
Editorial

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It was the beginning of 2008 when we started within the group of colleagues of the former Special Interest Group on product lifecycle management (PLM) (today the IFIP Working Group 5.1) the first discussion on the future role of PLM, main topic of our journal. It took almost two years to deliver a paper ‘Product lifecycle management – from its history to its new role’ (Terzi et al., 2010, <https://doi.org/10.1504/IJPLM.2010.036489>), which is today often quoted in our community. That paper was the result of comprehensive consultation among the authors and with other leading scientists and actors of the area of PLM. Almost ten years ago, that group of experts was visionary considering PLM on a new perspective and they were already anticipating the incoming trends. A couple of passages constitute today the perfect introduction to this issue of our journal:

- “The focus, today, is on innovation to ensure that the customer obtains holistic satisfaction from the product that goes beyond the traditional definitions of product quality and cost. [...] This corresponds to a *definitive shift towards the product-service paradigm*, where a product is seen as being a part of the human society. However, the ability of industry to enable such holistic products and supporting services is currently limited by the information gap in the products lifecycle.” (p.382)
- “In the coming years, the use of internet-of-things (IoT) technologies will be extended to a wide variety of applications through generalised tagging of products (or ‘things’). [...] The management of data and information flows and data-information-knowledge (D-I-K) transformations all along the lifecycle of products will involve more and more consumers/users and service providers’ interactions. [...] *Closed-loop PLM is expected to become the ‘system of systems’* where digital factory tools will interface with the emerging IoT and internet-of-services solutions and will be the catalysator for new optimised and efficient processes, human friendly manufacturing and also new business models.” (p.385)
- “To ensure effective realisation of the vision of PLM, the focus for the future has to *develop technical enablers to link ICT to the complementary methodologies* used within businesses.” (p.386).

Almost ten years later, most of these words are existing industrial implementations and established research lines. Terms have been partially changed ('smartness' is today everywhere) and digital technology has drastically evolved towards most of the lines mentioned above. On this, my guest editors (namely Dr. Daniele Cerri, Prof. Dimitris Mouritzis, Dr. Giuditta Pezzotta) of this issue has decided to spend their research effort in planning a specific research collection on the methods, methodologies and tools that have been created for closing the loop of product service lifecycle management, putting in practice the vision of a 'system of systems'.

For this, the special issue is based on four very intensive contributions, which cover most of the aspects of the original call, but on the particular perspective of the methods and methodologies for the lifecycle of smart and intelligent objects/systems/products.

The first paper, 'Using design rules to guide the PSS design in an engineering platform based on the product service lifecycle management paradigm', presents a very detailed reference methodology to design product service systems in the more holistic engineering environment of the modern PLM systems

The second paper, 'Mobile apps for providing product-service systems and retrieving feedback throughout their lifecycle: a robotics use case', not by change shows how the emerging integrating technologies are today consolidating – in particularly thank to the evolution of IoT technologies – the vision of 'system of systems' in lifecycle management.

The third paper 'Towards a method compendium for the development of digitised products – findings from a case study' provides an interesting and original contribution to the research field of the design methodologies.

Finally, the fourth paper 'Towards (pro-)active intelligent products' opens an original discussion on the future of the smart and intelligent objects, reprising and contributing to most of the research questions launched more than ten years ago.

We believe that this list of selected papers could constitute valuable contributions to the main research topic of the modern lifecycle management, showing how the progress of our research context is continuously moving a step further, sometimes also accelerating the expected visions.