



NMP-2008-228857

Self-Learning

Reliable Self-Learning Production Systems Based on Context Aware Services

Specific Aim

- **Self-learning** production systems will be able to **self-adapt** and **learn** in response to **dynamic contextual changes** in which they operate, including changes in process and equipment parameters
- **Methodology** addressing both **organisa-tional and technical** aspects of such a radical change in production systems
- **SW service based infrastructure** for implementation of these self-learning systems in manufacturing

Project Info:

- **Project Start Date:**
01.11.2009
- **Duration:** 36 Months
- **Project Coordinator:**
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www.selflearning.eu



Self-Learning is an international research project with partner organisations from academia, research and industry. Located in four European countries and experienced in multi-national projects, the consortium offers a wide scope of competencies. Key objective of the Self-Learning project is to develop highly reliable and secure service-based self-learning production systems. The project results shall enable an integration of control of production systems and other manufacturing activities, like maintenance and energy use optimisation. The strategic objective of Self-Learning project is thereby to strengthen EU leadership in production technologies in the global marketplace.

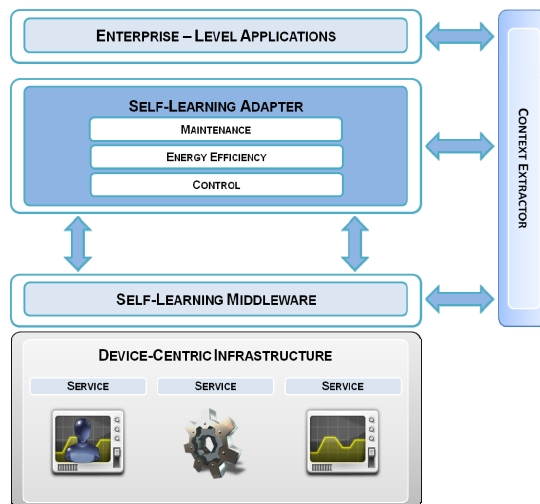


Figure: Self-Learning production system—ICT implementation view

The key assumption of the project is that a context awareness approach will allow adaptation and enhancement of control and other manufacturing activities of production systems (e.g. energy use optimisation, maintenance). The Self-Learning project will address how to assure effective self-adaptation of the production systems in order to improve control & energy efficiency utilising context awareness. The project will provide ICT solutions on how to extract context from networks/services and processes, how to apply self-adapting approaches and how to reuse these for highly reliable self-learning services. These new services will be integrated into the device centric infrastructure.

Targeted activities based on self-learning solution are likely to have a high impact on manufacturing industries in terms of:

- Reduction of time and efforts needed for development/installation of control systems of production systems.
- Increase flexibility for development/installation of control systems of production systems.
- Reduction of down times during product exchange and conflict situations.
- Increase of Overall Equipment Effectiveness (OEE):
 - ◊ Increase of plant availability
 - ◊ Increase of productivity

The project is driven by three application scenarios in real world industrial environment: Integration of control and energy optimisation of manufacturing processes, enhancing flexibility of machines, optimised job dispatching of flexible production cells.

Consortium



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