

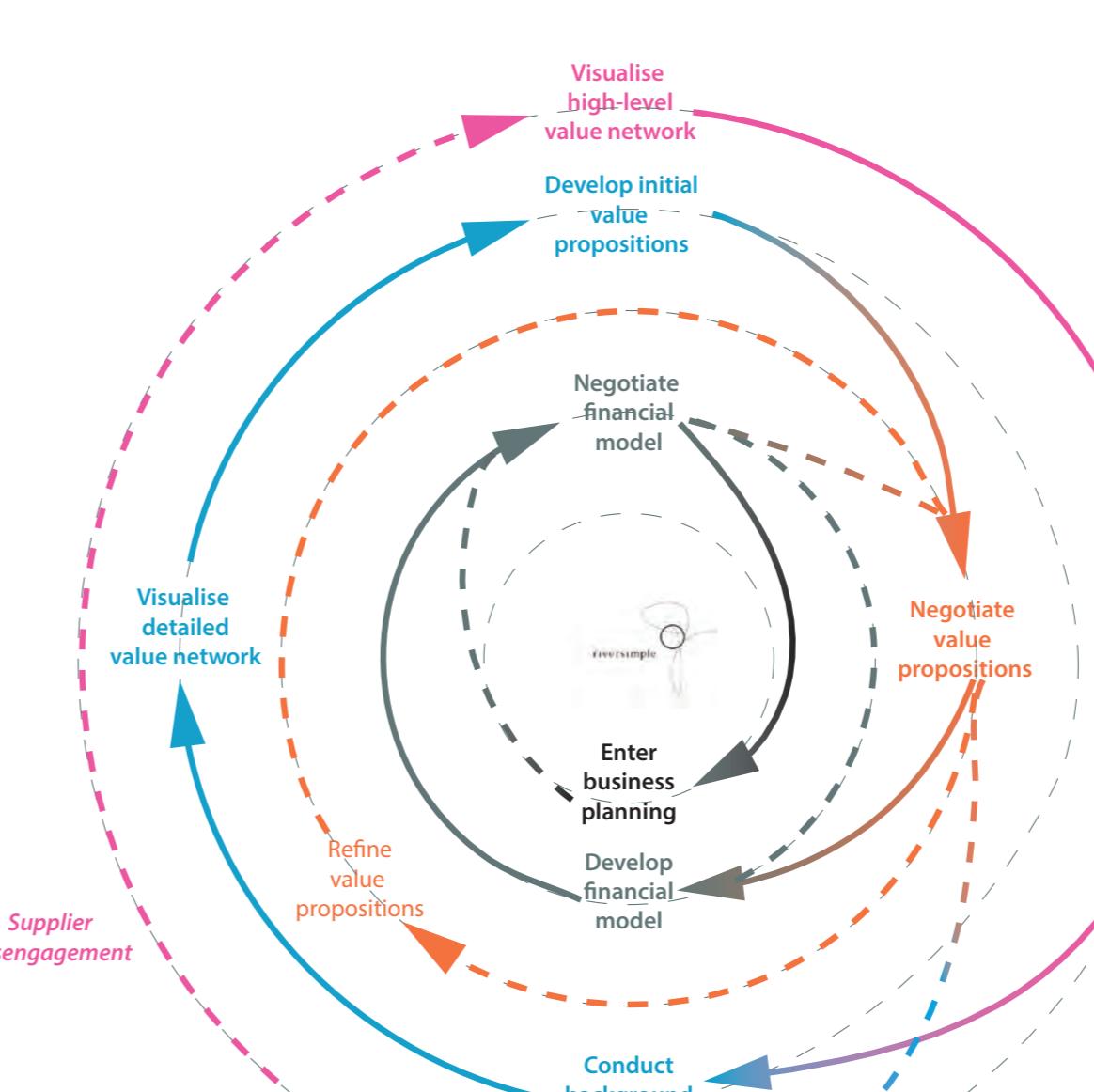
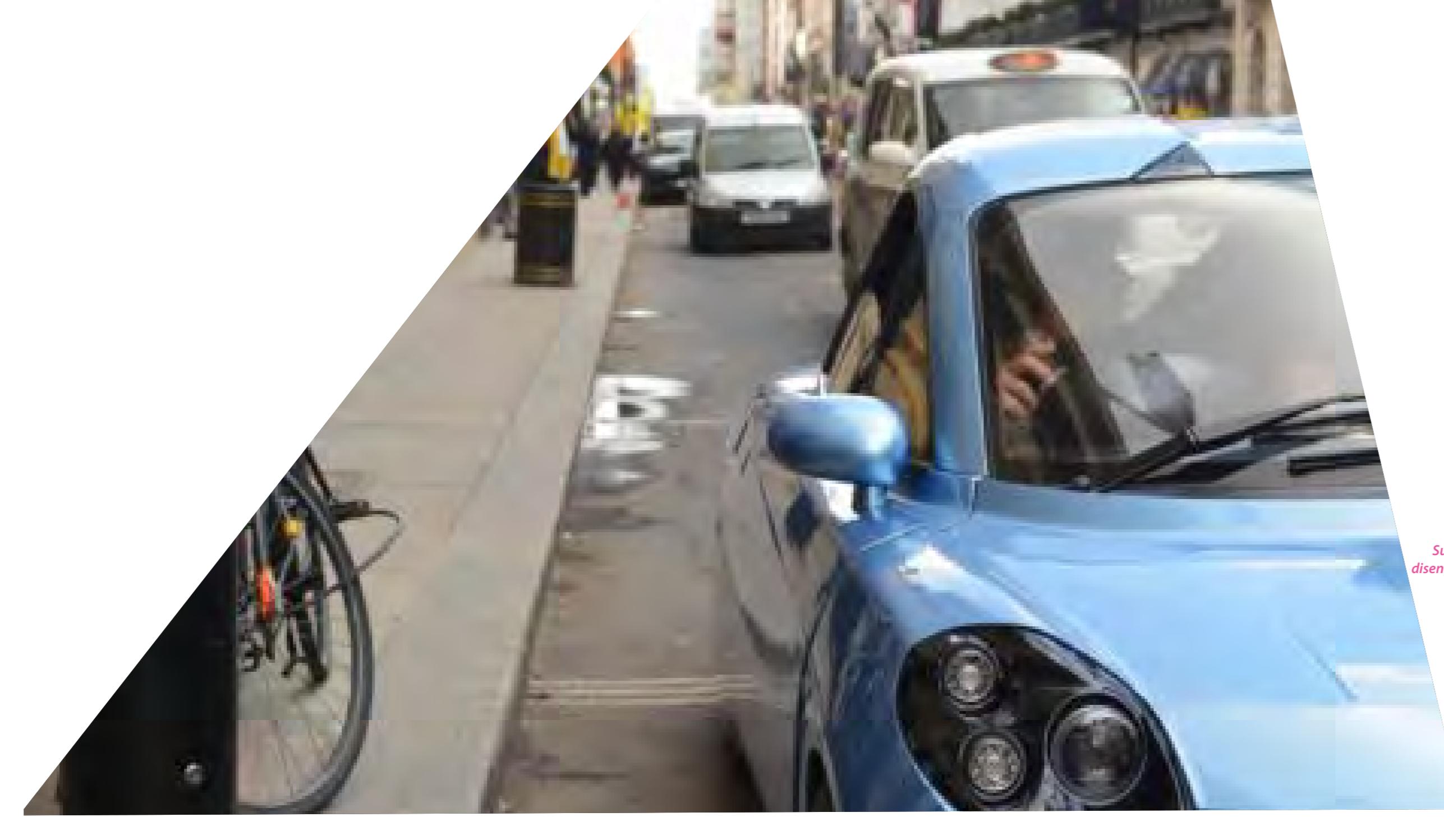
Designing a circular value network for a hydrogen fuel cell electric vehicle company

