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ABSTRACT

In this paper we explore how the salient role of stakeholders influences the scalability of information and communication technology for development (ICT4D)projects. While a number of studies have indicated that pilot ICT4D studies fail to scale, conceptual clarity needs attention. Such failure is influenced by a lack of transfer of salience from salient stakeholders in the pilot study to stakeholders in replicated instances. This paper employed the stakeholder theory to explore salient roles. An exploratory case study in rural mountain areas of Nepal is conducted, focusing on the Nepal Wireless Network Project (NWNP). Despite a seemingly similar point of departure the project's success varied dramatically from one village to another. A main explanatory factor is differences in the salient roles of stakeholders. This study contributes to the discourse on the scalability of ICT4D projects by identifying the roles of salient stakeholders and potential stakeholders.

INTRODUCTION

Scalability, the process of expanding the size and scope of an ICT project within a particular setting or incorporating it into other settings (Walsham & Sahay, 2006), remains a key issue in the ICT4D area, and more research is needed (Walsham, Robey, & Sahay, 2007). Successful ICT4D projects are often characterized by the presence of salient stakeholders (Díaz Andrade & Urquhart, 2010; Unwin, 2009) who is really committed to run the project, irrespective of numerous challenges. While there is no doubt that salient stakeholders are important to succeed, their importance is challenging when rolling out at wider scale from the first instance, since they cannot be located into every new instance of the project.

The question then is how to compensate for the lack of salient stakeholder while rolling out at scale from a pilot study. Stakeholder Theory (ST) provides a deeper analysis to identify stakeholders and their agendas (Sæbø et al., 2011). In this paper ST is used to explore stakeholders' salience (Mitchell, Agle, & Wood, 1997), which refers to the combination of power, urgency and legitimacy. Furthermore it is employed to explore the origin of the saliency, from demand side or supply side. Demand side refers to the consumers of the services whereas the supply-side refers to those who fund, design and implements the services (De', 2005). By identifying stakeholders and their saliency, the variations of salience among stakeholders in different instances of the same ICT4D project can be explored.

To address these issues an exploratory case study (Yin, 2009) was conducted in the rural mountain areas of Nepal, focusing on the services of NWNP. The ICT services of NWNP are extended to more than 150 villages. However, the uptake and impact from the services have varied, from 'success' (discussed by (Sæbø & Thapa, 2012; Thapa & Sein, 2010)) to partial uptake, and almost no impact. The roles of various stakeholder is explored to identify their influence on the success, or otherwise, when introducing the NWNP services. The study investigates the stakeholders' salience by explaining their power, legitimacy and urgency to influence the projects. Furthermore, characteristics of potential salient stakeholders are identified.

The remainder of the paper is organized as follows: The theoretical description of ST is outlined in the next section, followed by the case description and the research strategy. The findings of the stakeholder salient analyses are then summarized. Finally, implications of the study, together with future research directions, are elaborated on in the discussion.

STAKEHOLDER THEORY

ST has its origin in the management literature (Bailur, 2007), where it has been used to address issues of 'who and what really counts' (Freeman, 1994) by identifying groups or individuals who affect, or are affected by, the achievement of a corporation's purpose. Three main perspectives or approaches can be identified within ST: normative, instrumental and descriptive (Donaldson & Preston, 1995). The normative aspect focuses on the legitimate interests of all stakeholders (Donaldson & Preston, 1995) and is concerned with stakeholders as an end in themselves (Mellahi & Wood, 2003). Stakeholders should be treated on the basis of some underlying moral or philosophical principles (Mellahi & Wood, 2003). As stakeholders have legitimate interests, they should all have equality of opportunity and considerations (Bailur, 2007). The instrumental aspect focuses on connections between

stakeholders (Donaldson & Preston, 1995) based on the idea of dependency of interactions and transactions between an organization and its salient stakeholders (Bailur, 2007). The descriptive aspect focuses on the characteristics and behavior of stakeholders involved in a system and how an organization interacts with them (Bailur, 2007), and it details analyses and techniques for identifying and analyzing stakeholders and stakeholders' relationships (Sæbø, Flak, & Sein, 2011). Stakeholders can be viewed as belonging to either the demand side or the supply side.

The theory of stakeholder salience (Mitchell, et al., 1997) offers sound theoretical arguments to explain why some stakeholders are salient, whereas others are not, depending on the relationship between power, legitimacy and urgency (Table 1).

