DEVELOPMENT OF AN ANALYTIC TOOL FOR SUSTAINABLE MANUFACTURING ASSESSMENT, IMPROVMENT IN SMES (SMAI)

ABSTRACT OF THE PROJECT

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Introduction

Environmental sustainability is becoming increasingly important and will have significant implications for businesses in the future. While large enterprises and multinational companies are moving fast forward these new business models (e.g. Apple, Caterpillar, Walmart, Philips, Xerox, Adnams, Virgin, etc..), SMEs do not have the financial and human resources to research the benefits of implementing sustainable processes. Moreover, the know-how and best practices developed for large companies are not directly applicable in SMEs, since their peculiarities. As a consequence of that, the industrial SME context highlights the need of research on this topic, so as to identify the sustainable drivers for manufacturing excellence. Business sustainability in fact can be researched both at the strategical and operational level, but in this project proposal the focus is confined to the operations perspective, within manufacturing SMEs. However, such a context is particularly significant for the European Union, since SMEs represent more then 99% of the global number of businesses, as shown in Table 1:

		SME				LSE	Total
		Micro	Small	Medium-sized	Total		
Number of enterprises	1 000	17 820	1 260	180	19 270	40	19 310
Employment	1 000	55 040	24 280	18 100	97 420	42 300	139 710
Occupied persons per enterprise		3	19	98	5	1 052	7
Turnover per enterprise	1 000 Euro	440	3 610	25 680	890	319 020	1 550
Value added per enterprise	1 000 Euro	120	1 180	8 860	280	126 030	540
Share of exports in turnover	%	9	13	17	12	23	17
Value added per occupied person	1 000 Euro	40	60	90	55	120	75
Share of labour costs in value added	%	57	57	55	56	47	52

Note: Micro enterprises: less than 10 occupied persons; small enterprises: between 10 and 50 occupied persons; medium-sized enterprises: between 50 and 250 occupied persons; LSE: 250 or more occupied persons.

Source: Estimated by EIM Business & Policy Research; estimates based on Eurostat's Structural Business Statistics and Eurostat's SME Database; also based on European Economy, Supplement A, May 2003, and OECD Economic Outlook, No. 71, June 2002; due to rounding, totals may differ slightly from constituent parts.

Table 1, SMEs' Role in Europe

As a consequence of that, the competitiveness of the European Industrial System passes through SMEs, and SMEs' competitiveness will pass through their sustainability. Finally, it is important to remark the fact that sustainability means efficiency, and efficiency means cost reduction. Therefore, it is very important to research and demonstrate this last aspect, so as to avoid the common misunderstanding that sustainable initiatives lead to costs' increase.

Project Aims and Objectives

The aim of this project is to support companies (particularly SMEs) in developing sustainable best practices so as to achieve sustainable manufacturing excellence. In order to achieve this target, the SMAI project is composed of 7 milestones, that are:

1. Definition of a Framework identifying Sustainable Drivers for Manufacturing SMEs
2. Definition of a Framework for the Analysis of Non-Sustainable Processes Costs
3. Development of a Model to Assess Sustainability of Manufacturing SME processes
4. Definition of Sustainable Best Practices for Manufacturing SME Processes
5. Development of a Toll for Sustainable Manufacturing Assessment and Improvement
6. Field Test
7. Diffusion of Research Results

The first point will be done by a review of academic literature, the analysis of case studies, and a survey involving SMEs. Based on these results, the second point will involve the analysis of costs associated to the non-sustainability of manufacturing SME operations. The achievement of this point is crucial in order to remark the benefits of sustainable business models as well as to enhance results' diffusion. By relying on the drivers and costs' identification, a model will be developed so as to assess the level of sustainability of a generic manufacturing SME. Moreover, sustainable best practices will be developed so as to improve company processes. Therefore, this will lead to the development of an innovative tool (software) which will serve for the sustainability assessment of manufacturing SMEs, the identification of critical areas as well as the identification of actions for processes' sustainability improvement. Since the characteristics highlighted, and the possibility of using the tool over time so as to verify processes' improvement, the SMAI tool will represent an innovative software for business sustainability performance measurement and management. However, the SMAI toll will be optimised through the feedbacks of a Field Test involving a significative number of manufacturing SMEs. Finally, the chamber of industry involved in the project will be responsible for the diffusion of the research results through workshops, websites, publications and training activities.

Partners

The 8th CORNET call requires the grouping of research organisations and chamber of industries from defined Nations. The management research group coordinated by Prof. Carbone, referred also as "Centre for Business Management" (CBM), is composed by academic professors, researchers and students with demonstrated expertise on managerial topics such as quality, performance measurement, business networks and sustainability. Moreover, CBM has several connections with industries, as well as international research institutions. The other partners to be involved should be selected based on their expertise and visibility for results' diffusion.