how redundancy and rapidity are vital features to increase business resilience during the lockdown phase, while robustness, rapidity and resourcefulness are crucial in the post-lockdown phase.

The last three papers deal with sustainability issues in SCM. Sustainability is a major driver for reconfiguring organisational dynamic capabilities (Buzzao and Rizzi, 2021) and developing proactive and reactive SCM practices (Kähkönen *et al.*, 2018). The papers in this sub-group offer empirical insights into the SCM practices that Italian organisations adopt to pursue business model innovation and high-performance reconfigurations of intra- end inter-organisational dynamics.

Sara Scipioni and Federico Niccolini (University of Pisa) are the authors of the paper titled “How to Close the Loop: Organizational Learning Processes and Contextual Factors for Small and Medium Enterprises’ Circular Business Models Introduction”. The paper discusses the factor enabling the implementation of circular business models (Bocken *et al.*, 2014) in SMEs, highlighting the specific role of organisational learning. Furthermore, the study provides a model that explains the interrelations between contextual factors and intra- and inter-organisational learning processes in enabling circular business models.

Kunle Francis Oguntegbe, Nadia Di Paola and Roberto Vona (University of Naples “Federico II”) authored the paper “Blockchain technology, social capital and sustainable supply chain management”. It investigates the role of blockchain technology in implementing a sustainable SC (Jabbour *et al.*, 2020). By combining the social capital theory and the resource-based view, the study identifies the key sustainability objectives that organisations pursue by adopting blockchain technology. Moreover, the paper provides some propositions on the interconnections among digital supply chain systems and the social capital’s relational, cognitive and structural components in pursuing a sustainable SC.

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In their paper “Greening SCM through SC integration: an exploratory investigation among Italian supply chain managers”, Francesco Rizzi (University of Perugia), Eleonora Annunziata (Sant’Anna School of Advanced Studies), and Marina Gigliotti (University of Perugia) discuss the link between SC integration and the implementation of green SCM practices (Vachon and Klassen, 2006). The paper contributes to the academic debate by providing detailed empirical evidence of the differences among the paths that link internal and external integration with the implementation of specific GSCM practices. Moreover, the authors suggest further disentangling this link by investigating the organisational culture’s role rather than company size.

Overall, we see this collection of papers as a stimulus for further studies in collaboration between the Academia and ADACI’s associates, not as an endpoint. SCM in Italy is at a critical crossroads, and creating synergies among a great variety of competencies and experiences to build knowledge in the field is more necessary than ever. The ADACI SMART project continues on solid groundings and the ambition to generate value for researchers and practitioners in SCM.

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