

## Remanufacturing: pathway to Sustaina-bee-lity

Hartono, Natalia; Ramirez, F Javier; Pham, Duc

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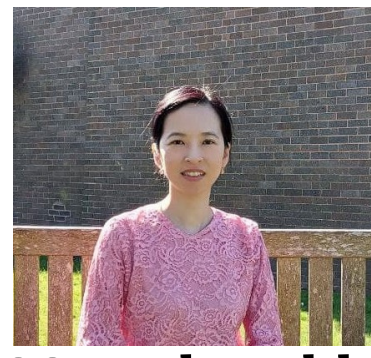
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nxh886@student.bham.ac.uk

Natalia Hartono<sup>1,3</sup>, F. Javier Ramirez<sup>2</sup>, Duc T. Pham<sup>1</sup>

<sup>1</sup>Department of Mechanical Engineering, University of Birmingham, United Kingdom

<sup>2</sup>School of Industrial Engineering, Universidad de Castilla-La Mancha, Spain

<sup>3</sup>Department of Industrial Engineering, Universitas Pelita Harapan, Indonesia



Publication

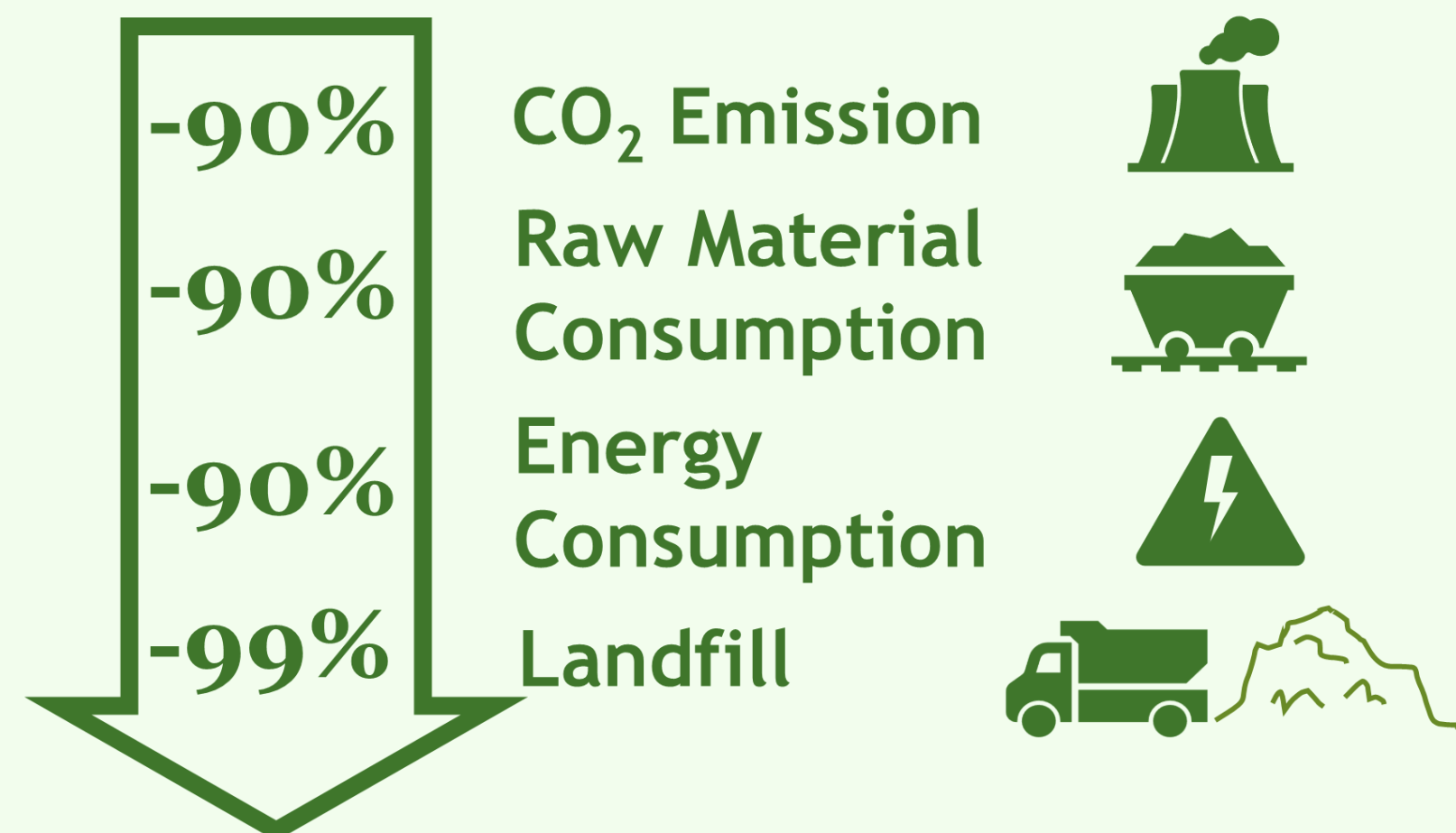
# Remanufacturing: Pathway to Sustaina-bee-lity

## 1. Background



Remanufacturing is the process of restoring a product to its original condition or better [1] as part of a circular economy [2].

