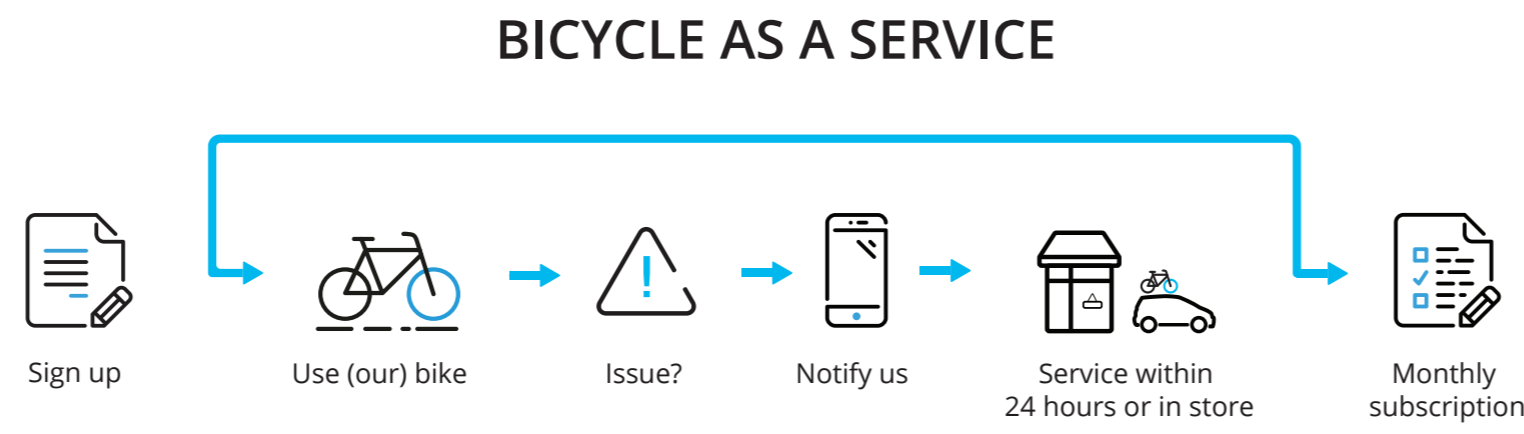


Exploring the transformation of a PSS into an SPSS through co-creation

Graduation Showcase | Luuc van Tiel | Strategic Product Design

Swapfiets |

Swapfiets is founded four years ago by three students of the Delft University of Technology. They observed the bad state of the student's bicycles in the city, what often leads to dangerous situations. Their solution: your bicycle, as a service. So they created a system to provide the service; a product service system (PSS). The customer pays a monthly fee and receives a 'Swapfiets'. Whenever something is wrong with the bicycle, Swapfiets repairs or replaces the bicycle. Within four years, Swapfiets scaled up rapidly to 125.000 customers in four countries.



| The Bicycle

The bicycle is designed to prevent maintenance. No carrier in the back saves the rear wheel, the Reelights replace old-fashioned batteries and the high quality tires do not get flat easily. For the ease of maintenance, the bicycle's design is kept as simple as possible.

