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Special Issue on: "Sustainability Along the Product Lifecycle"

Guest Editors:

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The management of sustainability issues has had increasing attention over the last years. Several approaches have been studied to face the related challenges, highlighting limitations that often occur if actions are focused on the single-company level instead of the entire process. According to this, frameworks to sustainable product lifecycle (SPL) should be deeply investigated to define guidelines that companies can concretely apply within industrial contexts.

For instance, concepts such as the circular economy (CE) are collecting great interest in manufacturing companies, providing a framework to align organisational objectives with the sustainable development goals (SDGs) defined by the European Commission. 17 SDGs have been set in 2015 as part of the UN 2030 Agenda for Sustainable Development, demonstrating the commitment of belonged countries to reach them by 2030. An example of SDG is the reduction of marine pollution to restore and conserve marine and coastal areas and ecosystems to protect seas and oceans. To ensure and support the realisation of concrete actions that inevitably involved the entire product lifecycle, comparisons between traditional supply chains and sustainable-oriented ones aiming to cut off the plastic pollution in the ocean is needed to understand if the right efforts are made to reach the final result.

Due to the huge amount of data that could be collected in the "Industry 4.0" era, SPL approaches should include techniques such as the ones based on data mining and artificial intelligence, as well as using simulation to conduct scenario analyses that support decision-making processes. More in details, these applications allow industrial users to objectively compare different process configurations under the sustainable perspective through specific key performance indicators (KPIs), such as the resource utilisation or the carbon footprint, giving recommendations towards the most sustainable solution. Comparisons could be also based on LCA or other methodologies.

On the other hand, SPL should be addressed including not only product-related processes but also services built around them. Examples are the take-back process or the renting business model, focused on the engagement of the final user as a key factor for the successful adoption of sustainable practices that cover the entire product lifecycle, including reverse logistics.

Subject Coverage

Suitable topics include, but are not limited, to the following:

- Sustainable product lifecycle (SPL)
- Circular economy (CE) towards SPL
- Methodologies and standards towards sustainability along the product lifecycle (e.g. LCA)
- Industry 4.0 tools and techniques to support SPL
- Blockchain to trace sustainable supply chains
- Comparison between traditional supply chains and sustainable-oriented ones
- Integration of Sustainable Development Goals (SDGs) into industrial contexts
- Sustainable smart product-service Systems (PSS)

Notes for Prospective Authors

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Important Dates

Manuscripts due by: *31 December, 2021*

Notification to authors: *28 February, 2022*

Final versions due by: *30 April, 2022*