Power	Defined as " …the ability of those who possess power to bring about the outcomes they desire" (Salancik & Pfeffer, 1974, p. 3). Sources of power can be coercive (physical force, violence or restraint), utilitarian (material or financial resources) and normative (based on symbolic resources). Power is variable, meaning it can be acquired and lost, and it may or may not be exercised.
Legitimacy	Defined as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, beliefs and definitions" (Suchman, 1995, p. 574). Legitimacy is evaluative, cognitive and socially constructed and may be defined and negotiated differently at different levels of social organisation (typically individual, organisational and societal) (Mitchell, et al., 1997).
Urgency	Defined as "the degree to which stakeholder claims call for immediate attention" and is something "calling for immediate attention". It consists of two attributes: "(1) time sensitivity, the degree to which managerial delay in attending to the claim or relationship is unacceptable to the stakeholder, and (2) criticality, the importance of the claim or the relationship to the stakeholder" (Mitchell, et al., 1997, p. 867).

Table 1. Attributes determining a stakeholder's salience (adopted from Sæbø, et al., 2011)

The sum of the attributes determines the salience of a stakeholder, where salient stakeholders possess all three attributes and are more salient than those who possess only one or two of the attributes. Mitchell et al. (1997) argued for a numeric understanding of these attributes, where that stakeholders have, or have not, power, legitimacy and urgency, whereas recent work within the e-government area has successfully applied the salience perspective with a more narrative approach (Flak & Rose, 2005; Scholl, 2004; Sæbø, et al., 2011).

CASE DESCRIPTION

Our case study was conducted within the NWNP project. The project was initiated to create socioeconomic opportunities for the mountain communities. Since 2003, the NWNP has been in full-fledged operation. The project is an example of early grassroots movements by adapting ICT to the local context. NWNP succeeded despite difficult circumstances, such as lack of government support, funding, technical knowledge, power, human capacity and

unstable political systems. Previous studies show some evidences of socioeconomics progress as reported by (Sæbø & Thapa 2012, Thapa, Sein & Sæbø 2011).

The first round of data collection was carried out in the villages of Nangi and Tikot. Nangi was the first village in the mountain region to receive Internet connection through the NWNP. The second and third rounds of data collection covered eight other villages in the Myagdi district. Most of the young people from these villages have migrated to urban places to search for employment, leaving behind retired army personnel and elderly people. One young social activist stated *"the place has become a dumping site for disabled and elderly people. Educated people are not staying in the village; they are migrating to urban places."* Remittances from their children working in foreign countries are one of the main sources of revenue for the villagers as the majority of young people work abroad. NWNP has motivated some young people to choose teaching and farming rather than joining the army in India or the UK. Although the project has installed telemedicine services in a few villages, medical services are still in a dire state.

The use of Internet services has gradually increased following the introduction of services by the NWNP and other telecommunication companies. However, Internet services are frequently disrupted because of technical problems, particularly outside the villages of Nangi and Tikot.

RESEARCH METHOD

The goal of this study is to identify stakeholders' salience to explore the scalability of ICT4D when rolling out on a wider scale. Given the emphasis on understanding phenomena within a real-life context through a rich description of particular instances (Yin, 2009), it is appropriate to design a qualitative study. In this paper, we followed the method described by Yin (2009) who argued that qualitative case studies typically answer research questions that address 'how' and 'why'. Yin's approach was selected because this study investigated how stakeholders influenced the projects and why they influenced them. By identifying their salience, we aimed to understand the dynamics present within the contextual setting (Cavaye, 1996).

The research followed qualitative data collection and analysis strategies, where the primary mode of data collection was in-depth interviews. A total of 33 individual interviews were conducted along with 6 focus groups interviews, in addition to observation and document analysis (listed in Table 2). The interviews were recorded, transcribed, coded and categorized

in accordance with the stakeholder framework. The principles developed by Klein and Myers (1999) were used as guidelines to validate the process. For example, the hermeneutic circle guided the mapping process of the codes to the theoretical concepts, followed by an iterative analysis process to connect the codes with categories and sub-categories.

Case studies	Interviewees	Number of interviews	Other sources of information
Nangi (successfully implemented NWNP)	Teachers Headmaster VDC chair Health workers Schoolchildren Team leader (NWNP) SME workers	4 1 1 2 6 1 2	Three focus group interviews with schoolchildren, members of the community and the telemedicine team Observation in the classroom and telemedicine centres Document analysis of NWNP project report
Kendo (partially implemented NWNP)	Teachers Headmaster Members of the community	1 1 2	
Poudar (no implementation of the NWNP)	Teachers Headmaster Members of the community	3 1 8	Three focus group interviews with members of a mother's group, members of a youth group, elderly people, schoolchildren and members of the community Observation in the classroom

Table 2. Study group and data collection

FINDINGS

Stakeholders were identified on the basis of their legitimacy in the community and their relationship to the NWNP. In this context, the legitimacy of the stakeholders was recognized through the normative perspective by investigating social norms and shared objectives rather than any formal contract between the stakeholders and organization (Donaldson & Preston, 1995). Some of the stakeholders identified were both from the demand side and the supply side of the NWNP. For example, members of the community, social activists and teachers were directly involved during the initiation of this project and, at the same time directly or indirectly influenced by the project. After identifying the stakeholders involved, analyses were undertaken to identify the salient stakeholders, i.e., those who possessed the attributes of legitimacy, urgency and power.