Remanufacturing cuts[3]:

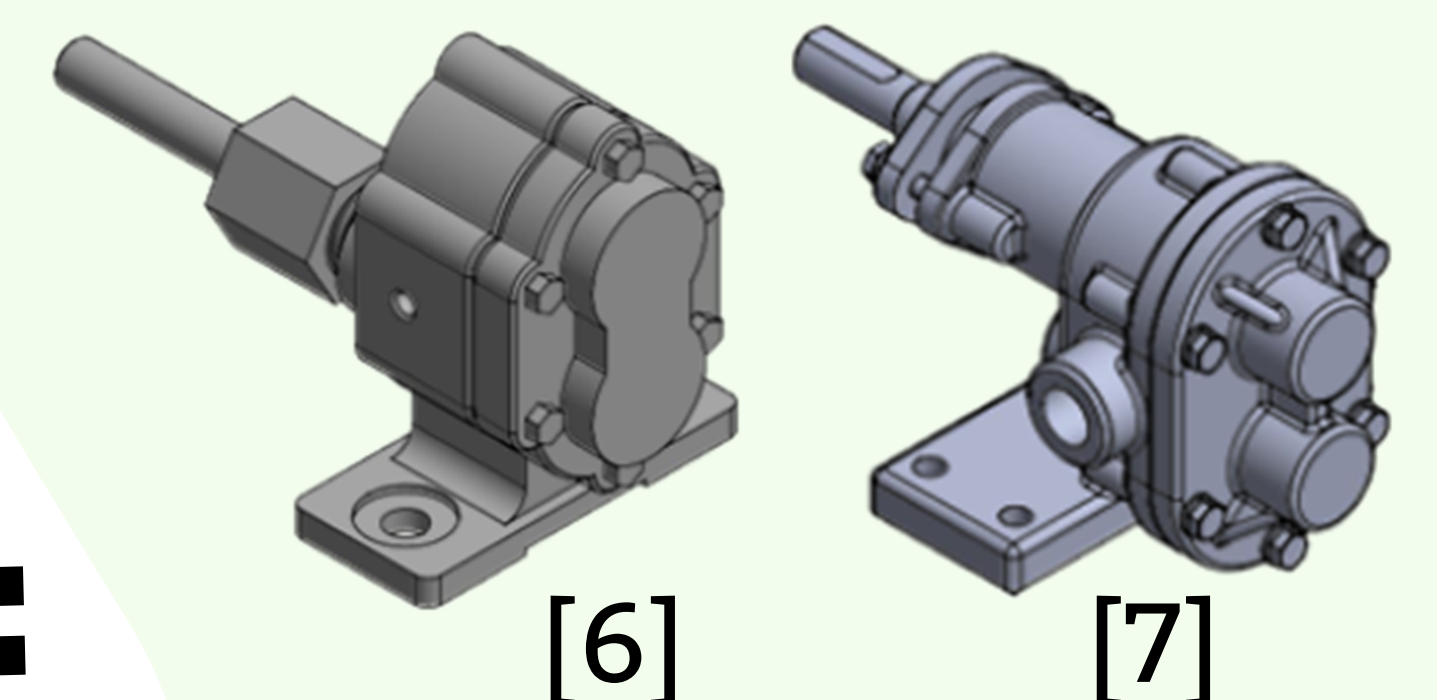


Disassembly is the first activity in remanufacturing [4].

Robotic Disassembly is a key enabler of autonomous remanufacturing [3].

This study proposes a sustainability-based model and uses the Bees Algorithm [5] to optimise robotic disassembly sequence planning.

Case Study (disassembly of gear pumps):