Company: Riversimple Movement

What was the challenge?

Riversimple Movement, a Welsh company designing innovative hydrogen fuel cell electric vehicles (HFCEVs), is committed to developing a circular economy business model that provides their users with mobility-as-a-service. However, this is difficult if circular economy principles are not adopted throughout the company's value network (e.g. with suppliers of vehicle components such as engines, and consumables such as tyres and hydrogen fuel cells). Riversimple identified that adopting sale-of-service principles across their value network could share the burden of up-front costs in bringing HFCEVs to market across the value network and make the development of long-lasting, easy maintenance, repairable and upgradable components and consumables with clear end-of-life paths in the interests of all partners.

Riversimple faced two challenges in developing a sale-of-service value network: firstly, such business models are unfamiliar to most suppliers; and secondly, the company was at a crucial point in developing the vehicle technology so all internal funding was focused on delivering a beta car. Riversimple Movement needed a structured method through which they could engage with their value network to determine the feasibility of adopting sale-of-service business models with key suppliers. Moreover, they required the right sort of funding support to enable this to happen.



How design helped?

In December 2014, the UK's innovation agency, Innovate UK, launched 'Circular Economy: Business Models', a funding competition that offered between £25,000 and £50,000 for six-month feasibility studies into the business case for retaining value in durable goods through reuse, remanufacture or leasing/maintenance. The project briefing stated that projects should be focused on pre-industrial research and specifically encouraged the incorporation of design elements into the feasibility studies. Riversimple initially approached PDR to conduct a service design project on the 'mobility-as-a-service' consumer-facing business model, but in our first meeting we quickly identified that, by considering the broader context of design as a driver for innovation, the competition was an excellent opportunity to employ design thinking methods and develop an engagement strategy for suppliers. Together with QSA Partners, a circular economy specialist, PDR and Riversimple Movement successfully applied for funding. We used a number of standard design approaches and developed several bespoke tools to support the feasibility study.

- We used brainstorming techniques to develop a high-level overview of the vehicle ecosystem, including component architecture and services needed to deliver mobility-as-a-service to end users and criteria for the selection of key suppliers to engage in the study.
- We developed a common visual approach to mapping the feasibility study 'value network' in which we drew out what the project team understood to be the existing flows of knowledge, product and money between partners in the value network and used them to choose the most 'influential' partner – the one who, if they transitioned to a circular business model – would have the biggest impact on Riversimple and other members of the value network. We prioritised talking to them first about sale-of-service adoption.
- We conducted a literature review to develop a simple 'motivations and barriers' checklist and combined this with background research on companies in the value network to identify incentives and disincentives for companies to adopt sale-of-service business models.
- We created value proposition scenarios- verbal descriptions of the value exchanged between Riversimple and the value network partner that described the various revenue and resource efficiency gains for each scenario.
- We adopted a 'hop-skip-jump' approach. Each partner received three value proposition scenarios - from the first which represented a small change from business-as-usual to the third which represented a radical innovation with the highest level of environmental benefit. These formed the basis for evaluation meetings with companies in which the value propositions were explored in detail. Following the meetings, companies could choose not to participate further in the feasibility study, or enter into collaborative development with Riversimple. At this point, the circular economy experts provided a financial model for the collaborative agreement and, if all partners still saw benefit this could be taken into formal business planning. Meanwhile, the partners returned to the value network diagram and redrew the flows of materials, knowledge and money in order to select the next partner to engage.

The design method has provided Riversimple with a systematic approach to engaging the network, simple visual approaches to representing the value network, easy-to-use tools to facilitate the discussion of complex business model ideas and simple, collaborative ways of working with value partners.

What is the impact?

Developing a 'sale-of-service' value network with suppliers had long been talked about at Riversimple Movement, but there was no clear idea how this could be taken forward. The design approach developed has allowed Riversimple to conduct effective initial engagement activities with key suppliers and dynamically identify the potential for significant resource efficiency gains within the value network. The company is at a very early stage in their commercial development, but a working circular economy financial model has been developed with one supplier, and two further suppliers have collaboratively developed circular economy value propositions ready for financial modelling.



New circular business model

Design4Innovation partner: PDR, Cardiff Metropolitan University
Country: United Kingdom / Wales