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DESIGNING WITH STAKEHOLDERS DURING SOCIAL INNOVATION PROJECTS: A MAPPING AND ANALYSIS TOOL

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ABSTRACT
During co-innovation projects multiple agencies, organizations, internal and external groups, and communities collaborate in a complex situation to develop mutual value and social improvement. During these projects it is important that the project community is able to conceptualise the network that they rely upon and impact. Established network mapping and analysis practices and tools are objective and evaluative in nature and do not support mapping that is generative, undertaken as a community and explorative. This research sought to address that challenge and answer the question: what re-usable technique, with scripted procedures, supports generative stakeholder analysis and supports the principle of an empathic project community?
Students and academics, during a series of social improvement projects, following a design-led multidisciplinary innovation process within which a dynamic stakeholder mapping tool has been developed. This research reports on the tool's iterative development and evaluation. The research established a successful procedure for stakeholder mapping which demonstrated that involving stakeholders in the identification and analysis process allows for a deep and rich stakeholder map to emerge that is focused upon individuals and reciprocal perspectives.

Keywords: Stakeholder Mapping, Co-innovation, Design-led, Deep empathy.

1 INTRODUCTION

The business world is transitioning, "The Innovation Revolution", has become both necessary and possible because of ever-developing global markets [1]. It has been suggested that this animated environment is driven by a number of global, national, regional and industrial factors [2,3]. The rise of an interconnected economy and mega-trends [1] has led to an unfamiliar business climate, which requires an evolution of organizations' competitive strategy [4]. Companies looking to demonstrate positive growth, in the current volatile marketplaces, may consider methodologies such as "co-innovation" [5]. Co-innovation is an approach to business growth in which an organization develops and engages their complex network, creating both novel value and shared experiences for the organization(s) and their stakeholders [6].
The researchers have witnessed this change. Through their integrated academic practice model [7], that sees students, academics and external partners cooperating in partnership to address real-world challenges and deliver authentic learning, the necessity (in some situations) for co-innovation has become clear. The collaborations that form this practice are becoming more complex; they necessitate the facilitation and integration of numerous agencies, firms and communities. This paper reports on research undertaken to support early project understanding. It sought to answer the questions: what is the utility of developing a project network map with representatives from the network; does this process enable empathy amongst the project community and what elements of a tool support this process?

2 LITERATURE REVIEW

2.1 Co-innovation

Collaborative innovation (Co-innovation) refers to a shift towards cross-border industrial activities, which are related to globalisation and the intensity of technological changes [8]. It encourages organizational openness that allows the acquisition of new ideas, patents or technology that are outside of an individual company's scope [9]. It relies on multi-user networks to share and develop projects collectively, promoting mutual trust, communication and commitment [10]. Co-innovation differs from co-creation, which is described as "the joint creation of value by the company and the customer; allowing the customer to co-construct the service experience to suit their context" [11]. Both concepts focus on stakeholder involvement, however while co-creation relates to an existing organizational structure (i.e., a business and their consumer base) co-innovation infers collaborations across industries at an organizational level. Co-innovation promotes the need for multiple and diverse stakeholder involvement during innovation processes [6,12], it extends the range of opportunities as dialogues broaden and value-creating activities become diversified.

Co-innovation is relevant to academic practice. The projects we engage in with our students are design-led, multidisciplinary and focused on innovation; they involve multiple agencies, organizations, internal and external groups, and communities within complex situations. A founding principle of our engagements is that innovation must be socially respectful and responsible. In the context of co-innovation this means it is essential that we move beyond user-centred design and operate with networked stakeholder empathy. This position considers stakeholders as "experts" within their fields, meaning that their role is changed from passive to active during the design process. Sleeswijck Visser et al, suggested that stakeholders (users) can become part of the design team but should be given the appropriate tools; this includes the mapping and analysis of project stakeholders [13].

