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UNDERSTANDING THE IMPACT OF INFORMATION TECHNOLOGY IN NONPROFITS: INSIGHTS FROM A MULTI-CASE ANALYSIS

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ABSTRACT

Nonprofits are key players in enabling information technology usage to support better livelihoods. Their activities offer non-profit earned income which in turn provides consistent cash flow to further the mission of the organization. However, the attainment and sustainability of such outcomes on a large scale are constrained due to a myriad of challenges, with one such being, that they may not have access to technology and/or the ability to develop technical capability. The goal of this study was to understand the impact of technology adoption and use through an action research approach in three nonprofit organizations in Western New York during a five-month timespan.

KEYWORDS

ICT, Information technology, Nonprofits, Action research

INTRODUCTION

Research in the Information Systems field mostly takes place at the organizational level – with most of the focus being directed to large organizations. A significantly lesser focus has been put on issues within small/micro/nonprofit organizations. Findings from the few studies that have been conducted at this smaller unit of analysis, have found that the use of Information and Communication Technologies (ICTs) by nonprofits, and small and medium sized enterprises has been shown to enable growth. Micro, small and medium enterprises, as well as Social Enterprises and nonprofits appear to be at the heart of efforts to understand the effects of ICTs on socioeconomic development. Case studies and vignettes of how these micro-enterprises use technology to grow, throw valuable light on the needs of people in their respective communities. While the definition of these forms of organizations vary between countries, it has been argued that they are more efficient at creating quality jobs, are more innovative, or grow faster than larger firms (Gibson et al. 2008). Seen as a form of small business, social enterprises and nonprofits are key players in enabling ICT usage to support better livelihoods. Their activities offer non-profit earned income which in turn provides consistent cash flow to further the mission of the organization (Lyons et al. 2010). However, the attainment and sustainability of such outcomes on a large scale are constrained due to a myriad of challenges that they face. Nonprofit organizations may not have access to developing technical capability. The prevailing belief is that nonprofits are at a disadvantage in maintaining current computer systems. Nonprofit organizations use computers, Internet and other networking technology for a number of tasks, including volunteer management and support, donor management, client tracking and support, project management, financial accounting, program evaluation, research, marketing, activism and collaboration. Because of their limited budgets, nonprofit organizations may not be able to upgrade their hardware or software, buy computers or Internet tools, or provide technology training for staff to the degree of for-profit businesses. This means that, often, nonprofit organizations can be on the wrong side of the digital divide. Nonprofit organizations are extremely diverse in size, mission, and nature (Hodgkinson 1989). As a result, nonprofit organizations differ in their use of technology and the impact that technological changes make upon them (Kearns 2000). It then appears that there is a need to apply a systematic approach to facilitating the adoption and use of information technology in nonprofits. The research question therefore, being addressed in this study is, *What is the impact on nonprofits from ICT adoption and use?* In this study, we investigate this research question by analyzing three in-depth case studies of local nonprofit organizations in using technology to overcome some of their challenges using a contextualized approach. An action research methodology was used to investigate three nonprofits in Western New York during a five-month timespan.

