Summer 10-6-2011

MORE THAN HOPE AND GOOD INTENTIONS: DEPLOYING ICT PROJECTS AT THE EDGE OF DEVELOPMENT

Abel Da Silva

Walter Fernández

Follow this and additional works at: http://aisel.aisnet.org/ecis2011

MORE THAN HOPE AND GOOD INTENTIONS: DEPLOYING ICT PROJECTS AT THE EDGE OF DEVELOPMENT

Da Silva, Abel, The Australian National University, ABIS, Hanna Neumann Building 21, ACT 0200, Australia, abel.dasilva@anu.edu.au

Fernández, Walter, The Australian National University, ABIS, Hanna Neumann Building 21, ACT 0200, Australia, abel.dasilva@anu.edu.au

Abstract

Information and telecommunication technologies (ICT) are often seen as useful tools for nation building. This perception of usefulness becomes more prominent when considering the needs of underprivileged nations. ICT implementation projects in developing countries provide the hope of being able to leapfrogging their technological and economic development. However, ICT for development projects often face significant barriers, which combine to retard, reduce or even derail the delivery of expected benefits. This paper delineates an exploratory study that is concerned with significant ICT deployments in least developed countries (LDC). This paper presents a view of contextual issues faced by ICT projects in East Timor, one of the least developed countries in the world and also one of the newest nations. We set the scene for an empirical research designed to explore (and build from) contextual tensions among key project stakeholders. Our objective is to develop a theoretical understanding of project management in extreme conditions of disparity of both power and knowledge as a consequence of heterogeneity of project stakeholders.

Keywords: IS Project Management, ICT for Development, Qualitative Studies.

1 Introduction

The implementation of information and communication technologies for development (ICT4Dev) is centred at the promise that technologies will have positive impacts by increasing the quality of lives of people in developing countries. By adopting appropriate ICT, developing countries are expecting to increase efficiency and productivity to achieve economic growth (Krishna and Walsham, 2005) and to close the so called "digital gap" between developed and developing countries (Avgerou, 2003). ICT could also help to enhance human capacities in terms of better health service, better learning facilities and innovation (Avgerou, 2003). Furthermore, Walsham et al. (2007) argues that in the developing world the important question is not *if* ICT can bring benefits, but rather, *how* ICT can help to develop these nations.

The United Nations (UN) recognised the importance of ICT4Dev and called for a combined effort to "deliver the benefits of new technologies, especially information and communications" (UN, 2000). Yet, responding to the UN call can be challenging. ICT implementation projects in LDC are difficult and cooperation among stakeholders is often deficient; as these projects are executed in a complex social and political reality, and among multiple tensions (Ciborra, 2005). These tensions are related to the impacts of the implementation of modern technology which changes the existing order of "resources, processes, people and relationship" (Ciborra, 2005 p.261). As Keen (1981) stated, the introduction of ICT causes redistribution of data ownerships, reorganization of the institution, and relocation of authority. However, as Ciborra (2005 p.270) states, "ICT do not enable such changes *per se:* they presuppose them." In least developed countries context, while donor institutions are paramount at a technology and financial level, the critical changes in this re-ordering process have to be carried out by the recipient institution or country.

The re-ordering process is affected by many kinds of gaps between implementers and recipients of the technology in developing countries (Nguyen and Fernandez, 2009) and also challenged by political, organisational and technical issues (Weerakkody et al., 2009). Our study focus on the role of key project stakeholders in ICT4Dev projects with regards to the prevention, mitigation or magnification of these gaps. To effectively implement the changes, ICT4Dev projects demand the active participation of all concerned stakeholders in a manner that acknowledges multiple worldviews and interests; and thus facilitates the process of bridging cultural, technical and social gaps. Understanding how key stakeholders from very different worldviews cooperate in ICT4Dev projects is an important research topic, and particularly so in the case of East Timor, where people still engage in subsistence practices and with little experience with technology.