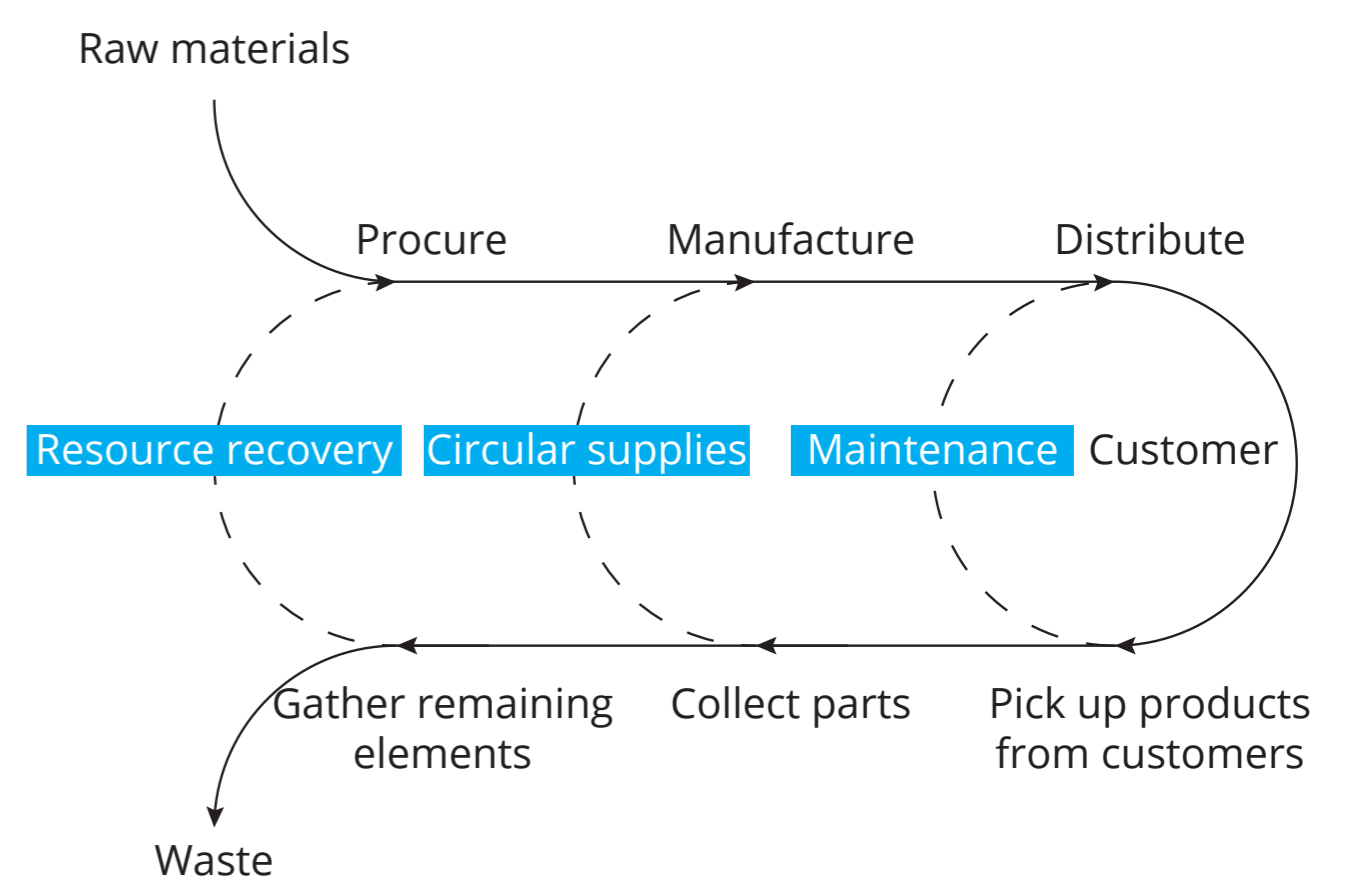
The Material Flow |

Scaling up so rapidly also brings challenges. The bicycle is designed for efficient maintenance, but the full lifecycle has not been taken into account.

The current material flow is visualised on the left. When the bicycle's quality is not sufficient for the service anymore, it is cut in half and thrown away. By closing the material loop, Swapfiets utilises the potential of its PSS; as the owner of the bicycle, it has full control over production, maintenance and possible refurbishment. A closed material loop creates added brand value, since it is a more sustainable solution. Furthermore, the depreciated rest value of the bicycles becomes direct costs when no action is taken. Closing the loop is thus also financial beneficial.

However, within the organisation of Swapfiets, there is no methodology in place to revise the material flow. This is translated into the assignment:

Adapt a methodology to revise the material flow of a product service system.