BACKGROUND

Nonprofits and Information Technology

There is a growing literature on the potential benefits of using computer and networking technology in nonprofit organizations. Ferraro (2000) emphasizes the benefits that more immediate access to information has had on service-providing nongovernmental organizations. The Internet is frequently cited as a cost effective tool for fundraising (Wong 1997; Vimuktanon 1997), recruiting members and volunteers, announcing jobs, and coordinating advocacy efforts (Zeff 1997). Additionally, using appropriate software can help nonprofits streamline financial management, cut costs, and offer services more effectively (Ouellette 1996). Although the benefits of computer technology for nonprofits seem well established, there is a fair amount of anecdotal evidence that nonprofits suffer from “the digital divide.” Until very recently, nonprofits have failed to see the significance of changing technologies on service delivery (Kirk 1986). For example, in 1986, one of the most frequently cited works on the future of the nonprofit sector included an extensive list of future research but failed to mention technology (Simon 1989). More recently, attention has turned to the role of computer technology in the nonprofit sector, as evidenced by the subject of a recent Independent Sector’s annual symposium, “The Impact of Information Technology on Civil Society.” In the last decade, a few studies have explored the degree of utilization of technology by nonprofits, but a good base of systematic research is lacking. In 1990, a small team of researchers completed a study on ten “cultural” nonprofits (those involved in the performing and visual arts) in Cleveland, Ohio. The major conclusion was that nonprofit cultural institutions engage in only a limited way with Information Systems (IS) and other computer technology. They attribute this deficiency to an overwhelming lack of strategy regarding the uses of technology and the inability of these nonprofits to contribute funding or staff to develop IS applications (Te’eni et al. 1993). Other trends in the literature include the presumption that nonprofits are technologically disadvantaged and describe efforts to alleviate this problem, rather than diagnosing the problems first. Evidence of this assumption is the donation by some private organizations and online nonprofits of volunteers, services, and on-line tools to these disadvantaged nonprofits free of charge (Corrigan 1993; King 1997; Raths 2000). Others have discussed the use of more traditional techniques such as partnerships with for-profits to creatively finance computer systems (Leibowitz 1998). Finally, some caution that perceived difficulties with technology may in fact be difficulties managing technology, a very different problem indeed. Kleintop (1997) focuses on management of information technology in nonprofits, making a strong argument that good management approaches and techniques are essential to addressing any underlying problem of a lack of resources.

Information Technology for Development

Steinberg (2003) suggests that the high versatility of ICTs have the potential to address a country’s development strategies - provided an enabling environment exists. In this vein, in order to investigate the achievement of development in nonprofits, this research will draw upon the field of Information Technology for Development (ITD). The field of Information Technology for Development (ITD) is built on this notion and entails the implementation, use and management of Information Technology infrastructures to stimulate human, social and economic development (Qureshi 2005). IT for Development research is not limited to developing countries and considers communities and regions in which people have limited access to funds, social services and education needed to sustain them. IT does not have to imply the adoption and use of highly complicated technology and equipment. Technologies such as the cell phone which is now considered one of the most essential pieces of technology to humans around the world can be utilized in its simplest form to assist the rural poor in underserved regions. ITD research has made contributions in providing equitable access to information and knowledge in areas such as education and literacy (Rodrigo 2003; Rodrigues et al. 2003); healthcare (Kimaro et al. 2005); software development (Tan et al. 2005); reduction in poverty (Cecchini et al. 2003; Kenny 2000); better government (Qureshi 1998) and offshore outsourcing (Hawk et al. 2005). However there is limited research that considers the effect of IT implementations on nonprofits and their contributions to development. Qureshi (2005) highlighted a number of effects that may come about when IT implementations intervene within a society’s economic as well as social spheres. Through a process model (figure 1) of IT for development, Qureshi (2005) takes into account both positive and negative impacts that technology might have on development (through a cyclical relationship). The stated effects in the model are: access to information and expertise, competitiveness and access to markets, administrative efficiencies, learning and labor productivity, and finally poverty reduction.

For the context of this study, the social and economic sphere that we are concerned with is the nonprofit organization. We use the effects from the model to analyze outcomes from three case studies outlined in the following sections to obtain insight into the impact of information technology adoption and use in nonprofit organizations.

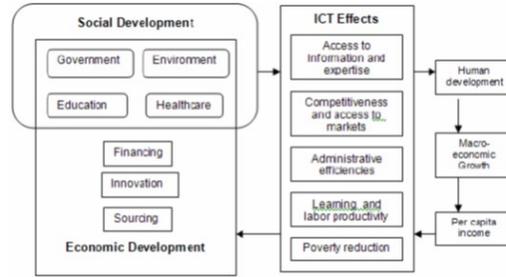


Figure 1. Model of Information Technology for Development (Qureshi 2005)

METHODOLOGY

This study uses an inductive interpretive case study (Walsham 1995) to understand ICT adoption and use in nonprofit organizations to facilitate development. An action research methodology (Baskerville 1999) is used to apply ICT interventions within three nonprofit organizations in Western New York, a region known for its high poverty levels and lack of resources, and the results analyzed. The research design used is shown in Figure 2 below. As seen in the Figure 2, there are four distinct stages at which activities will be conducted.

