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# UNVEILING THE SYNERGY: INTEGRATION OF TIME-DRIVEN ACTIVITY BASED COSTING WITH SOCIAL LIFE CYCLE ASSESSMENT

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# S-LCA 2024

Ways forward to social change



Proceedings of the  
9<sup>th</sup> International Conference of  
Social Life Cycle Assessment



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## Proceedings of the 9<sup>th</sup> International Conference of Social Life Cycle Assessment

Curitiba, Brazil - May 28<sup>th</sup> to 31<sup>st</sup>



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# UNVEILING THE SYNERGY: INTEGRATION OF TIME-DRIVEN ACTIVITY-BASED COSTING WITH SOCIAL LIFE CYCLE ASSESSMENT

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**Abstract:** The growing need for transparency in the field of corporate social responsibility is now leading us to consider the question of consumer information at product level. However, when costing models were first conceived, consumers were overlooked and a financial perspective was systematically considered. We are currently in a position to take a critical step back, showing how management tools can blind organizations to certain social and negative externalities issues. At the same time, scientific and technological progress has led to the development of new databases and approaches, so that we can now examine how life-cycle analysis methods can be reconciled with historical, albeit recent, costing techniques from a strictly monetary and economic angle. From a semantic point of view, the classic second-generation approach, known as Time-Driven ABC (Activity-Based-Costing), has long relied on working time estimation as a crucial parameter enhancing precision in cost calculation, unlike the traditional ABC which involves a multi-driver approach. This parameter is then multiplied by a coefficient known as Capacity Cost Rate (CCR) to determine the cost of internal activities carried out by the company. In contrast, Social Life Cycle Assessment (S-LCA) makes use of the working time as an activity variable, which enables interlinking input/output flows for a given product system and thus calculating the social inventory indicators. This divergence leaves certain crucial social aspects, such as the location of suppliers with weak social protection, unaccounted for in TD-ABC. In light of this background understanding, our research aims to bridge this gap by exploring complementarity between S-LCA and TD-ABC to go towards more socially responsible cost and impact-modelling approaches. While TD-ABC can be extended to encompass social aspects informing thus the decision-makers, S-LCA can benefit from the cost data provided by TD-ABC to foster its implementation. This research presents an innovative approach that effectively merges TD-ABC and S-LCA, offering insights into the social dimensions of sustainability throughout the value chain. To do so, company's data are redefined to capture the temporal and geographical diversity of resources-based activities by using the PSILCA database. A two-dimensional matrix is proposed combining the geographical locations of resource and products-related activities to the temporal dimension offered by TD-ABC. Furthermore, the social risks are afterwards calculated based on this matrix, offering a comprehensive view of internal and external activities along the value chain, encompassing diverse potential social impacts. This modification better integrates social considerations into costing models and extends this information to the product and service level. Our study illuminates the conceptual framework and practical implementation of this method, underscoring its potential benefits for businesses aiming to analyze their social and environmental impacts and costs in the same time. The inclusion of comprehensive databases, such as PSILCA, enriches the analysis, enabling well-informed decision-making. Our framework offers a promising avenue for management accountants, sustainability experts, and decision-makers to align economic and social sustainability goals in a dynamic, data-driven manner. Although this approach remains primarily descriptive, it calls for further development to explore the intricate interactions between financial and social aspects in accounting.

**Keywords:** S-LCA. TD-ABC. Working time. Sustainability. Corporate Social Responsibility. Cost Accounting.