

## Comparing Carbon Footprint Methodologies for SMEs

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Carbon footprints are useful and important tools in the fight against climate change, which are now being used widely by larger companies. These large corporations have recognised not only their use as an environmental tool but also their potential to attract customers and reduce costs. However, this is not yet the case for many smaller companies who still consider environmental assessment to be a burden which is too difficult and costly to undertake.

In order to encourage small and medium sized enterprises (SMEs) to take more responsibility for their environmental impact, a carbon footprint tool needs to be developed specifically for them, which addresses their particular requirements, namely their lack of knowledge of environmental issues and their lack of time and money.

There are currently two basic methodological approaches to produce the conversion factors required to convert quantitative values of material used into the amount of carbon dioxide (CO<sub>2</sub>) produced by that material usage. One methodology is called lifecycle analysis (LCA) as it looks at all the steps individually throughout the lifecycle of a product and adds them together to form an overall picture. The other, called environmental input output analysis (EIO), uses economic purchase and sales data combined with sector emissions to derive conversion factors based on the amount of money spent within a different sector.

This study compares both of these methodologies to determine which of them is most suitable to use in the development of a tool for SMEs. Two tools were created, one based upon each methodology. The most noticeable difference between these two tools was that whereas the LCA tool asked for information in terms of the quantity of a material used, the EIO tool asked for information about the amount of money spent within a sector.

Both tools were trialled on a sample of SMEs and from the results, recommendations for carbon reduction were made. The SMEs were then requested to provide feedback on the particular tool that they had used. The information requested included: the ease with which they could complete the tool; how much they trusted the result; whether they understood the derivation of the footprint and the implication it had upon the environment; any cost saving they had made as a result of it; any brand improvement they felt they had made; and their overall feeling of satisfaction about the tool. This information was compiled along with personal observations about the quality of the conversion factors which were derived for the tool and the amount of consulting time that each company had required. These data were then used to compare the two methodologies for their appropriateness to be used in a carbon footprint tool for SMEs.

Both methodologies were found to have advantages and disadvantages. The LCA tool was more understandable and gave more relevant data for some of the emissions. The EIO tool was quicker to complete and also the conversion factors were easier to derive but some of the conversion factors were too general to be really accurate. Having demonstrated that there are advantages and disadvantages to both methodologies, it is therefore justifiable to construct the final tool for SMEs using a hybrid of the two methodologies. It yet remains to be determined, in what proportion each methodology should be used, and if some conversion factors can be derived using one and some using another, or if it is more appropriate to derive them all using a combination of methodologies.

This study has provided useful information to make it possible to produce a tool for SMEs to use almost independently and has also demonstrated that there is justification for using a hybrid methodology. The case studies have provided some useful insight into the attitudes of SMEs towards environmental sustainability, what they consider to be barriers and what needs to be done to encourage them to participate more in corporate social responsibility.