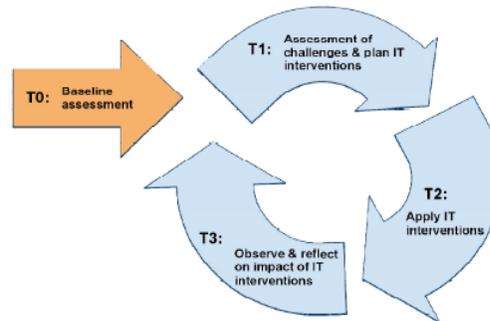


Figure 2. Research Design

At T0, the researcher will interview the designated board members of each of the nonprofit organizations, to understand their past, present, and future use of technology, and how they think ICT could benefit the organization. Stages T1 through T3 comprise the action research cycle that will be conducted. At T1, the researcher will once again meet with the designated board member(s) to inquire about any of the immediate ICT needs and also get an in-depth understanding of the organization. Equipped with that information along with the information obtained from the interviews at the T0 stage, the researcher will then plan what type of ICT intervention would be appropriate to apply to the nonprofit. At T2, the actual ICT interventions will be applied. At stage T3, the researcher will evaluate whether the ICT interventions applied to the nonprofit actually meets and/or solves the needs expressed by the designated board member(s) of the nonprofit. If not, then modifications are made and additional ICT interventions are applied. Iteration between stages T1 through T3 represents the cyclical nature of the action research approach. The researcher will then integrate all the data from the interviews and observations and carry out an in-depth case analysis to understand the nature of the impact in each of the nonprofit organizations from the ICT adoption and use within the context of socioeconomic development.

CASE STUDIES

Three nonprofit organizations were selected for this study. A key selection criterion was the willingness to integrate technology into their operations. The first case is WM, which is a non-profit historical society located on a main street in a small town in western New York. It was formed in 1965 to restore a Victorian house after it was burned in a fire. Since then, they have succeeded in bringing the grand estate back to its former glory. WM is comprised of a board of 21 officers who serve as the trustees of the organization. WM is host to a variety of programs and activities such as evenings for quilters and spinners, as well as various other programs throughout the year. Their main business plan is to teach the surrounding communities about history and generate enough income to cover all expenses. The second case is BC. This nonprofit is a chamber of commerce and its mission is to promote economic success within a small Village in western NY. BC was founded in the early 1900s as a way to network and build businesses up to grow and

reach their potential. Throughout the years, BC has been a stepping stone for new businesses who move into the area. BC organizes and carries out public events around the area as well as promoting new and existing businesses. This allows growth in many aspects for numerous businesses. The third case is CC. CC is an outreach center that serves their neighbors in the community with a hot plate of food from their Soup Kitchen, Clothing from their Donation Center, and childcare in their after-school youth programs. As a non-profit organization, many of the issues that CC faced were financially driven. They do the best they can in trying to keep expenditures under a certain limit. As of 2019, CC has 10 full time staff members that are fully focused on serving the community members that come through their doors. CC’s mission is to “Provide hope to our community through emergency services, education, empowerment, and engagement.” With the help of donations, they built a new teen center which opened in September 2019.

RESULTS FROM THE CASES

T0 – Baseline Assessment

The researcher met with the designated board member(s) of each of the nonprofits and asked questions regarding how he/she/they perceived information technology and how he/she/they thought their organization might benefit from technology. Table 1 gives a summary of the findings.

WM	BC	CC
<ul style="list-style-type: none"> Majority of the members are older and don’t see need for changing the way that things are. Not very eager to learn new IT skills 	<ul style="list-style-type: none"> Technology is used, but just not at its full potential. Lack of awareness of how to use IT for effective marketing/networking Board is open to change regarding their current technology. Lack IT skills 	<ul style="list-style-type: none"> The staff understands that technology is there to help them complete their daily tasks in a simpler, more efficient manner.

Table 1. Baseline Assessment

T1 – Assessment of Challenges & Plan IT Interventions

The interview responses from the T0 stage provide an initial glimpse as to how the board members of the nonprofits view technology. Once the initial assessment is completed, the researchers then interviewed the members again – with open-ended questions – but this time with the intention to get a better in-depth understanding of the historical and social context of the business (Table 2 below). Doing so enabled the researcher to decide on appropriate ICT interventions to apply.