"Stake" can be defined as investment or risk, investment is something that can rise and fall, and ultimately be lost [14]. "Holder" is the vessel where the investment is found, therefore a stakeholder, is "any group or individual who can affect or is affected by the achievement of the organization's objectives" [15]. Stakeholders often bring a wide variety of societal or economic issues, which often conflict with each other. It is therefore a mediator's duty to identify and balance the interests of different stakeholders [16]. The relevance and the significance of stakeholders fluctuates over time due to changing internal and external factors. This results in a fluid cycle of stakeholder participation, meaning, that no stakeholder can be taken for granted, but their priority can be assigned depending on the current drivers and challenges. Understanding these dynamics is challenging but can provide a framework for project thinking and decision-making.

2.2 Co-creation with stakeholders

Barlow [17] suggested that much like a mathematician, most of us are able to solve more complex problems on paper than we can in our heads. This exteriorising of conversations, allows not only for the back talk at an individual level, but broadens the conversation to third parties (stakeholders) [18]. Tools can provide purpose, structure and direction to this process. Stakeholder tools are used to prioritise the impact that a stakeholder will have during the different phases of a project lifecycle [19]. Over the past two decades many models and tools have been created to aid the classification process of stakeholders. However, the tools tend to be described as "evaluative" rather than "exploitative" which implies that the tools application is limited to analysis. This may be because the stakeholder analysis tools are rooted within analytical business practices rather than generative design practices. There is an assumption within the described approaches to stakeholder analysis that identifying stakeholders is undertaken without their involvement. This does not align with design-led approaches to co-innovation and co-creation and leads to the questions: what structured tool will support dialogue between a facilitator and a stakeholder in order to develop a dynamic stakeholder map and analyse emerging inter-relationships? What re-usable technique, with scripted procedures, supports generative stakeholder analysis and supports the principle of an empathic project community?

3 THE RESEARCH OBJECTIVE

The research sought to develop a tool, through iterative development, to support design-led co-innovation in social improvement projects. 14 Multidisciplinary Innovation Masters students and their academics led the projects, which needed to take account of, and integrate, multiple stakeholder positions, views, behaviours and perceptions. The research generated understanding about the value and challenges of co-innovation where stakeholders form a community as part of the project's creative team. The tool combined the functionality of network mapping and the analytical element's of stakeholder analysis and identified the attributes for a "discovery" rather than an "evaluative" stakeholder tool.

4 THE METHOD

Four social innovation projects in 2014/15 were used as research sites. Each of these projects provided an opportunity to test the tool's application and evaluate its effectiveness. Data was gathered during and after each project and used to inform the development process of the tool and build an emerging understanding of the tool's value to support co-innovation.

4.1 Innovation Practice Projects

The projects all had a goal of engaging external stakeholders to maximise the resources of the network. However, the use of the network resource fluctuated. Two projects focused on awareness and creating behaviour change and the other two focused on physical resources from the network enhancing operations. All of the projects focused upon a service relying on income from customers (Case Study 1 and 4) government funding (Case Study 2) and a mix of both (Case Study 3). The projects relied on voluntary involvement from the internal stakeholders during workshops (Case Study 1, 2 and 3) and within each project the scope and range of stakeholders varied.

4.2 Research Data and Evaluation

Within the study data was gathered to understand the success of the tool's attributes and procedure. Data, through multiple streams was focused upon activity and outputs from project workshops:

1. Data, through observation, recording the dynamic between stakeholders and facilitators and the tool.
2. Output data, resulting from the tool's use, evaluated by it's utility during project development.
3. A survey of facilitators to evaluate, from this perspective, the tool's design, the quality of data collected during the workshop and how the workshop outputs were implemented throughout the project's lifecycle.

It was not practical to captures the views of stakeholders as a reflection/evaluation outside of the workshop setting and the authors acknowledge this as a weakness. This data has been used to produce four case studies which informed the development of the tool during the process.

5 CASE STUDIES

The tool was developed through four projects. Originally designed as a 2D visualisation of stakeholders, the tool through practice and evaluation evolved to be suitable for a workshop/focus group environment. The following four case studies chart the tools development.

