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Mainstreaming Circular Economies Through Collaboration and Co-creation (MainCirc)

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What did this research aim to address?

The traditional take-make-dispose economy model is highly resource-intensive and contributes significantly to the climate crisis through waste generation and carbon emissions. In contrast, a circular economy promotes resource efficiency by prioritizing reuse, repair, recycling, and sustainable design. The MainCirc project through collaboration with Green IT, an Irish SME specialising in sustainable Information and Communication Technology (ICT), aimed to understand how circularity could be mainstreamed through innovative business models. The electronics and ICT sector, identified as a priority area under both EU and Irish circular economy policies, offers significant potential for circularity (high product obsolescence, , emphasis on product innovation and new products). The project examined value co-creation in ICT circularity, assessed market potential for second-life devices, developed sustainability and climate impact metrics, and influenced policy frameworks. The research is important for European and Irish policy makers who are responsible for defining and meeting circularity targets.

What did this research find?

A central outcome of MainCirc was the design and delivery of a demonstration project that contributed to the mainstreaming of ICT circularity. Remanufacturing ICT, the process of restoring devices to 'like-new' condition, was found to offer higher perceived value and acceptance compared to refurbishment, particularly among organisational buyers. To unlock public sector opportunities, Green IT successfully sought inclusion into Ireland's public procurement framework (PPF), which previously restricted ICT procurement to new devices. In June 2024, Ireland became the first European country to formally include remanufactured ICT in its national PPF through the revised "Buying Greener" strategy. Between August 2024 and March 2025, 2,500 remanufactured laptops were purchased by public sector buyers. The associated GHG emissions savings is approximately 166 tons CO2 equivalent. While this is already substantial, if Green IT can achieve the full potential of 64,000 units of remanufactured laptops over the life of this public procurement contract, this would lead to an average saving of over 1000 tons CO2 equivalent per year for each of 2 the 4 years of the procurement framework.

How can the research findings be used?

This project supported Green IT's strategic shift towards 'servitization', from a product-based to serviced-based business models, emphasising the growing viability of remanufactured ICT in mainstream procurement. Through close buyer engagement and continuous service improvements, it showcases how circular ICT can meet high performance and aesthetic standards, challenging outdated perceptions of non-new devices. One of the most significant impacts of this project is the legitimization of circular ICT products as a viable alternative to new devices. The project's action research design ensures robust evaluation, offering evidence-based insights that support policy developmentimpacts of climate change and EWEs. Based on the outcome of this analysis, it may be possible to identify how these monitoring programmes can be augmented to address the additional information needs.

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