WM	BC	CC
<ul style="list-style-type: none"> Lack of social media presence Lack of IT training/skills Current website isn’t easily accessible or modern Donations, membership dues, or fees have to be dropped off in person or mailed. Tours are scheduled over the phone & not online. 	<ul style="list-style-type: none"> Information on website/social media/newsletter is outdated & inaccurate. Lack of IT training/skills 	<ul style="list-style-type: none"> Paper-intensive & ineffective process to track visitors for services Laptops in teen center were not networked/configured for use. No networked printer for staff Lack of IT training/skills

Table 2. Assessment of Challenges

T2 – Apply IT Interventions

Based on responses from the T0 and T1 phases, the following interventions were carried out for the nonprofit organization.

WM	BC	CC
<ul style="list-style-type: none"> New updated website on Wix Integrated PayPal capability for donations Training to maintain the website 	<ul style="list-style-type: none"> New updated website on WordPress Training to maintain the website 	<ul style="list-style-type: none"> Online form with backend database Laptops setup for teen center New networked printer Training on Office 365 & Google Suite

Table 3. IT Interventions**UNDERSTANDING THE IMPACT OF IT**

Our analysis of the cases is summarized in table 4. The outcomes obtained from applying interventions in each case (shown in column 1 in table 4) are correlated to Qureshi's (2005) model of Information Technology for Development model (figure 1). Columns 2 & 3 in table 4 below show these correlations.

	Outcome	ICT effect from Qureshi (2005) Model	Socio-economic outcome
WM	<ul style="list-style-type: none"> Members, volunteers, and other patrons can easily access the website to see the house history, photos, and upcoming events. Donations can be made online The office manager now has skills to keep the new site updated 	<ul style="list-style-type: none"> Competitiveness & access to new markets Access to Information & expertise 	<ul style="list-style-type: none"> Economic Development Human Development
BC	<ul style="list-style-type: none"> Members & the community will now be able to learn about BC, what they do and the events they organize. New & current board members will have expertise on how to keep the site updated. 	<ul style="list-style-type: none"> Access to Information & Expertise 	<ul style="list-style-type: none"> Social Development Human Development
CC	<ul style="list-style-type: none"> Staff can track usage of services Kids in the teen center can now use the new powerful laptops to complete tasks using Google Suite apps. Staff can wirelessly connect to printer Staff has IT skills to work with Office 365 & Google Suite 	<ul style="list-style-type: none"> Administrative Efficiencies Learning & Labor Productivity Access to Information & Expertise 	<ul style="list-style-type: none"> Economic Development Social Development Human Development

Table 4. Multi-case Analysis

As can be seen in table 4, all three nonprofits that received technology & training interventions experienced some clear outcomes. These cases reveal situations that are unique to nonprofits operating in low resource environments. These outcomes from successfully using technology through customized & systematic interventions led them to achieve administrative efficiencies either through time savings and/or cost savings which in turn relates to economic development. It also positioned them to utilize latest web technologies to promote the mission of their organizations through improved websites and/or social media presence. Through these channels they are now able to cater to larger audiences and facilitate greater likelihood of donations to support their ongoing services to the community at large. And more importantly, be able to provide such services in an efficient manner facilitating social development through stronger bonds between themselves and their constituents. Through the context sensitive training provided in each of the cases, the designated board members and staff now have the requisite skills to sustain the efficiencies brought about with the new technologies. This translates to improved human development through being self-empowered and being confident of their new abilities. Given that Information technology has become pervasive and adoption in and of itself is no longer a challenge, it is these outcomes that offer more specific ways in which contributions can be made.

CONCLUSION

The ability of resource-constrained nonprofits to adopt and use technology depends upon the unique conditions in which they find themselves. In this study, we investigated and assessed such adoption through a very systematic and contextualized approach. An action research methodology was used to investigate three nonprofit organizations in Western New York during a five-month timespan. It is clear from this analysis that nonprofits seek outcomes beyond simply adopting information technology. This was evidenced from the nature of the nonprofits selected for this study. All three nonprofits possessed various forms of technology (hardware and/or software) which were being underutilized either due to lack of guidance or time or skills or any combination of those factors. Further research can study the outcomes identified in this analysis in additional nonprofits operating in low resource environments. They can also be used to support policy makers who design interventions for nonprofits in low resource communities.

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