From PSS to SPSS |

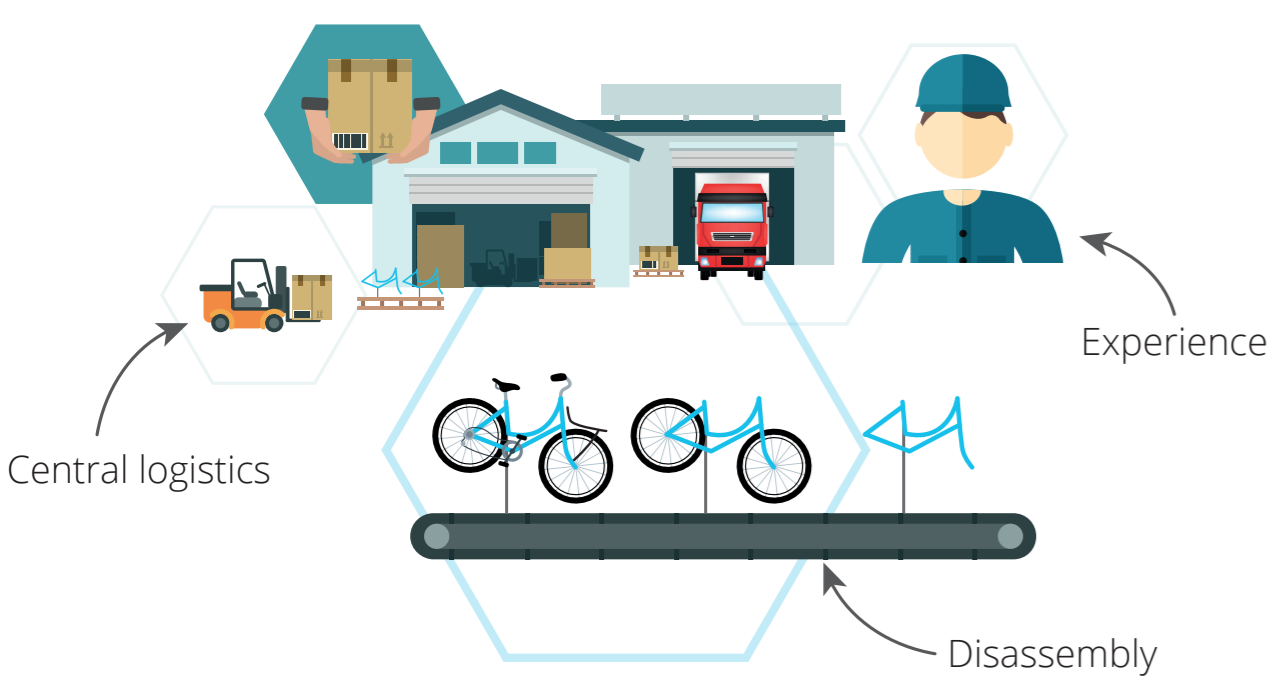
A PSS with a closed material loop is approaching a Sustainable PSS (SPSS). So a methodology is needed to support the transition from a PSS into an SPSS. First, literature is reviewed to find common barriers, drivers and success factors for the development of SPSSs. Paramount for this process is the focus on reconfiguring the involved stakeholders, to involve the right knowledge and experience for a successful solution. Furthermore, a flexible project vision enhances the chance of success.

However, no methodology is developed to support the transformation from a PSS into an SPSS. To reconfigure a network, handle a flexible project vision and involve external knowledge and experience, co-creation is introduced.

This research explores a gap in literature; comparison is made between actors who are likely to have the same kind of challenge and actors who are in the same competitive sector. Two co-creation sessions with different sets of actors are organised to gain insights about the difference in added value delivered.

Inter-sector |

Reframing



Inter-sector co-creation shows a more technical focus and concepts can be implemented in the mid- or long-term. This is also shown by the concept visualised above; a very technical

The process is more precautious, and actors are more interested in possible business partnerships.

Co-creation |

Two co-creation sessions with two sets of participants are organised. The first set of participants are operating in the same sector as Swapfiets: inter-sector actors. The second set of participants are actors who have similar PSSs, but in different sectors: cross-sector actors.

