



Creating the foundation for digital twins in the manufacturing industry: an integrated installed base management system

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Abstract

Services play an important role in the manufacturing industry. A shift in emphasis from selling physical products to offering product–service systems is perceived. Detailed knowledge of machines, components and subcomponents in whole plants must be provided. Installed base management contributes to this and enables services in manufacturing to maintain high machine availability and reduce downtimes. Installed base management assists in data structuring and management. By combining installed base data with sensor data, a digital twin of the installed base results. Following the action design research approach, an integrated installed base management system for manufacturing is presented and implemented in practice. An engineering and manufacturing company is involved in the research process and ensures practical relevance. Requirements are not only deduced from the literature but also identified in focus group discussions. A detailed test run with real data is performed for evaluation purpose using a demonstration machine. To enable a generalization, design principles for the development and implementation of such an integrated installed base management system are created.

Keywords Installed base management · Integrated installed base management system · Digital twin · Action design research (ADR)

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