

Expression of interest

| Contact person | | | |
|--|--|---------------|--|
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| Project information | | | |
| PPP Factories of the Future | | | |
| Topic | FoF.NMP.2012-2 Methodologies and tools for the sustainable, predictive maintenance of production equipment | | |
| Project idea | <p>The majority of the current manufacturing models are based on the conventional paradigm of unlimited resources. With the recent increases in resource and environmental burdens associated with manufacturing activities, this clearly needs to be updated. Methodologies for allowing a safe, durable, and resource-smart behavior of products during their life cycles are necessary. A more holistic view is necessary, whereby maintenance is extended to the overall product lifecycle rather than just the operation phase: an asset management perspective.</p> <p>Maintenance techniques have developed over time from basic breakdown maintenance, to periodic preventive maintenance and predictive condition-based maintenance. The latter, predictive maintenance has been shown to possess good potential impact on the performance of manufacturing systems and, in turn, sustainability. By adopting a predictive approach, unexpected failures and system interruptions can be predicted prior to their occurrence.</p> <p>Intelligent sensors can now be used to capture the condition of manufacturing equipment in real-time, which paves the way to devising sound maintenance and asset management policies for increased sustainability. While the concept has been discussed in the literature, several obstacles need to be addressed before real-world impact can be realized. For example, the very large streams of real-time data captured by sensors are typically not in a form that is suitable to directly derive maintenance policies. It is quite common in manufacturing organizations to encounter the situation where large streams of data are available, but unutilized due to the absence of frameworks for pre-processing and extracting useful information.</p> <p>This project aims at developing sustainable predictive maintenance and asset management frameworks that address the issues mentioned above.</p> <p>Scope of a project could include:</p> <ul style="list-style-type: none"> -Developing algorithms and proof of concept software tools to extract useful information from large real-time condition-based data streams from manufacturing systems. -Developing analytical models that capitalize on the information extracted from real-time data to determine optimal predictive maintenance and asset management policies. -Developing algorithms for solving the analytical predictive maintenance models, and user-friendly interfaces to facilitate their implement in an industrial setting. -Developing and defining key performance indicators (KPIs) that assess also what impact the asset management strategies have on sustainability. | | |
| Partner search description | | | |
| Partner type | Role/expertise | | |
| Large Industry | Companies active as producers or users of production equipment, larger industry with R&D capacity and project coordinator experience | | |
| SME | SME's with R&D capacity, active in for instance sensor equipment, maintenance (related) software, maintenance services or otherwise involved in manufacturing/servicing of production equipment | | |
| An R&D department of one large global manufacturing company is already involved. | | | |