5.1 Case Study One

This project was an initiative to engage customers and raise awareness around the implications of disposing of products inappropriately within the local sewage system. In order to understand who and how stakeholders are best engaged during the project, a stakeholder analysis was undertaken. Tool 1.0 was digital and focused on a visualisation of the network and how stakeholders related to each other. This identification process followed advice from literature and a list of stakeholders was created prior to the tools application. It became evident that categorising stakeholders into vague groups e.g. customers or shareholders, was not an appropriate representation. This may be because within the categories, there are multiple stakeholders, with different views, interests and motivations. By creating a holistic view of the group, the individual views became lost and lead to misinterpretation. The network representation was a priority and the tool did not capture interaction. The tool was able to create a graphic which was readily available to the student team. However, the tool was not used for direct interactions with stakeholders. At this stage of development the digital aspect of Tool 1.0

limited accessibility. Development focused on a workshop version of the tool and upon the representation of interaction and the dynamics amongst the network.

5.2 Case Study Two

This project focused on support services in communities and how to maximise resources intelligently and creatively. The services provided were targeted to specific communities; it was essential to understand who the users of the services were and how they would be affected by changes. Tool 2.0 was employed in a workshop context. Individual participants worked with a facilitator who encouraged them to use the paper prompts and props to develop a map and to explain their decision process making. Tool 2.0 followed a structure, allowing the mediator to ask a question and the participant was able to use the props provided to best answer that question. There appeared to be higher interaction from the participants when the elements had monetary values. This may be because of familiarity with the games themselves meaning that the pieces are recognisable even within the context of the tool. One constraint of using the physical pieces is that there are a limited number of props, which may lead to the participants mapping stakeholders based upon the amount of props they have rather than their view. To overcome this, Tool 3.0 explored mechanisms for unlimited props using size to map power.

5.3 Case Study Three

The opportunity arose to engage a group of stakeholders who had been identified by an organization for their positive and realistic expectations. The challenge was to streamline internal process creating efficient external processes. It was important to evaluate the current stakeholders and understand how their level of engagement affects their view of the organization. Tool 3.0 was used in a workshop setting and explored the use of a prop that allowed an unlimited number of stakeholder combinations to be mapped. Participants were presented with plain white hexagons that varied in size to map power and were stacked to represent interest. This created an immediate barrier to the task, as the participants were concentrating on what the hexagon represented rather than thinking about the relationship of the prop to the stakeholder salience. By creating a prop that had no physical cues the participant became disengaged from the task because it was a hindrance to the mapping process. Overall, the task now had too much flexibility, as there were no true indicators of use. Tool 3.0 became informal, it did not have a specific outcome or rules, which resulted in poor results even through the facilitators were experienced in the principles of use. To ensure that the tool has repeatable and a consistent mapping processes, the support materials from Tool 2.0 were used as in Tool 4.0. Tool 4.0 used the in built limitations to develop a priority procedure.

5.4 Case Study Four

This project evaluated the business model of a business support network and sought to identify opportunities to maximise internal working structures by encouraging higher levels of user participation. Tool 4.0 was used to map the organizational network to identify priorities and clarify the core business offer. In practice the tool highlighted a number of significant challenges. The participants were a partial representation of the organizations board of directors. What became clear was that all of the information about the network and its dynamic was held by a couple of individual (this issue became the focus of subsequent activity). As most participants were unable to complete the task, they found new ways to interact with the props and produced a “future map” of stakeholders. The participants were able to apply their knowledge of games, to use the props in novel ways when applied to the mapping process, which indicates further development of the tool to assist participants understanding of a prop’s abilities.

