

The development of an innovative SME-focused toolset integrating carbon footprint calculation with lean manufacturing waste reduction techniques

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This paper seeks to explore the role that SMEs can play in the drive to reduce UK greenhouse gas (GHG) emissions in line with the recent European Union (EU) targets; a 30% reduction by 2020 and a 60% reduction by 2050 (DEFRA, 2007). In the UK 99% of all VAT registered companies are classified as SME's and between them they account for 47% of the annual UK turnover (Directgov, 2007) As yet there are no legislative drivers for SMEs to reduce emissions however it is suggested that market forces may be a key driver for SMEs to begin reducing their GHG emissions.

The paper explores the recent press interest in sustainability issues related to climate change. In particular the fact that the general public are becoming more aware of the linkage between climate change and increasing GHG concentrations in our atmosphere, as highlighted by the work of the IPCC (2007). With higher levels of consumer awareness of these issues some of the larger UK companies are making sustainability a key part of their sales and marketing strategy. For example two of the UK's major retailers are already leading the way in developing their brands as 'green' and 'sustainable': Marks and Spencer's 'Plan A, because there is no plan B' (Marks & Spencer, 2008) and Tesco's 'Greener Living' campaign (Tesco, 2008). It is suggested that SMEs will undoubtedly have to follow the lead of these large companies especially if they supply products or services to them. The paper describes how suppliers are now finding that a sustainable agenda is often a prerequisite when tendering for new business,

as can be demonstrated by the following two examples. Firstly, the UK Environment Agency announced in November 2007 that all prospective contractors bidding for new construction work must complete a carbon survey as part of their tender bid. Secondly in order for companies to tender for contracts at the London 2012 Olympics they must complete a Prequalification Questionnaire (PQQ). The PQQ requires respondents to provide a significant amount of information on the sustainable aspects of their business. In both cases, companies without a sustainable agenda will exclude or disadvantage themselves during the bid selection phase. With such tendering requirements, it is clear that if SMEs are to maintain and increase their market share, they must also embrace the drive towards a more sustainable future. Whether supplying direct to the general public or to larger retailers higher up the supply chain they will come under increasing pressure to demonstrate they have a sustainable agenda.

This paper explores one of the ways SMEs can demonstrate they are embarking on a sustainable business strategy, that is, to measure, publish and reduce the carbon footprint of their company or product line. Again a lead has been taken by larger UK companies like Boots (www.boots-plc.com), Walkers Crisps (2008) and Innocent Drinks (2008) all of whom have worked in conjunction with the Carbon Trust to measure the carbon footprints of one of their products and who now provide this information to consumers using a product label. A slightly different approach has been taken by the likes of Tesco (2008) and The Royal Bank of Scotland (2008), in that they have calculated the carbon footprint of their organisation.

Having identified a need for SMEs to carbon footprint their organisation or product, the practicalities of doing this are then discussed in this paper. Although toolsets are available to calculate carbon footprints they are either too superficial or rely upon expensive consultants to carry out the work. This paper describes the development of a tool which will allow a SME to calculate the carbon footprint of their organisation or one of their products. This tool not only calculates a carbon footprint but covers a wider range of areas, from initial engagement of the SME, convincing the senior management of the benefits, data collection, footprint calculation, data presentation and developing a carbon mitigation plan. A particularly novel aspect to this work is the carbon mitigation plan.

This will be based on 'value stream mapping' and 'waste reduction' techniques as utilised in the Japanese automotive sector. (Womack and Jones, 1988).

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