Demand- side stakeholders include groups such as schoolchildren, youth groups, SME workers and women's groups. For example, a women's group called 'Aamasamoh' is very active in social development activities, such as controlling the use of alcohol, arranging cultural programs, promoting sanitation and running women's awareness programs. Supply-side stakeholders include groups such as ISP suppliers, Nepal Telecommunication officials,

medical doctors and technical experts, as well as volunteers who were initially neither at the demand side nor at the supply side. However, they gained an important role during the initiation of the NWNP by, for instance, providing technical training and some computer equipment during the initial stages of the project. Table 3 summarizes the stakeholder analyses of the case investigated. The bold text indicates stakeholders with special interests, which will be discussed in further detail below.

Village	Stakeholders	Demand-side stakeholders	Supply-side stakeholders	Degree of salience		
				Power	Legitimacy	Urgency
Nangi	Teachers	X	X	Medium	High	High
	Health workers	X	X	Medium	Medium	High
(success)	VDC chair	X		Medium	High	High
	SME workers	X		Medium	Medium	High
	Schoolchildren	X		Low	Low	High
	Social activist (Pun)	**X**	**X**	**High**	**High**	**High**
	Headmaster	X	X	Medium	High	High
	ISP supplier		X	High	Medium	Low
	Technical experts		X	Low	Medium	Low
	Doctors		X	Medium	High	Medium
	Universities		X	Medium	High	Low
	International volunteers			Low	Low	Medium
Pouder	Teachers	X	X	Medium	High	High
	Health workers	X		Low	Medium	High
(partial	VDC chair	X		Medium	High	Medium
success)	SME workers	X		Low	Medium	High
	Schoolchildren	X		Low	Low	High
	Social activist (Pun)		**X**	**Medium/high**	**High**	**Medium**
	Headmaster	X	X	Medium	High	High
	Social activist (Tak)	**X**	**X**	**High/medium**	**High**	**High**
	ISP supplier		X	Low	Medium	Low
Kendo	Teachers	X		Low	Medium	High
	Health workers	X		Low	Low	High
(no impact)	VDC chair	X		Low	Medium	High
	SME workers	X		Low	Low	High
	Schoolchildren	X		Low	Low	High
	Social activist (Pun)		**X**	**Medium/high**	**High**	**Medium**
	Headmaster	X		Low	Medium	High
	ISP supplier		X	Low	Medium	Low

Table 3. Stakeholder analysis

The stakeholder analyses explored differences between the seemingly similar villages. Salient stakeholder scoring was only high in all three attributes in the more successful case, the Nangi village, where the social activist Mahabir Pun scored high on urgency, legitimacy and power. Mahabir, who is from this area, recognized the urgent need for such projects while doing his graduation in the US. He understood the importance of information technology in bringing socio-economic benefits to the socially and politically excluded mountain regions. After years living and working in this village, Mahabir had legitimacy (from a normative perspective) among the citizens living in this village, despite the fact that the establishment of a wireless

project was an illegal act at that time. Although he did not have enough power, he kept on working on this project. Power relates to the ability of the stakeholder to acquire resources and to enroll and mobilize the community towards a shared goal. Mahabir spent years appealing to the people of the Nangi community to convince them of the need for information technology and to commit them to support his desire to bring information technology to one of the remotest corners of Nepal. To gain power, Mahabir worked with existing mountain communities who are involved in rural development activities. Gradually, he won the support of his community in the Nangi village and gained power from other demand-side stakeholders. One villager stated:

> "*The main credit goes to Mahabir, because it was not possible without him, still I didn't find any other person who came here to work like Mahabir. For example, there are many people from foreign countries who came to observe the project, but there was no one who says that I will work with Mahabir. Therefore, until Mahabir is here it will function properly, however in his absence we need another person like him for the sustainability of this project. Therefore, in his absence this project may not function properly, I am bit worried about it*"

