

Hybrid Redesign of Biopsy

Forceps: Introducing Cygra & System

Circular Product: Cygra

The biopsy forceps is a specialised instrument that is used in endoscopy procedures to obtain tissue samples from for example the stomach or intestine. It consists of a handle, long narrow flexible lumen and cutting jaws.



Single-use biopsy forceps



Hybrid biopsy forceps: Cygra

Problem

The biopsy forceps is the most commonly used endoscopic instrument, but it is currently single-use. The disposal of biopsy forceps generates waste, and valuable primary raw materials, such as stainless steel, are lost through the incineration of hospital waste. Reusable options, although used in the past, now face limited adoption due to concerns about infection risks, higher upfront costs, reduced performance after repeated cleaning, and additional reprocessing steps that disrupt hospital workflows. The biopsy forceps design, mainly its long, narrow lumen and small jaw, makes it difficult to clean effectively. In addition to the forceps, many other endoscopic products with similar handles are also disposable, adding further to the waste problem and raw primary material use.

Solution - Product Cygra

The solution is a hybrid product concept that is partly reusable and partly disposable. The coil is disposable but has potential for recycling and remodelling into a new durable product, while the handle can be cleaned and reused in the hospital.

Cygra is designed to be assembled quickly by nurses in the treatment room and disassembled by cleaning staff for cleaning. The product is also modular, as many endoscopic instruments share the same type of handle. This means the product can also be used for other tools, such as the endoscopic snare.

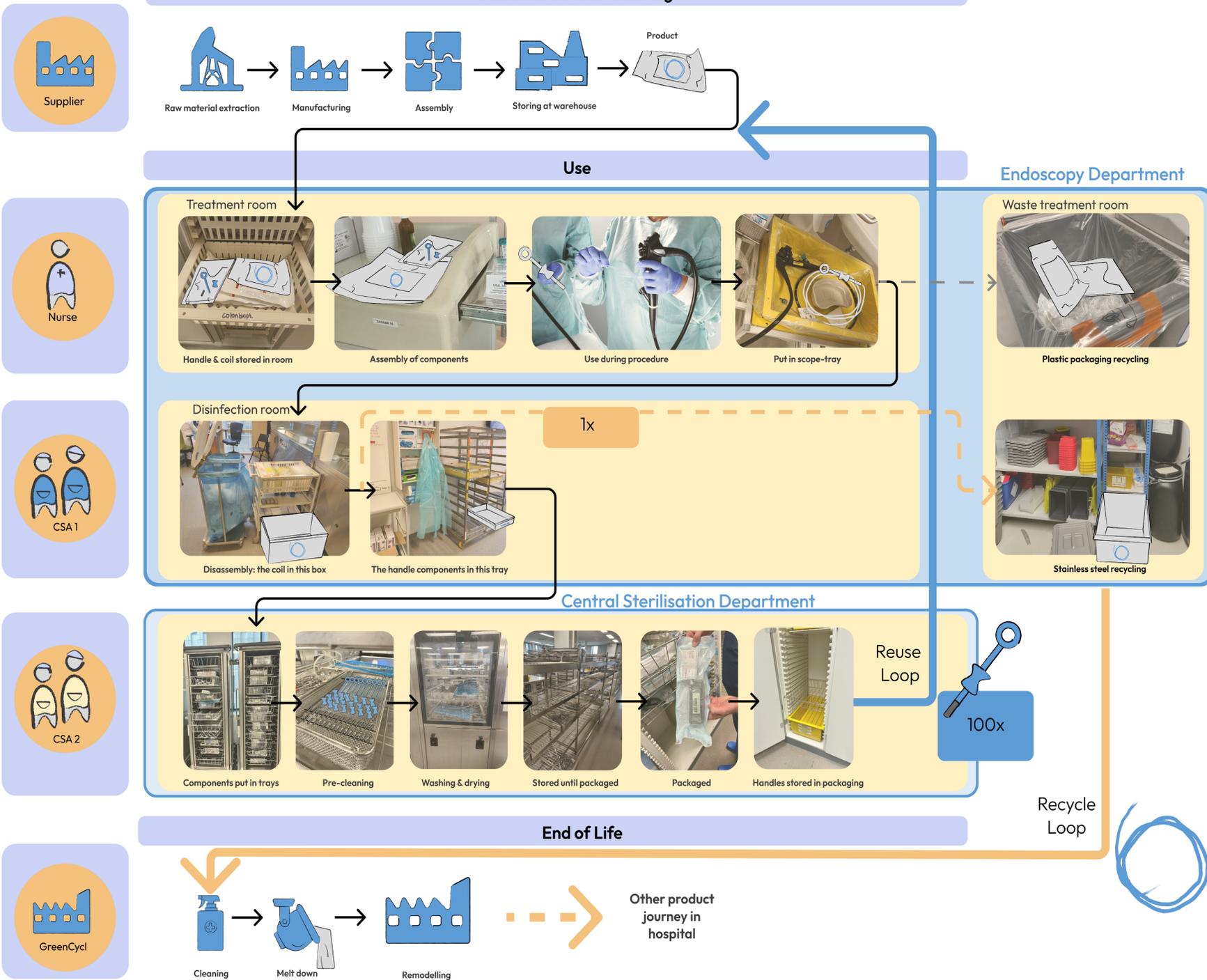
Solution - System

The envisioned system, shown to the side, integrates the reuse of the handle within the hospital system and its existing workflows. In practice, the product is assembled and used in the treatment room, then disassembled by cleaning staff and transferred to the general sterilisation department for disinfection. After disinfection, the handle returns to the endoscopy department to be used again. Meanwhile, the coil is disposed of in a designated box and stored as waste to be collected for external recycling, where it can be cleaned and remodelled into a new product suitable for use in the healthcare context.

Envisioned Circular System of Cygra

Who performs the action?

Actions per life stage



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