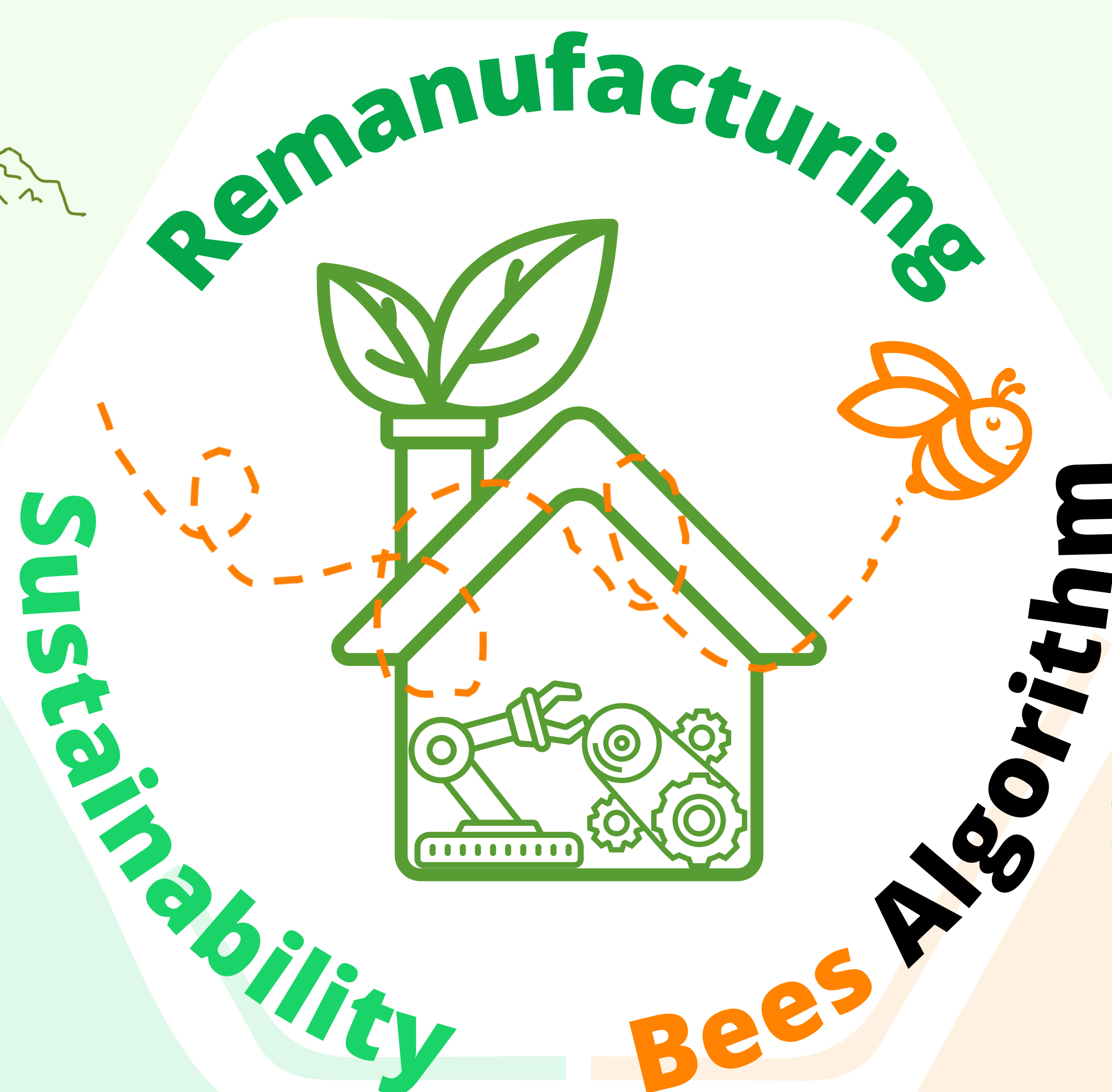
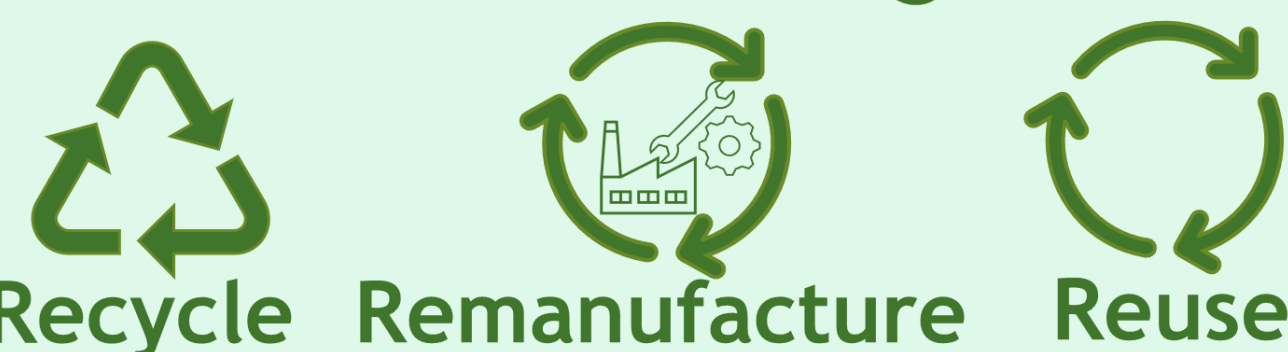
## 2. Methods



Sustainability model formulation



Sustainable Strategies:



## 3. Experiments and results



The Bees Algorithm is a nature-inspired computational tool for solving complex problems such as disassembly planning.

Experiments using MATLAB 2020a.

The output: disassembly sequence, direction, tools, and sustainable strategies for each part.

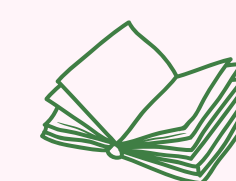
## 4. Conclusion



The model powered by the Bees Algorithm provides the best solution (Robotic Disassembly Sequence) in remanufacturing faster.

The findings help industry to manage end-of-life products, optimise the disassembly process, and achieve sustainability goals.

## References



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