Universiti Kebangsaan Malaysia
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UKM Fakulti Undang-Undang
faculty of law

THE 29TH
INTERNATIONAL SUSTAINABLE DEVELOPMENT RESEARCH SOCIETY
ISDRS Conference

11-13TH JULY 2023 | UNIVERSITI KEBANGSAAN MALAYSIA

PROCEEDING

CONFERENCE THEME
"HALF-WAY THROUGH AGENDA 2030:
ASSESSING THE 5Ps OF SDGs
(PEOPLE, PLANET, PROSPERITY, PEACE AND PARTNERSHIP)"

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29TH INTERNATIONAL SUSTAINABLE DEVELOPMENT RESEARCH SOCIETY (ISDRS) CONFERENCE 2023
Half-way Through Agenda 2030: Assessing the 5Ps of SDGs (People, Planet, Prosperity, Peace, and Partnership)
Universiti Kebangsaan Malaysia (UKM), Malaysia, July 11-13, 2023

Proceedings of abstracts, posters and papers that have been accepted after a double blind review process in several stages.

e ISBN: 978-967-26554-1-1

Publisher: Faculty of Law, Universiti Kebangsaan Malaysia (UKM)

Publication year: 2023

Editors: Rasyikah Md. Khalid, Muhamad Sayuti Hassan, Mohamad Rizal Abdul Rahman, Ahmad Azam Mohd. Shariff, Nabeel Mahdi Althabhawi, Haniwarda Yaakob, Rozlinda Mohd. Fadzil, Nor Zalina Harun, Ang Choo Mei, Farah Ayuni Mohd Hatta, Mazzlida Mat Deli, Wan Nur'ashiqin Wan Mohamad

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Definition of design strategies for sustainability for fashion accessories of the Made in Italy footwear sector, through Life Cycle Assessment methodology. The case-study of a brass buckle for footwear by Santoni Srl

Full Professor Lucia Pietroni, Researcher Daniele Galloppo, Engineer Raffaele Scialdoni
University of Camerino, Ascoli Piceno, Italy

FULL PROFESSOR LUCIA PIETRONI

RESEARCHER DANIELE GALLOPPO

ENGINEER RAFFAELE SCIALDONI

Abstract

The Italian footwear sector is among the pillars of the Made-in-Italy Fashion System, and has always been a leader among high-end and luxury footwear manufacturers. The success of the sector is due to the entrepreneurial ability and typical organization of the industry, which is in the context of a "long production chain", consisting of a system of high-quality sub-suppliers, raw materials, components, accessories, machine manufacturers, pattern makers and stylists. This Italian model has made it possible to develop high quality products and to strengthen the competitiveness of Italian companies compared to their competitors. Today, considered the ever-increasing importance of the issues of environmental sustainability of products and production processes, the long supply chain of the footwear sector creates greater complexity in the sustainable management: from the sourcing of raw materials to the multiple processing and finishing of components. In addition, research conducted by Quantis (2018). showed that more than 60 percent of the emissions of footwear production are generated in the processing phases of components and accessories, thus upstream of the assembly and distribution phase. Recently, several BtoB companies in the footwear production chain have taken a proactive approach to environmental sustainability. The objective is to seek where their greatest environmental impacts reside and how to make improvements to make footwear components and accessories more sustainable and circular (LIFE GreenShoes4All, 2020). Among the most critical products are brass, zinc or steel accessories, which are covered with a thin layer of precious metal; this finishing process generates pollutants that are difficult to recycle and dispose of. Therefore, the case study of Santoni Srl, represents a significant example of a preventive approach to sustainability, which can contribute to understanding the importance of using LCA-Life Cycle Assessment methodology to define ecodesign strategies to improve the environmental performance of both product, and company. The LCA, performed according to ISO 14040, was carried out on one of the company's most representative and best-selling products in recent years: a brass buckle for the Made in Italy footwear sector. The objective of the analysis was to detect the main environmental criticalities, from cradle to gate, and to identify improvement strategies to improve sustainability and circularity. Finally, the environmental performance of the new product developed according to Design for Sustainability strategies was estimated. The result was an overall reduction in kg CO2 emissions of up to twenty times, compared to the current model.

The paper relates to the topic of the conference in that it highlights the importance for Made-in-Italy SMEs, to activate Design for Sustainability strategies to accelerate the transition process to the Circular Economy by quantifying the environmental impacts of their products and beginning to affect sustainable supply chain management. In addition, the paper presents a case study of a company in the footwear sector that initiated

this approach in line with the "Planet" target and SDG 12: "Responsible Consumption and Production", moving toward more sustainable production processes and consolidating its green reputation.

e ISBN 978-967-26554-1-1