INITIATING MULTI-STAKEHOLDER INNOVATION WITH TANGIBLE VALUE MODELING

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ABSTRACT

In the initiation phase of multi-stakeholder innovation projects communication between the initiators and potential stakeholders, including end users, is of great importance. At this early stage only an initial set of ideas and concepts are available and the business models as well as the consortium of stakeholders have yet to be determined. Existing design innovation and innovation management research focuses either on the design of the innovative offerings or on the design of the innovation network and business models. The overlap between creating the value proposition and creating the business model has not received much attention. This paper explores the use of tangible value models by visualizing for each stakeholder the exchanged values related to initial ideas and concepts, to encourage the process of participatory innovation.

INITIATING MULTI-STAKEHOLDER INNOVATION PROJECTS

The initiation of multi-stakeholder innovation projects includes activities to identify potential stakeholders. Initiators can begin the innovation process with drafting a number of initial ideas. These ideas are used to motivate potential stakeholders to participate in the (initial) innovation network. This in turn leads to further development of initial business models for the innovation network, for the stakehold-ers to discuss and reflect upon before jointly designing more concrete solutions. It is therefore very important for the initiators to communicate to each stakeholder the values that accompany these initial ideas and concepts.

The benefits of using visualization in product/service design and innovation projects have been widely recognised (Diana et al. 2009). Stanley King (King et al., 1989) suggests that visualization, as the only common language to which all participants (technical and nontechnical) can relate, is key to encouraging public participation Visualisation helps making complex concepts more tangible, readable and shareable. It supports communication between stakeholders, can help potential stakeholders to understand the intended value models and it can attract them to participate in the discussion. This can encourage them to participate in further developing the innovation.

VISUALIZATION

Visualization literature suggests there are two main variables concerning visualization: the level of iconicity and the relation with time (Diana 2009). In the context of this paper, the level of iconicity refers to the degree of correspondence between the representation of exchanged values created by the initial ideas and their real meaning for the stakeholders. The relation with the time representations can either give an instantaneous –synchronic– picture of the exchanged values or can visualize the – diachronic– sequence of actions and stages that create the values. In the early initiation phase of multi-stakeholder innovation projects the business models, the value proposition and even the consortium of partners

have not yet been finalized. Therefore, to trigger participation in the innovation, more realistic and diachronic visualizations of the exchanged values are needed to allow potential stakeholders experience the intended innovation before committing to participation. This paper outlines opportunities to support initiators by exploring the use of tangible value modeling to visualize the exchanged values. This will help encourage multiple stakeholders participating in such open innovation projects.

EXPLORING TANGIBLE VALUE MODELS

We explored the use of a tangible value model in visualizing for each stakeholder the exchanged values in a student design project. The initial designs were created by a group of four industrial design students at the Department of Industrial Design, Eindhoven University of Technology. This design project aimed to improve safety in public spaces in the city of Eindhoven. Students were encouraged not to solve the safety problems as they occurred but to create an environment to prevent safety problems from occurring. The design process that the design project followed consisted of iterative cycles of the reflective practice (Schön 1983): Naming (the relevant factors in the situation) > framing (the problem) > moving (towards a solution) > reflecting (on the frame and moves). The students worked for two weeks on this project. The first week was dedicated to exploring the design problem and generating possible solution concepts for the end users. This ended with an initial concept, with demonstrable benefits for the end users. The second week focused on developing the value model describing for each stakeholder the value created by the initial concept. The detailed process steps were:

- Naming phase. Specifying the design problem and identifying the relevant factors, i.e., potential stakeholders that can contribute to possible solutions. To prevent specific safety problems in public spaces in Eindhoven, for example, the municipality of Eindhoven might consider increasing the use of public street lighting and the police department might consider deploying additional police

agents or using extra security cameras on the streets.
- Framing phase. Framing the way that the problem is viewed. Safety problems happen when conflicts or friction occurs in the flow of the life of the city.
- First moving phase. Creating ideas for the framed problem and selecting one initial concept; translating the initial concept to values for each stakeholder; visualizing them by building a tangible value model.
- First reflecting phase. Confronting the tangible value model with a simulated stakeholder network consisting of one industrial panel member, specialized in designing business models, two academic panel members who teach value modelling and value propositioning to the students, and one design professional. The panel members were asked to evaluate the tangible value model by interacting with it before listening to the presentation of the student group. The feedback was gathered and reflected upon.
- Second moving phase. Building a tangible model, taking the feedback from the first evaluation into account.
- Second reflecting phase. Confronting the improved tangible value model with the same stakeholder network as before. The feedback was gathered and reflected upon.

Below, we will discuss the results in detail.

NAMING AND FRAMING PHASE
The public space that the group decided to focus on is around unsafe bus stops in the city of Eindhoven. Acts of vandalism occur frequently and as a consequence passengers feel unsafe when waiting alone for the bus in the evening. In this case the public transportation company Hermes and the municipality of Eindhoven were involved as stakeholders. Hermes already installed a GPS system in all the buses and provides real time bus transport information to passengers at the bus stops. Acts of vandalism at the location of bus stops have caught the attention of the municipality of Eindhoven. But despite countermeasures, the situation has not improved. The students took a broader view at the problem of the unsafe bus stops and concluded that the

unsafe situation was created due to the irritation while waiting at messy bus stops. Instead of making the waiting experience a safe experience, they decided to completely remove the waiting queue from the unsafe bus stop to another, more safe and familiar environment.

