

# Translating VConsyst's most successful bicycle shelter into a more sustainable solution

## Public summary

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Over the past century, the demand for raw materials has exploded worldwide. This development is expected to continue, leading to the diagnosis that, without a break in the trend, the future demand for a large number of raw materials will far exceed the supply (Mancini et al., 2013). In order to continue to exist in the future, sustainable development is high on the list of priorities for many organizations such as the company VConsyst. As a solid company with years of experience in street furniture, VConsyst Outdoor offers various types of bicycle shelters. Most prominent in the sale of these shelters is the Model 800 bicycle shelter. Given the high sales of this product, VConsyst sees the importance and the opportunity to make this product more sustainable. The company would like to be advised on the best possibilities to make this product as sustainable and circular as possible. This resulted in the main question of this thesis: "How can VConsyst's current M800 bicycle shelter be translated into a more sustainable solution?"



**Figure 1** Model 800 bicycle shelter. Retrieved from Jan Kuipers Nunspeet (n.d.).



**Figure 2** Model 800 bicycle shelter render.

Through research regarding sustainability, an interpretation sustainable product design according to VConsyst is formulated. This interpretation is identified through what sustainability is according to the company, their goals and reasons in sustainability and current projects in the field of sustainability. VConsyst expresses that balancing ecological, social and economical aspects are extremely crucial in the design of sustainable products and describes the wish of using the Circular Economy approach. This leads to the following definition of sustainable products: "products that contribute to the balance of ecological, social and economical aspects, by limiting negative environmental and social impact throughout their life cycle through circularity".

Analysing the current M800 addresses the significance of considering important aspects of the M800 in the development of a sustainable version. These key aspects are investigated by analyzing the construction, production and assembly, key aspects for its success and product life of the M800. Maintaining the important aspects of the M800 which are key to the success of the product, such as its modularity and functionality are necessary in the implementation of a sustainable version. The current PLC also reveals the linearity of VConsyst's system, while VConsyst strives for circularity.

In order to achieve the circularity VConsyst strives for, a transformation from the linear model to a more circular model needs to be made. Several strategies that facilitate an easier transformation to a more circular model exist. These strategies consequently separate between strategies for circular product design, and strategies for a Circular Business Model (CBM). Integrating concerns for a transformation to a more circular model can additionally be done during the product design process using several different strategies (Bocken et al., 2015). Moreover, a special tool, the BMC, can be used as a basis for researching and designing this transition to the new business model (Osterwalder & Pigneur, 2010). In analysing these different strategies, two CBM strategies in combination with suitable design strategies can be considered the most suitable for possible implementation and therefore further research and development. Both the Service Oriented and Extended Value CBM's can be convenient in creating a circular system by VConsyst, both in various ways.

With the specification of the most advantageous strategies as a basis, two concept proposals for possible design approaches to the CBM are created. In the first proposal, the service oriented CBM, VConsyst provides customers with sheltered bicycle parking spaces, in the form of the M800, as a service. The M800 offered is a long-life product which is designed for product life extension. In the second proposal, for an extended value CBM, a sustainable version of the M800 which recaptures value from used or otherwise wasted products and resources is offered, by purchasing previously used steel and reusing single-use pallets.

For further examination and to aid in a comparison of the proposed CBM's, the different transformations and consequences are discussed using the BMC, in



**Figure 3** M800 design for the extended value concept proposal

in addition to using a diagram of the CBM. Using these strategies as a basis, it was found that where the service oriented CBM provides an enormous transformation, the consequences of the extended value model are somewhat smaller, even though the extended value model does require more changes in the design of the M800.

These two proposals offer VConsyst a solid foundation on how the M800 can become a more sustainable solution. However, with the research carried out and the options described, there is not yet a fully developed solution for the company. Actions will have to be taken to implement a fully elaborated circular business model and to realize a complete sustainable design of the M800. However, for further development, a choice needs to be made between the two solution proposals. By analysing aspects which are key to the success of the proposals, a choice can be made between the two solutions. After choosing the solution, there are several steps that are also recommended to go through. These steps are summarized in a design brief for both solutions.

## References

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