6 THE TOOL

Work on the tool started in September 2014, based upon a review of existing literature and resources, and over a one-year period was adapted to better suit social innovation projects. It is evident from the literature review that models used within the initial identification stages rely on assumptions and identifying the obvious stakeholders. This can lead to vague stakeholder categories, which are inaccurate or even incomplete. Current best practice suggests that following the identification of stakeholders the mediator will categorise and outline prioritised stakeholders, completing the initial analysis. This research seeks to understand the value and challenges that emerge when completing

stakeholder identification and analysis with individuals from stakeholder categories. This tool was developed as part of that inquiry. The approach, developed in this research, uncovers the identity of a stakeholder with related interactions through the use of stakeholders themselves, providing rich insight into the stakeholder groups. By starting with individual stakeholder networks, the focus is centered on the individual's communities and relationships, rather than the network around the organization or proposed change. The approached follows six steps. Steps 1-3 are based upon a representative project group attending a workshop session. Step 4&5 occur post-workshop. Step 6 continues throughout the project's timeframe:

Step one (Collective Identification) is to identify and list the project's stakeholders. The workshop participants identify groups, functions and individuals that inform or will be impacted by the project's activity and intent: specific key individuals and their roles are identified. This step develops an understanding of how participants define their peers and the networks they appear in and perceive as important.

Step two (Individual Networks) positions connections within a network (existing or ideal). Working with individual workshop participants the purpose and nature of their relationships are defined and the practicalities of interaction and exchange captured. This is to understand why, when and how stakeholders interact with each.

Step three (Individual Prioritising) requires individual participants to use the chess pieces and poker chips to map power and interest. This prioritises stakeholders in terms of how critical their engagement is for the success of the project. The two attributes are:

- *Power* referring to the power of influence they have within the network
- *Interest* referring to how much engagement that stakeholder has invested within the network

Step four (Collate) produces a large network map using individuals' maps. This illustrates how smaller networks relate to each other, highlights network gaps and conflicts and creates a complete network relating to the project's organization.

Step five (Evaluate and identify) cross-references power and interest assignment for stakeholders. This will allows a classification of stakeholders and produces an opportunity to discuss the differing levels of classification within the individual maps.

Step six (Revise and Revisit) is to be undertaken throughout the lifecycle of the project. It is best used to position and consider concepts and project proposals. The network map is evaluated and amended in light of emerging ideas and the consequences those ideas hold for mapped individuals (their concern and priorities). The quantity of change a project concept necessitates in the stakeholder network indicates how radical and disruptive an innovation (potentially) is. Engagement and development strategy are developed in response to the consequences and network shift that core project proposals generate.

7 REFLECTIONS ON THE TOOL

As the proposed tool utilises stakeholders as a primary resource, and is centered around their own network, this should provide a well-defined stakeholder map. The range of stakeholders is important as the different maps provide different networks that can be cross-referenced and irrelevant (or least relevant) stakeholders can be removed. However, with any stakeholder tool, there is a danger of not knowing when the map is "complete" and which stakeholders to eradicate. This is an area worthy for further consideration.

The analysis itself is objective and will change depending on the nature of the project and stakeholders who are involved during the discovery process. Therefore, it is not to be taken as an exact representation but should be used a base to tailor engagements throughout the project. This may make the process efficient, as mediators are able to direct their attention to the appropriate stakeholders, rather than all stakeholders.

The map itself should be used to prompt discussions about stakeholders and why they are key for the implementation of a proposed change. As stakeholders already bring diversity to the project, the mapping is an extension of this process. This is because by nature it is inclusive of all stakeholders, known and unknown, from the inception. This allows a mediator to widen their knowledge of a network and uncover and clarify issues.

8 CONCLUSION

Co-innovation is complex. Bringing the principles of inclusive co-design into co-innovation is a challenge. Utilising student teams, as connectors-facilitators, in these projects requires the development of new ways of working and support tools that go beyond service, interaction and product design. It is important that the project community is able to conceptualise the network that they rely upon and impact. Further, it is critical that the project community establishes empathy for the variety of positions, preferences and concerns held amongst that network.

Involving stakeholders in the identification and analysis process allows for a deep and rich stakeholder map to emerge that is focused upon individuals and reciprocal perspectives. Using 'game' props to mediate value amongst those relationships is useful. Significantly, the research highlights productive creative dialogues resulting from enhanced information extraction and analysis when designers and stakeholders work together, on one platform. The dynamic project stakeholder map has demonstrated potential as a resource for understanding innovation consequences and modelling innovation impact.

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