Mahabir had to target the supply-side stakeholders who were needed to gain the power, in terms of implementation of the project. Supply-side stakeholders had resources, but they had no urgency to implement the ICT4D projects in these remote areas. As a director of the Nepal telecom authority stated, "two main reasons of supply-side passiveness were 'difficult geographical structure and lack of business model". ST proposes that all persons or groups with legitimate interests participating in an enterprise do so to obtain some benefits (Mitchell et al., 1997). The private sector had no incentive to invest in the project. In the absence of support from supply-side stakeholders, Mahabir was not able to implement the wireless project or, in theoretical terms, still missing the saliency of power. To acquire power, accumulation of resources was vital, for example, to install Wi-Fi stations. At this stage, volunteers played an important role in acquiring power. They donated used equipment and utilized their skills. The villagers made a collective effort to build wooden box computers and radio stations. Gradually, the project started to attract attention, nationally and internationally. Mahabir was recognized for his work and received the Magsaysay award. This recognition further strengthens his credibility. The people of the community began to acquire resources to implement NWNP.

Mahabir's salient stakeholder role was rooted in both the demand side, as well as the supply side. As he had lived in this village for years he knew the needs and the demands. His supply-side salient role was based on his role as the initiator of the NWNP, providing equipment, technical support and training (among others) on how to use the services provided.

Turning to other villages, with limited or no use of the services provided, the question remains why some villages were relatively successful, whereas others were not, despite having similar kinds of technology. In the other two villages reported in this paper, Mahabir's role was more on the supply side. Mahabir is well known and highly respected all over Nepal. Consequently, his power remains high wherever the NWNP is initiating new projects. Nevertheless, from a supply-side perspective, his salience concerning power and urgency are reduced. For instance, his ubiquitous presence in maintaining and managing the whole network could not be scaled to these distant villages. As stated by one of the villagers from Kendo village:

> "*In other villages, people from foreign countries and government agencies invest in development projects, but in our village there is no spokesperson who can speak on our behalf. There are some clever people here, but they don't want to stay in this village*".

Headmasters, along with VDC chairs, were influential in terms of legitimacy, especially if they belong to same community. Teachers and students in these villages had urgency for ICT services, although the stakeholders were lacking 'power' to implement the ICT4D projects. A headmaster stated:

> "*In this Myagdi district, there are just three government schools that provide computer education: Narjang, Pouder and Nangi. Because of that, students feel proud that they are able to learn this technology. However, there is an absence of resources, including a lack of access to computers at home, they are not able to use it for maximum benefits*".

In Pouder, the 'partial success' example, there was a social activist, Mr. Tak Pun, was considered 'another Mahabir Pun' by his fellow villagers. He has local knowledge, is a respected member of his community, understands the need for and the potential of introducing NWNP and is willing to take part in managing and organizing the services provided. However, from the salience perspective, Tak was lacking power, both from the demand side and the supply side. From the demand side, Tak did not have the power to get other people within the villages to commit to the project. This relates very much to his lack of power from

the supply side: lack of technical knowledge and know-how to convince his fellow citizenships about his salient stakeholder role. Compared with Mahabir's saliency, Tak has similar demand-side saliency, but lower supply-side saliency.

DISCUSSION

The study explores the salience attributes of salient stakeholders, and identifies potential stakeholders when rolling out ICT4D projects. Stakeholder analysis allows for a better understanding of the salience of various stakeholders in ICT4D projects. Furthermore, the study elucidates the concept of demand-and supply-side stakeholders (De', 2005) in explaining the salient attributes of the stakeholders.

Our first research question was answered by looking at a successful case: the implementation of the NWNP in the Nangi village. Several stakeholders scored high from this village, both from the demand side and the supply side. The local community supported NWNP, but the importance of Mahabir Pun cannot be overestimated. He had powerful political connections, including ministries in Kathmandu, and he maintained and managed the entire network. The findings demonstrate the importance of the salient stakeholder in the success of ICT projects. Main contribution from this study relates to the identification of the salient stakeholder's roles that are important to success. Supply side-stakeholders were needed, however, the demand-side stakeholders were actually more important. In the absence of legitimacy, urgency and power from the demand side to execute such projects, they are not likely to succeed, irrespective of the amount and salience of the supply-side stakeholders. In the Nangi example, Mahabir combined salience from the demand and the supply side, thus, being the ideal salient stakeholder.

In the example of the failed NWNP project, there were no demand-side salient stakeholders. As Mahabir, representing the salient stakeholder in the pilot project can not act as a demand-side stakeholder in all new villages where the NWNP is replicated, success is dependent on actual or, at least, potential demand-side salient stakeholders.

The discussion above leads to the next research question: who are potential salient stakeholders when rolling out at wider scale, and what characterizes their salience? This paper argues for the importance of a demand-side salient stakeholder when rolling out. Looking at the partially successful and no impact cases of Poudar and Kendo can address the research question respectively.

