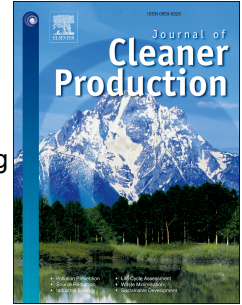


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ABSTRACT

Numerous research papers have focused on the development of guidelines, indicators, metrics, methods, tools, and systems for sustainability performance assessment. However, manufacturing companies have had difficulty identifying those papers that are relevant to their desires to assess and improve the sustainability of their plants. A research inventory, a data repository for storing papers in a manner that makes them easy to retrieve, could be a tool to address this issue. To be successful, the inventory must have a system for organizing, indexing, and managing the results generated by a large number of researchers from around the world. In this paper, we propose a framework for a research inventory that focuses on papers related to sustainability assessment in manufacturing. The framework consists of two parts: an operational definition to distinguish between papers that belong in the inventory and those that do not, and a classification scheme to allow papers to be efficiently retrieved. We developed a prototype of the research inventory and its search engine based on the proposed framework. This paper demonstrates the prototype with three reference papers. The results show that our classification scheme expresses key meta-information that provides a basis for the search engine to identify the most suitable papers for the selected conditions. This meta-information is a significant improvement over the traditional indexing schemes used to search for journal papers. Our framework will enable the research inventory to be searched for the most relevant papers in an easy and practical way. Consequently, we believe that the proposed framework and inventory will be more useful for manufacturing companies trying to use the latest research results to improve their sustainability assessments and impacts.

KEYWORDS: classification scheme, research inventory, sustainability in manufacturing, sustainability assessment in manufacturing

1. INTRODUCTION

To ensure their long-term survival in global markets, manufacturing companies must pursue sustainability as a strategic goal. A prerequisite for this pursuit is the ability to perform a sustainability assessment of their products and processes (Rosen and Kishawy, 2012; Garetti and Taisch, 2012). Such an assessment includes both a sustainability accounting and an impact analysis. Sustainability

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