FIRST MOVING PHASE
The initial concept was about a service to provide public transport users with personalized public transportation information so that they always have real-time information on the exact arrival time of the buses. This results in a reduced waiting time at the bus stop and therefore reduces the possibility for unsafe situations. The student group itself acted as a service application development company and identified two potential stakeholders, the public transportation provider Hermes and the municipality of Eindhoven. They proposed that Hermes could provide the actual public transportation information to mobile phone application developers, enhancing their reputation of punctuality and encouraging more passengers to use public transportation services. They also proposed that the municipality of Eindhoven could provide necessary funding to develop such applications while improving their reputation as an environmental friendly and safe city. As the application developers, the students' company could develop a personalized service for the end users. The student group in question used the paper related to tangible business model by (Mitchell and Buur 2010) as the primary reference when creating a tangible value model. Based on the created value model, the group generated ideas on how to make a tangible version of the value model which would help the stakeholders to understand the idea and the model behind it. A puzzle was considered to be a nice concept direction for the visualization. The idea was to create a puzzle based upon a concept usually found in children's books; one can slide in a piece of paper, that changes the visual appearance of page in the book. The value gained (output) by different stakeholders only appears when the stakeholders slide in their potential input. Using this interaction the stakeholders would be able to see the consequences of their involvement. The

Figure 1: First tangible value model

stakeholders could intuitively understand the value model by interacting with the tangible model. The first tangible value model is shown in Figure 1.

FIRST MOVING AND REFLECTING PHASE

The first prototype of the tangible value model was created out of foam-core and displayed a photoshopped street with elements which would change according to the input of the stakeholders, explaining for each input what they would gain. By interacting with this tangible model, the stakeholders started the first discussion on the concept. The stakeholders were able to imagine which input is needed and what the consequences will be for them and others. They gave very positive feedback to the group. They also mentioned that they would like to have included in the model a visualization that explicates the motivation of the end users, so that they would keep an overview on why such a service is needed. The value for the end users also needs to be specified and supported. In this way, the stakeholders could be further motivated to participate in the innovation proje

SECOND MOVING PHASE

The final prototype was laser-cut in order to have a precise match between the different layers and the photoshopped picture was replaced by a rendering of

the location (see Figure 2). Instead of one small piece of a street, this prototype showed a 'cartoon 'version (thus basic but relevant details) of a city. By using this cartoon as the communication platform, as suggested by McCloud (1993), the prototype becomes easier to "read" and relate to. Besides the prototype working more fluently and being clearer, it also incorporated a discrete action from the stakehold-

Figure 2: Second tangible value model

ers relating to their input. In the case of the municipality of Eindhoven this meant placing a Euro inside the prototype, representing the funding they would provide; in the case of Hermes this was an SD-card, representing their input in the form of data. Specific attention was paid to the value created for the end users.

SECOND REFLECTING PHASE

The stakeholders were positive about this second physical value model. Each of them played with the interactions that were designed for them and understood what the consequences of their and others' input are for the innovation proposed. Physically interacting with this model also raised more questions related to the realization of the value model. Especially they raised the concerns about how such a service could eventually reach the end users. They considered that there is a missing stakeholder in the proposed value model, a functional unit who can promote this new service. They missed the cost structure and revenue flow which is needed when developing a business model (Osterwalder and Pigneur 2010). They also had comments on the target user group as they saw more potential to develop a service platform to serve a different category of end users who may (potentially) use the public transportation system too. Such a discussion suggests that the use of the tangible value model really

stimulates the stakeholders to get motivated to participate in discussing and creating the service together. It creates a dialogue between stakeholders as a solid basis for collaboration within the innovation project.

CONCLUSION

This is only a first exploration of the use of tangible value modeling to motivate stakeholders to participate in innovation. Using a "story puzzle", the model was built diachronically to show in sequence how values can be created when different stakeholders join the innovation at a different moment in time. In the end, a picture of the complete value model can be demonstrated. The physical interaction presented in the model also empowers different stakeholders to picture experiencing the innovation before the service is created. Dialogues are sparked that will serve to support the participatory innovation process.

This study is a successful first step towards the development of the tangible value model for innovation initiation. The difference between this tangible value model and the tangible business model proposed by (Mitchell and Buur 2010) lies in the purpose and timing of use in innovation projects. In our project, the innovation is in the very early stage where stakeholders still need to be motivated and where the joint value proposition and value network still need to be defined. The student group took the role of innovation initiator, and first created the solution and value model. They then motivated potential stakeholders by presenting them with a tangible value model. This creates a basis for further detailed discussion on how the business model will be created, in terms of cost structure and revenue flow, and also in terms of feasibility of participating in the innovation. In contrast, the tangible business model from (Mitchell and Buur 2010) is used to support the redesign and improvement of existing business models. In their case the model is used to support different stakeholders in the realization phase of the innovation project, as the commitment is already in place. It will be very interesting to explore the possibility to connect these two ways of working in creating and realizing participatory innovation.

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