A Networked Production System to Implement Virtual Enterprise and Product Lifecycle Information Loops,
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This paper is aimed at considering supply chain and related data management within an integrated vision of the product lifecycle management (PLM) implemented through the unified approach which is proper to the Industry 4.0 initiative. In particular, with the proposed manufacturing system architecture, decision support tools can use a unified repository fed by a factory replication application, powered by data from the field, even from remote production units. Such data allow to monitor the behaviour of the digital twin of the real machine and produces a digital twin of the real product, incorporating its actual characteristics measured by means of suitable acquiring systems (in the treated example: a 3D laser scanner). Moreover, it is provided a description of the plant technological subsystems that allow to share designing and manufacturing activities across multiple similar units located in remote areas. In this context of virtual enterprise, the supply chain management results as a key factor in enabling a cooperative approach.