

# One Man's Trash is Another Man's Treasure

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## INTRODUCTION

The project attempts to design and develop a holistic system design that concerns abandoned bicycles in Copenhagen and the actors related to it. The system consists of subsystems, in which abandoned bicycles are collected and subsequently either recycled or reused. The project has been carried out in collaboration with Copenhagen municipality whose goal is to turn Copenhagen into the first carbon neutral city in 2025.

## ANALYSIS

A life cycle check has been carried out to evaluate which of the different scenarios; reuse, recycle and abandon are most environmentally friendly. The user cases have been analysed over a period of three bicycle lifespans corresponding to 3 x 37800 km. Cf. Figure 1.

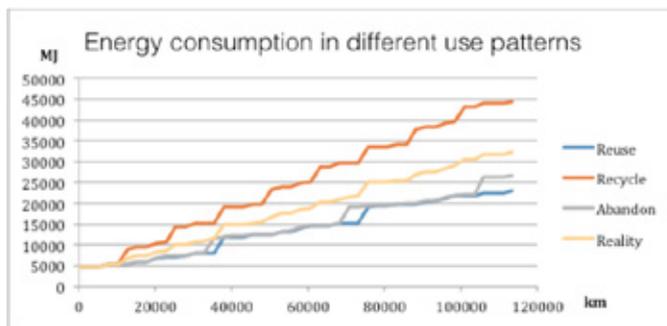


Figure 1 Energy consumption in different use patterns

On the figure, the step-wise increments are due to manufacturing of new bicycles, which is found to be the most energy consuming process in the lifecycle, while the steady continuous increase is due to manufacturing of spare parts. When a bicycle is abandoned, it loses 2520 km of the bicycle lifespan due to harsh weather conditions resulting in higher energy consumption as the bicycle is scrapped before the actual end of the bicycle lifespan. Combining the three scenarios, a scenario called 'reality' is created. Ways to lower the gradient of the reality curve is therefore by encouraging people to reuse more bicycles directly as well as reusing more of the abandoned bicycles. Currently there is an uneven distribution between reusing bicycles and recycling bicycles, as most are scrapped. This is mainly caused by a lack of consistency in the system cycle and absence of collaboration between sub-systems.

## THE SOLUTION

An app is developed to create a consistent cycle by introducing a common platform for messages and knowledge sharing between the stakeholders. In addition, the app creates an overview of the agreements between the subsystems and optimizes processes. Furthermore, non-profit organizations will take part in the system, receiving donations of bicycles. The intention of the non-profit organisations is to perform workshops in which citizens are taught how to repair bicycles to extend the lifespan and encouraging the reuse of these.