Electronics
Case study iameco Computers

The manufacture of a Green Computer has also been a long-standing aspiration of **Multimedia Computer Systems Ltd. (MicroPro)**. Paul Maher and Anne Galligan set up a small family company in 1991 and, inspired by a strong environmental ethos, MicroPro today employs over 22 staff. The company set out to define and develop Europe's first Green Computer. From Rathfarnham in South Dublin, they manufacture and retail their own range of computer systems, software packages, networking and peripherals. They also provide a repair and maintenance service, which has helped extend the operational lifetime of equipment sold.

The iameco D4R (above) and its predecessors were designed with the benefit of a simplified Life Cycle Analysis, which helped to adjust the design concept, but nevertheless was a complex undertaking, not suitable to be implemented on a regular basis in SME's business processes. MicroPro has a clear interest in an eco-design of future products and needs to know what service and reuse strategies lead to minimized environmental impacts, so a simplified assessment tool is key.

The LCA to go tool for the electronics sector is intended to provide eco-design support tools, making LCA results directly applicable within the respective decision context situation. Information on environmental impacts has to be translated into an "engineering language" to assist product developers or designers optimising the environmental performance of a product or component by setting the technical parameters right. It is the intention, that product developers and designers do not need to compile a LCA themselves, nor do they need to be familiarised with LCA at all, but the tool has to make transparent for them, which technical settings are optimal to reduce environmental impacts.

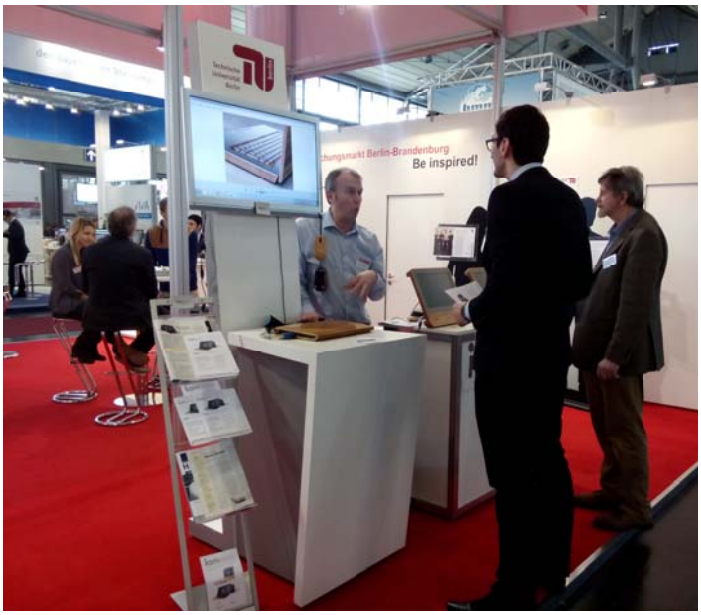
Both current iameco models, the desktop v3, which is an All-in-one-PC, and the laptop D4R, have been assessed with the LCA to go tool and different sets of conclusions evolved in relation to them. The assessment of the desktop v3 gauges

the carbon footprint and resource savings of the main parts of the computer, the printed circuit boards, LCD display, chassis, processor, and other electronic parts. The assessment shows significant reduction in both carbon emissions and resource use arising from the simplicity of the design and the use of carbon capturing and recycled materials, and even more significant gains were achieved by the business model proposed, which was based on the upgrading, take-back and reuse of the housing and its components, and allows a X3 extension of the life of the PC. These benefits were in the range of 47-55% compared to a similar desktop PC with using conventional and virgin material and assuming typical current lifetimes of PC products. Similarly, the D4R laptop showed that significant savings could be made, as long as an HDD drive was used (instead of an SSD drive proposed) and the aluminium used for the housing structure was recycled. Thus, the D4R laptop could achieve a manufacturing related carbon footprint of roughly 8 kg CO2-eq. per year of use, which is much lower than for any conventional laptop.

Table: Carbon Footprint per year of use (source: FP7 project "LCA to go")

Optimised design of the D4R laptop		Generic consumer laptop of similar size and performance (benchmark example: Toshiba Satellite C55-A5245)	
	CF kg CO_2-eq		CF kg CO_2-eq
TOTAL per year	41.96	TOTAL per year	48.00
MANUFACTURING	7.62	MANUFACTURING	19.74
Housing & internal structural elements	0.84	Housing & internal structural elements	0.59
Display	1.38	Display	3.19
Printed Circuit Board Assemblies	1.62	Printed Circuit Board Assemblies	3.13
Tantalum capacitors	-	Tantalum capacitors	-
Memory	0.37	Memory	1.73
Processor	0.94	Processor	2.17
Storage	0.38	Storage	0.93
Optical Disc Drive	0.21	Optical Disc Drive	0.49
Connectivity	0.08	Connectivity	0.18
Power supply	0.53	Power supply	0.91
Cables	0.03	Cables	0.07
Battery	0.54	Battery	4.56
Overhead miscellaneous parts	0.69	Overhead miscellaneous parts	1.79
DISTRIBUTION	2.41	DISTRIBUTION	8.27
USE	32.07	USE	20.42
END-OF-LIFE	-0.13	END-OF-LIFE	-0.44

"MicroPro is very satisfied with the work carried out within the LCA to go project, and is looking forward to further concrete application of the LCA to go tool.



In particular, the project has allowed us to see how an LCA works from the inside and understand how it can be tailored to the company's specific objectives with respect to Eco-Design and financial viability." Says Paul Maher, CEO of MicroPro.

Environmental assessments of the iameco v3 and the D4R laptop in the course of the FP7 project "LCA to go" unveiled a significant environmental savings potential. In the case of the D4R laptop these benefits depend on an improved design (Hard Disk Drive instead of oversized Solid State Disks, as the latter are very energy-intensive in the production phase; aluminium parts to be reduced and made of recycled material) and the implementation of the service-oriented business model enabling longevity of the product: Under these conditions the manufacturing impact of the D4R laptop per year of use is only 7.6 kg CO2-eq. compared to 19.7 kg CO2-eq. for a conventional laptop. When including all life cycle phases the carbon footprint is still 12% lower (see table).

For more information see: www.iameco.com