

Economically profitable refurbishment based on data analysis, digital work instructions and cognitive support for the operator.

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BrefurbiSH: economically profitable refurbishment based on data analysis, digital work instructions and cognitive support for the operator. Economic and social value enhancement throughout the value chain.

Brussels, 25 January 2023 - Refurbishment is nothing new. Many discarded household appliances are already being overhauled, repaired and offered for sale again. Driven by the demand to make this process more efficient and economically profitable throughout the value chain, taking all operators into account, BSH Home Appliances, Sirris, Circular.brussels, Innoviris and Lichtwerk have joined forces. They have found the solution in advanced data analysis, digital work instructions, augmented reality and cognitive and functional support

for the operator. In this way, BrefurbiSH aims to help operators refurbish four appliances a day, compared to today's average of 1.2 appliances a day.

"BrefurbiSH involved building a closed-loop data analysis method to obtain insights that we could use for both process planning and real-time decision-making support, as well as to gain feedback for the design of appliances in the future. It is also important for us to have a model that is profitable within the social economy", says Bruno Vermoesen of BSH Home Appliances.

Preparation: dismantling appliances and selecting components

6 to 10 per cent of discarded electrical appliances can be reused in a way that makes ecological and economic sense. When the appliances are delivered, it is important to determine quickly which ones can be refurbished, which ones have components that can be recovered and which are no longer usable. "Based on historical data and an analysis of the most frequent and underlying defects, we have compiled a manual to help operators make the right decision", says Kevin Van Vaerenbergh of Sirris. "When we receive a new appliance, we will be able to determine whether it is best suited for repair, scrap or component harvesting, thanks to a combination of patterns identified from refurbishment process data and accurate information about stock components."

Support for repairs: digital work instructions

Circular.brussels has extended its portfolio for BrefurbiSH to include the refurbishment of household appliances. An entire experimental refurbishment line has been set up with several working teams who go through the process step by step. A deliberate decision has also been made to limit activities in the initial phase to two representative product families: washing machines and dishwashers.

"These are appliances whose supply can be guaranteed by our partners and ones that have the greatest potential for reducing energy and water consumption", Dany Chouha from Circular.brussels explains.

Digital work instructions ensure that every operator sees the right information at the right time. BrefurbiSH combines various platforms and tools to achieve this. Projected LightGuide Augmented Reality is used to train operators to perform complex actions. Furthermore, operators can consult real-time digital work instructions and visual step-by-step plans on a smartphone, tablet and other screens using the Manual.to platform, in the language of their choice. The information is presented intuitively and step by step, with instructions guiding each worker through every step of the various processes."The combination of smart assistive technology and accessible digital work instructions ensures that even the most complex processes can be performed 100% error free", says Lieven Bossuyt from Lichtwerk. "As well as that, operators can quickly add and edit information themselves, keeping expertise accessible and up to date for everyone in the workplace."

Economic and social enhancement

Circular.brussels has also drawn up a value enhancement plan with BSH Home Appliances. As well as extending its portfolio to include household appliances and social employment, ways of selling or renting out the refurbished appliances by various means are being considered. "There are 60,000 households in Brussels living in energy poverty. Thanks to BrefurbiSH, they can access

affordable, energy-saving appliances”, says Dany Chouha.

“Besides extending the range of refurbished appliances, we also want to use BrefurbiSH to gain more insight into the lifecycle of products and to continue improving future generations of products thanks to the data on frequent defects and components subject to wear and tear”, Bruno Vermoesen concludes.

In the long term, BrefurbiSH aims to use 5,000 spare parts from 2,500 appliances for repairs every year, and to deliver 1,000 refurbished appliances per year, which is the equivalent of about 50 tonnes of appliances that would otherwise go to waste.

More information

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BrefurbiSH consortium partners

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Innoviris

Technological partners

Lichtwerk
LightGuide
Manual.to
etc.

Stakeholders

Recupel
BD Media
De Kringwinkel (Vites)
ElectroSOFIE
Les Petit Riens
etc

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