Sustainable Manufacturing Maturity Model development and application at Swerea SWECAST

Background
In close co-operation with the Swedish foundry industry and its customers, Swerea SWECAST conducts extensive research and development in casting simulation and technologies relating to production, energy use, environmental concerns and materials. To foster sustainable manufacturing objectively evaluating and identifying improvement areas for standards conformance is important. To this end, the underway concept of a Sustainable Manufacturing Maturity Model (SMMM) allows decision makers to visualize their maturity level in terms of sustainability and helps them trace a roadmap for future improvement. As the picture on the right shows, results can range from a maturity level of 1 to 5, within different dimensions of analysis.

Goals
Your goal is two-fold: fine tune the current set of SMMM to be then applied to Swerea SWECAST and test the model to a case which is interesting for the company.

Tasks
- Providing further inputs to the initial design of the SMMM in order for it to be applicable to the broadest possible set of production realities. This involves understanding which standards, life cycle management tools and indicators have to be used within the “sustainability scale” (What gives a 1-score rather than a 5-score?)
- Applying the model to a case study to be agreed with Swerea SWECAST
- Testing the model to the current or future state of the case study (if times allows)
- Analyzing and comparing the results from the use of the model in order to trace an action plan for increasing the maturity in sustainability within the case being analyzed.

Conduction
The thesis work is to be conducted by two students and accounts for 30 Credits to be done within 20 weeks. The specific production and sustainability aspects to be analyzed will be decided upon in agreement with Swerea SWECAST representatives at the beginning of the thesis work, along with possible travel compensations.

Information
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