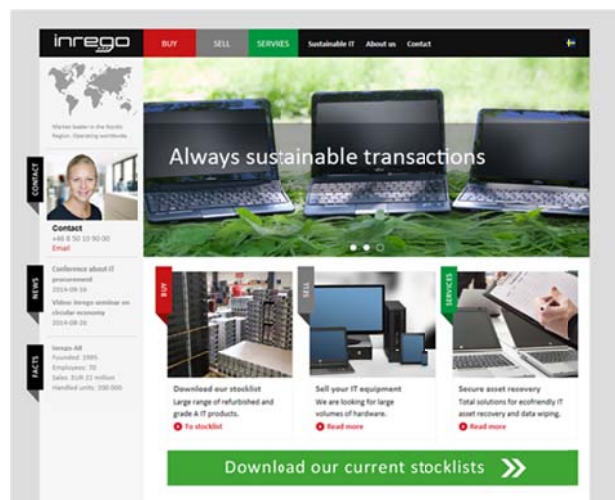




Electronics Case study Inrego AB



Inrego AB is the market leader for remanufactured IT equipment in the Nordic Region, operating from their headquarter in Täby close to Stockholm, Sweden (<http://www.inrego.com/>). With a staff of 70 employees Inrego's turn over is in the range of EUR 22 million and roughly 200.000 computers, servers, monitors, mobile phones and other IT equipment are handled annually. Inrego is authorized by Microsoft as a refurbisher and is a partner of Blancco when it comes to data erasure. Inrego promotes its business as a main driver for sustainable IT and Circular Economy. The company's stated mission is to minimize the environmental impact of used IT-equipment and sees the communication of environmental savings as a key factor to increase the reuse market.



Inrego has since long already made environmental claims for their clients, estimating the environmental savings and benefits of keeping IT alive and to resell it in the market. Carbon footprint savings by now were calculated by referring to earlier publications on computer equipment released by third parties, more specifically Technische Universität Berlin. Now, as smartphones become a growing market segment for refurbishing, Inrego's Quality and Environment Manager Erik Pettersson was looking for similar CO₂ data for smartphone products. When he got aware of Fairphone's blog on Life Cycle Assessments and the didactical example of a generic smartphone at <https://www.fairphone.com/2013/08/01/whats-in-a-life-cycle-assessment/> he inquired about background studies to make related calculations for own remanufacturing claims: "It would be very interesting to see the LCA to go tool, and any other new information in the field that can be used to inform the market and society about the environmentally impact of reusing".

The "LCA to go" tool for electronics was initially specified for computer-like devices, such as small servers, desktop computers and laptops as it was considered an SME business to assemble such kind of devices, but tablets and smartphones were clearly seen as a domain of large international brandnames. Takeback and resale, however, can be a relevant SME business and Inrego is a good example for this business model of extending the life also of small mobile IT equipment.



Before approving the use of the “LCA to go” tool for assessing the carbon footprint of smartphones the project team had to investigate the usability for this product segment, in particular the appropriate coverage of all major smartphone components through appropriate component data models. Actually it turned out, that there is a pretty good match and coverage. Only datasets on processors have to be used with caution, as the embedded datasets reflect typical Intel and AMD computer processors, and not those of smartphone CPUs.



The “LCA to go” team compiled an exemplary assessment of Google’s Nexus 5 smartphone and its hypothetical refurbishing for resale. Guidance on how to use the “LCA to go” tool has been compiled in the paper *“LCA to go – Mentoring Guidance: How to use the “LCA to go” tool for an Environmental Assessment of Smartphone Refurbishment”*. The example of the Google Nexus 5 also served as the basis for familiarizing Erik with the LCA approach for

smartphones. The Google Nexus 5 example yields a saving of 21 kg CO₂-eq., if the smartphone’s lifetime can be doubled through refurbishment, including a battery replacement.

Besides getting smartphones assessed, Erik is also interested to update their internal calculations for desktop computers and monitors: By now Inrego assessed the reuse effect on the basis of a whole machine, because data on the carbon footprint of these is available in the public domain. However, when it comes to replacing an individual component as a repair fix, e.g. a hard disk drive replacement, such public data usually lacks the granularity on the component level. Following a conservative approach, such repairs were not credited any carbon footprint savings by Inrego by now. The “LCA to go” tool now allows to go for such a granularity and to model repair and reuse of individual components.

Erik considers carbon figures highly important and also recognises a significant impact on authorities and public procurement, if only facts are provided, quantifying the refurbishment effects. Inrego also tried to communicate water and power savings effects of IT lifetime extension before, but experienced that greenhouse gas emissions are the best indicator for external communication.

Nexus 5 photo credit:

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