

Written evidence submitted by Imperial College London and Escapade CIC (CGE0071)

The Carbon Mark project

Executive summary

1. The next ten years will determine whether or not the world succeeds in curbing greenhouse emissions and avoiding the worst effects of climate change. While progress has already been made the urgency and scale of the challenges we face require an acceleration of action, especially in the wake of the 2.5 billion more people who are expected to become part of the consumer class in the next few decades. But, how do we expect to meet these challenges when currently there is no adequate way for anyone whose goal is sustainable purchasing – consumers, procurement professionals or manufacturers – to instantly assess and rank the CO₂ emissions of the goods they buy and sell.
2. Using state-of-the-art Life Cycle Assessment and Big Data/Machine Learning, Imperial College London, the project's expert institutional partner, has devised a method to calculate the carbon footprints of all consumer goods, such that, for the first time, it will be possible to calculate and rank the carbon emissions of the millions of products that we all purchase. When incorporated within applications such as e-commerce search engines or procurement platforms, it will enable anyone whose goal is sustainable purchasing to mitigate carbon emissions from consumer products and services – a sector responsible for over 60% of worldwide CO₂ emissions.
3. At the same time, the system will provide manufacturers with a mechanism they can use to benchmark themselves against each other in a way that is immediately visible to consumers, and which allows companies to gain a marketplace advantage when they improve the sustainability of their products and the way they do business.
4. It's important to understand that this has never been done before – a system, with the potential to instantly rank 'all' consumer products – not just the electrical appliances we are all familiar with but even down to the shoes we wear. It will mark a step-change in the way consumer goods are assessed and sold – ranking goods on sustainability rather than price alone. We'll give businesses the tools to meet their customers' needs in a way that generates fewer emissions, and consumers the means to use their 'purchasing power' to buy 'greener' products. Our project will make, for the first time, the detailed data on the sustainability of consumer goods accessible for everyone to use, and in doing so significantly contribute to mitigating the worst effects of climate change.
5. **The Carbon Mark project will:**
 - Have the potential to calculate, or estimate more accurately than any extant system, the carbon footprint of any consumer product, and to instantly compare and rank goods within product ranges;
 - Be based upon state-of-the-art Life Cycle Assessment (LCA) and Big Data/Machine Learning approaches;
 - Calculate or estimate carbon footprints using available data from existing databases or, where there is insignificant data availability, estimate the missing data with Machine Learning;
 - Go far beyond any existing mechanism for calculating carbon footprints, by calculating or estimating the whole Life Cycle of consumer products;
 - Employ a high level of automation;
 - Improve with accuracy over time;
 - Be designed to have the capacity to incorporate other resource efficiency priorities within the algorithms in the future (water usage, toxins etc.);
 - Be free to use for anyone whose goal is sustainable purchasing – consumers, procurement professionals or manufacturers – allowing them to instantly assess and rank the CO₂ emissions of the goods they buy and sell;
 - Allow manufacturers to benchmark themselves against each other in a way that is immediately visible to consumers, and which allows companies to gain a marketplace advantage when they improve the sustainability of their products and the way they do business;
 - Compare and rank products within price ranges, allowing consumers to buy the least 'carbon intensive' goods within their budget;
 - Educationally, be able to show consumers the consequences of not only their own purchasing decisions but also the combined impacts of their fellow consumers.

6. General aims and objectives:

7. The project's feasibility study (**available upon request**), has shown that there are ways to develop the system described above using in-depth data from world-leading product and environmental specialists. Furthermore, our mechanism will make it possible for governments, key stakeholders and the public to use the mechanism to make significant cuts to emissions by:
8. **Giving consumers a way to combat climate change.** There are few opportunities for the public to be genuinely involved in changing things for the better. 'Calls to action' are often seen as too hard, costly or time consuming and go unanswered. But there are clear signs that the public want to help curb the worst effects of climate change and lead more sustainable lifestyles. This is evident in the ever-increasing number of consumers who are using their spending power on ethical goods. For example, the US Eco-apparel fashion market has grown 300% in the past decade and is now worth \$5billion.¹ Our project can give people the opportunity to help make significant cuts to global emissions, by using their combined purchasing power to transform our materials economy, and at no cost to themselves. There are 1.6 billion people who currently shop online. As that number increases, we can help counter the inevitable increase in global emissions by providing e-commerce marketplaces and search engines the tools to drive substantial carbon reductions from their sales;
9. **Giving sustainable manufacturers a marketplace advantage.** While many companies want to be more sustainable in their consumption and production, there are currently few financial incentives to encourage them to do so. By ranking goods according to their CO₂ impact, and by making the results available for use on 'consumer-facing' applications such as the search facilities of online marketplaces, we can give companies real incentives to improve the sustainability of their products. They will have a new means of increasing their sales other than price: namely by improving their products' and services' carbon emissions, and consequently their rankings;
10. **Cutting emissions in procurement.** Public procurement spends \$9.5 trillion on goods and services every year worldwide. This is an area where this initiative can help lead to huge carbon reductions. It is an enormous market segment and its remit is to respond to the ever-growing demands of resource and energy efficiency. By integrating our mechanism into procurement platforms and instruments, we can give businesses, governments and public authorities an easy and transparent solution for judging the comparative emissions of the goods they purchase;
11. **The benchmark mechanism.** The mechanic will be designed to support and be used by a multitude of applications from retail marketplaces, procurement platforms to mobile apps. Effectively, the benchmark mechanism for assessing and comparing the CO₂ footprints of consumer products.
12. **Communicate the scale of the problem.** The 'tragedy-of-the-commons' concept describes the damage caused by the actions of individuals (not necessarily done in a consciously selfish way) which, when repeated by enough people, ultimately proves disastrous. It has been a difficult idea to convey. However, by showing consumers the consequences of their purchasing decisions and that of the combined impacts of their fellow consumers, we can start to communicate the extent of the problem.

13. What can it be used for?:

It is acknowledged, virtually worldwide, that no single approach can achieve the reductions needed to meet the world's CO₂ emissions targets. Only a coordinated effort involving a multitude of tools and resources made available to consumers, businesses and governing bodies is likely to have the desired effect. The Carbon Mark will facilitate this by building a data-based system capable of being integrated into a wide range of applications, including:

- Consumer marketplaces, search engines, apps and devices;
- Public and private procurement platforms;
- Manufacturing self-assessment footprinting tools;
- Consumer-facing footprinting tools, and reporting systems;
- CO₂-mitigating public engagement/behavioural change tools;
- Research and education tools;
- Governmental reporting and assessment systems.

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1. <https://www.inc.com/this-way-up/sustainability-is-fashions-future-3-reasons-why.html>