The Centre for Sustainable Design®

University for the Creative Arts

Sustainable Innovation 2025
Sustainable Innovation in Products, Services and Business Models Past, Present and Future
25th International Conference
30th and 31st October 2025
University for the Creative Arts
Epsom
Surrey
UK
https://cfsd.org.uk/

The Maze of Circularity Standards Landscape.

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Transition to circular economy is crucial to address the global challenges like climate change, biodiversity loss, resource depletion, waste and pollution. Circular economy can help to address these global challenges by decoupling the economic activities from resource consumption. The awareness about environmental impacts and circular economy is growing as well as demand for circular products and practices. Increasingly, Regulators are recognizing the importance of circular economy for the reduction of environmental impact and are thus planning or establishing new regulations in this area. Circularity performance assessment and respective indicators and metrices are becoming more essential also from this perspective. A unified, robust and consistent framework for assessing and enhancing circularity performance is needed to support the circular transition.

Standards serve the purpose of unifying the understandings and approaches. Life cycle assessment (LCA) for assessing the environmental impact of products and services is a well-established and standardized methodology which is globally aligned on a conceptual level. This was possible thanks to the foundational international standards ISO 14040 and ISO 14044 developed during 1990s to early 2000s. Compared to LCA methodology, circularity is a relatively new concept from assessment methodological point of view. On the contrary to the aligned LCA approaches, circularity standards try to cover the relatively complex and diverse concept of circular economy with different approaches. Even the terminology related to circular economy is not always aligned throughout these standards. Multiple standards and guidance have been developed in parallel in different standardization developing organizations (SDOs) and collaborative forums resulting in different approaches and definitions for related terminology. These approaches range from material flow-based analysis to single circularity score or having multiple indicators to represent several circularity aspects.

In this paper, we will explore the current circularity standardization landscape and examine the key circularity standards for Information and communication technology (ICT) sector. We will cover standards which are currently available or under development to investigate the implementation, potential gaps, similarities and differences in the approaches and definitions. We will be looking at the topic from ICT perspective since ICT is often seen as a double-edged sword: on the one hand, it can help to tackle these environmental issues, on the other hand ICT sector is a major source of e-waste generation and has its own environmental impacts. The findings will help to clarify the relevance and applicability of these different approaches to enable circularity assessment in the ICT sector.