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**Digital Health in the
Circular Economy**

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Digital Health in the Circular Economy



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FACTS AND FIGURES

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83 million units of medical wearables were placed on market in Europe in 2020.

00%

In the context of the digital transformation of healthcare, digital health device use will increase exponentially in the next decade with expected annual global growth rates of almost 20% by 2027.

00%

Only 54% of all electronic waste is reported as collected in Europe (compared to 17.4% globally), but rates are significantly lower for small devices and digital health devices.

FACTS AND FIGURES

83

83 million units of medical wearables were placed on market in Europe in 2020¹.

¹ Much et al (2019)

20%

In the context of the digital transformation of healthcare, digital health device use will increase exponentially in the next decade with expected annual global growth rates of almost 20% by 2027.

54%

Only 54% of all electronic waste is reported as collected in Europe (compared to 17.4% globally), but rates are significantly lower for small devices and digital health devices.

WHY IS IT A GROWING CONCERN?



Digital Health in the
Circular Economy

- Digital healthcare devices contain valuable **raw materials** that are essential to the European economy...
- ...as well as plastics and metals that could be recovered.
- Many of these devices end up in landfill or are incinerated meaning these raw materials are lost.

A NEW APPROACH IS NEEDED.

Digital Health in the Circular Economy (DiCE) project focusses on extending the lifetime of digital healthcare devices by developing and piloting solutions across the whole product life-cycle.

The project equally aims to develop and test nudging strategies motivating users to return such products.

WHAT DOES DiCE COVER?



- **Circular design** to incorporate features that prioritise optimal circular end of use options.
- **Collection** to increase the quantity of devices segregated.
- **Reverse logistics** for ensuring more devices are returned for refurbishment or remanufacturing.
- **Refurbishment and remanufacturing** processes to extend the lifetime of devices.
- **Recycling** of devices to maximise recycling when refurbishment and remanufacturing is not possible.

PRODUCTS IN THE SCOPE



Digital Health in the
Circular Economy



ePaper label

a non-medical electronic device replacing traditional paper-based labels. These labels are mainly used on medication kits in clinical research.



Smart wearable sensor

a wearable sensor for patients who are discharged from the hospital. A single-use device facilitating convenient recovery at home while monitoring vital signs of the patient until necessary.



Smart pill box

a sensor-enabled pill box and integrated mobile application keeping track of schedules and pill types.



Endo-cutter

a redesigned surgical stapler used in minimally invasive and open surgical procedures such as gastrointestinal health or gynaecology.

EXPECTED RESULTS



The result of DiCE will be a **replicable model** for the digital (healthcare) industry that enables moving from a fragmented and linear take-make-waste business model towards a circular and sustainable one.

This will allow the **widespread reuse of products** and **recovery of valuable components and raw materials** leading to increased resource efficiency while contributing to pollution prevention.

PROJECT DETAILS



- Four year project funded through the European Union's Horizon Europe programme
- 20 organisations from nine countries
- The project will conclude in September 2026



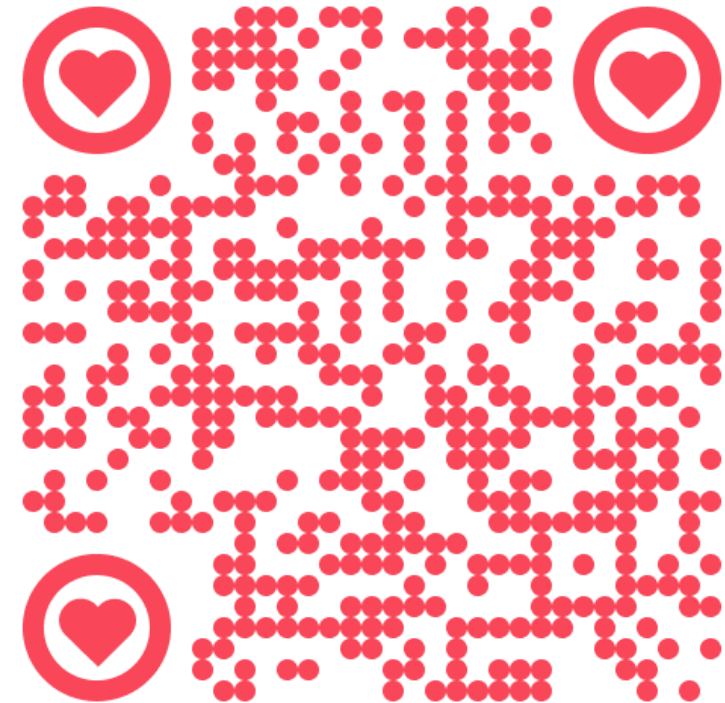
THANK YOU!

 @Circular Digital Health (DiCE project)

 @circular_health



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3 main challenges

- **Collection** to increase the quantity of devices segregated.
- **Reverse logistics** for ensuring more devices are returned for refurbishment or remanufacturing.
- **Recycling** of devices to maximise recycling when refurbishment and remanufacturing is not possible.

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