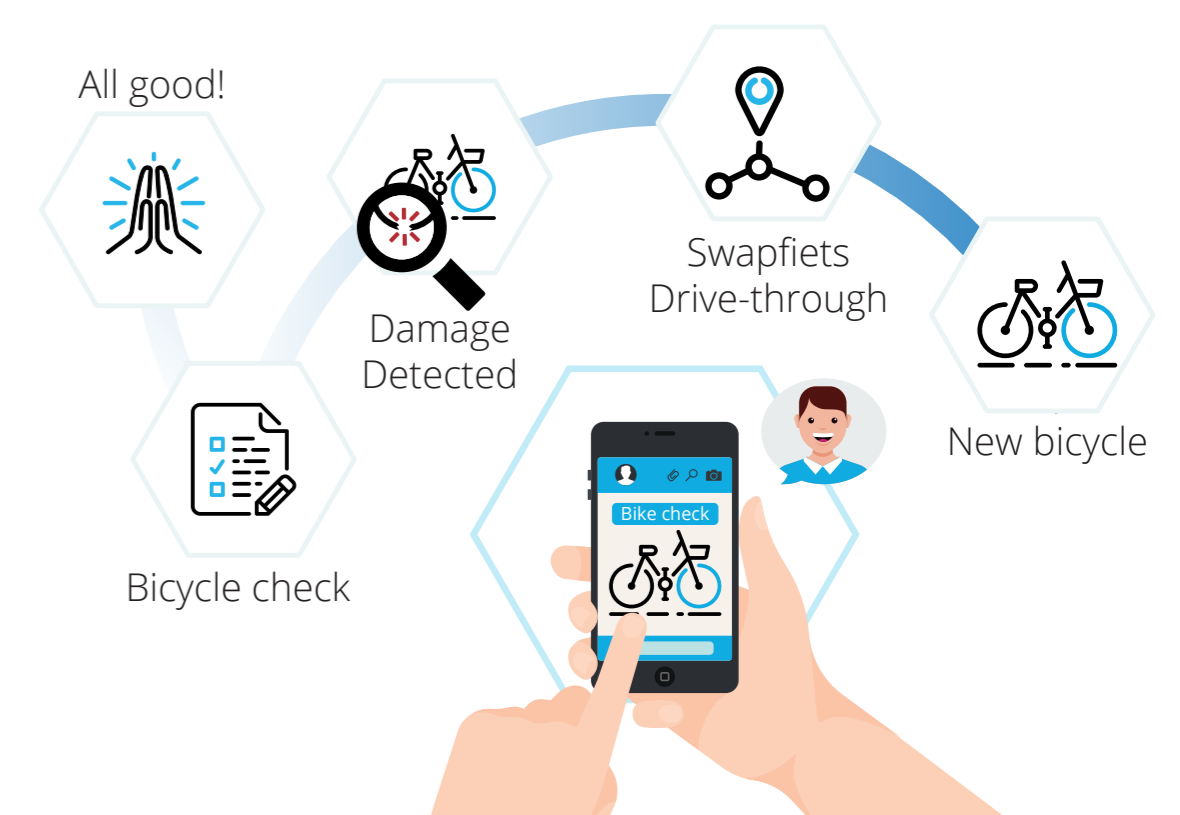
A comparison is made to describe the influence actor selection has on both the process and concepts.

	Inter-sector	Cross-sector
Outcomes	Technical focus	Customer centric
	Collaborations	
	Business partners	Information partners
	Mid/Long-term	Short-term
Process	Precautious	Open
	Common ground Similar challenges	

For Swapfiets, this project has generated six possible solutions to improve the material flow. Three of them are elaborated on in this thesis, supported by strategic roadmaps. Furthermore, it has proven how co-creation can help Swapfiets to innovate their material flow. Involving external participants can bring the knowledge and experience Swapfiets lacks.

| Cross-sector

APK-GO



Cross-sector co-creation shows a customer centric focus and the concepts can be implemented in short-term. The image above is a visualisation of a concept created in this session. It shows a customer-centric application to prolong the bicycle's lifetime.

Cross-sector actors are very open and share very specific information about their own companies. All cross-sector actors are eager to create in-kind collaborations.