In Kendo, the demand-side stakeholders had low saliency (Table 3). Although they had an urgent desire to achieve something (based on their knowledge of the successful implementation of the NWNP at Nangi and Tikot), they lacked the legitimacy to enable them to do so and/or the power to encourage other people to commit and contribute to the project. Thus, when the NWNP was implemented, Mahabir and his team had no potential counterpart who could secure the commitment of the villagers to get the project up and running, to act as an evangelist, informing everyone about the importance of the provided services.

In Poudar, on the other hand, had one local social activist, Tak Pun, who was aware of the urgency of the project, and had the legitimacy and some power to get people committed. His weakness was a lack of understanding and knowledge about technological aspects of the NWNP; he also lacked the power to influence the supply side of the project. Tak Pun does not have the saliency to act as a salient stakeholder to bring about the success of the NWNP in his home village. However, he has the potential to become a salient stakeholder and play a similar role to that of Mahabir Pun. He has the local knowledge, legitimacy and urgency to aid development concerning health-related issues, education and business opportunities for the villagers.

NWNP has so far focused on developing local knowledge about technical issues when rolling out at scale by training local boys how to install and run the equipment. They are currently working on improving their competence level so that are not only able to fix errors, but also manage and plan the technical infrastructure (Sæbø & Thapa, 2012; Thapa, Sein, & Sæbø, 2012). This paper argues that technical support and know-how are necessary, but not sufficient to succeed. A more critical success factor is the role of salient stakeholders. Thus, it is important to identify and focus on potential stakeholders who may champion the project when it is being rolling out at wider scale. The ideal candidate should be a demand-side stakeholder; the need for a local presence and local know-how are required to succeed.

The candidate needs urgency. Here, our argument is in line with suggestions made by Sæbø et al. (2011) who suggested that a sense of urgency was the decisive factor in motivating actions and changes throughout a project. Furthermore, the candidate needs legitimacy in his local community. Legitimacy, seen from a social perspective, takes years to obtain, as exemplified by the time-consuming process Mahabir Pun went through in Nangi village. Ultimately, what distinguishes an actual salient stakeholder from a potential one is the power to bring about outcomes in the local community. Our findings suggest that there is a link between the

demand-side and the supply-side power. More work is needed to fully explore the process to transform a potential salient stakeholder into an actual one.

IMPLICATIONS

Implications for practice

Our study has illustrated the usefulness of conducting stakeholder analysis in ICT4D projects. The salience analysis has important implications for practice. As already described, the stakeholder analysis illustrates the importance of identifying potential (and actual) salient stakeholders and their salience early on and of updating the stakeholder analysis regularly in conjunction with various phases of the project (Sæbø et al., 2011). Our findings strongly indicate the importance of identifying a demand-side stakeholder who may act as the salient stakeholder for the project.

Based on our findings, we propose three main issues that practitioners should keep in mind when working on ICT4D projects:

- Demand-side salient stakeholders or evangelist in the local communities are necessary for every new instance of a project when rolling out at scale.

- The salient stakeholders have to come from the demand side because the supply side rarely has the legitimacy and urgency in the local community. Legitimacy is difficult to transfer from the supply side to the demand side, as it involves gaining trust and endorsement from the local community.

- If demand-side stakeholders with high scores in the areas of urgency and legitimacy are present, then power can be transferred from the supply-side stakeholders. The transferability is contingent on the stakeholders having supply-side and demand-side roles.

Implications for research

The findings reported in this paper generates the following research question for further investigation:

- How can salience be transferred from actual salient stakeholders to potential salient stakeholders when rolling out ICT4D pilot project at a larger scale?

There is a possible risk of reporting findings from villages in various project phases as successes or failures. The project at Nangi has been up and running for a while, and this could explain why there are more on-going activities there compared with the two other villages.

Acknowledging this potential weakness, we argue that the time horizons of the first pilot village and the villages where the project was replicated are different. Mahabir Pun spent years developing the organization, securing commitment from the villagers and external stakeholders and, at the same time, designing and developing services. More work is needed to understand how the long process in the pilot study could be shortened where the project are to be replicated.

An interesting perspective for further research would be to look at the external strength of NWNP when rolling out at scale. Mahabir Pun's contribution is well known all over Nepal, and he is highly respected. If the NWNP is able to succeed in other areas and build on its initial successes, the external strength of the supply-side stakeholders may further increase. Future research is needed to explore if and how such strong external forces are helpful to overcome difficulties such as the lack of demand-side salient stakeholders.

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