Consequently, to start our exploration, we want to find out: *How key project stakeholders' heterogeneity impacts project implementation?*

By studying actions, attitudes, perceptions and interests of key stakeholders involved in ICT4Dev implementation projects, we aim to provide a theoretical account grounded in the substantive area under studied. We delimited the key project stakeholders involved in ICT4Dev to policy and decision makers (local and foreign), vendors (foreign), donor institutions (foreign) and users (local).

This paper aims to discuss significant contextual elements that are necessary to have an appropriate level of theoretical sensitivity before doing field work (Eisenhardt, 1989, Glaser and Strauss, 1967). Next we present relevant considerations of our research context, our research approach, a description of the location and foundation case. We conclude by discussing limitations, contributions and future directions for this research.

2   Research Context: tensions of power politics and culture

To study ICT4Dev we need to consider the social aspects of ICT implementations and the interaction of technical and political elements involved in this process (Ciborra, 2005, Walsham, 1993) and we aligned with Walsham (1993, p5) that the implementation milieu has "various social structures which are present in the minds of the human participants involved with the systems, including designers, users and any of those affected by [or affecting] the system. In our context, the potential participants are the decision makers, vendors, donor institutions and users. Their actions as well as their perception, perspective and assumptions will be influenced by "their interpretation of reality, their shared and contested sense of the world, [which] create complex interacting context within which the information system, as a human artefact, is drawn on and used to create or reinforce meaning" (p. 5).

In this context, struggles for power, overt and covert, often manifest in political activities that influence the outcome of ICT4Dev projects. IT has potential to trigger change in power structure, thus we can expect the affected parties to try to influence the nature of IT being introduced (Jasperson et al., 2002). According to Keen (1981), the introduction of information systems in an organization causes redistribution of data ownerships, reorganization of the institution, as well as relocation of authority within the host organization. Yet, this effect is not a unidirectional issue in which technology is a natural cause of redistribution of power and influence. Technology is proposed, implemented and used by people who belong to different institutions and organisations, this diversity is not inconsequential.

Thus, tensions of power, politics and culture are integral to the research context and also necessary considerations when interpreting the field. These tensions can be studied from different useful angles. For example, how to analyse the effects of sources of power, power as resistance, reasons for power struggle and power as exercised (Hekkala et al., 2009) on ICT4Dev implementation, or from a different perspective such as how relationships between the recipient of technology, software vendors and donors impact the sustainability of the deployed technology as shown by a study in Mozambique and Tanzania(Kimaro and Nhampossa, 2004).

Furthermore, to facilitate system implementation, it is required to delineate and implement adequate levels of delegation and authority, and to ensure that the introduction of information systems will enable the delegated authority to be effectively adopted and practiced post-delivery (Silva, 2007).

Another aspect to consider is how culture at national, organizational, or subunit level would impact individuals in their daily actions while implementing the technological solutions (Leidner and Kayworth, 2006). For example, in East Timor, it is important to find out how the actions of users and local decision makers have been influenced by their culture and their special circumstances, and how this impacts ICT4Dev implementations.

The majority of ICT implementation in East Timor, especially within the Government of East Timor are donor funded/sponsored projects and in some instances involving multi-national enterprises. Examples of donors and other international institutions in East Timor are: United States Agency for International Development (USAID), United Nations Development Program (UNDP), World Bank, and the Asian Development Bank (ADB). These international institutions, having an extensive experience in other developing and least developed countries, bring their perceptions, perspectives and assumptions into the host country. They may try to deploy best practices from outside world and also as discussed by Nixon (2006) to promote and advance their agenda of 'democratization'. In the context of globalization, democratic development, and international security threat, the implementation of technology such as e-government in countries categorised as weak and subsistence states (Rotberg, 2003, Nixon, 2006) carries an important political weight as the implementation of certain e-government projects can be perceived as the effort by powerful states and institutions to exercise what is called 'governance at a distance' (Ciborra, 2005).

Finally, the system vendors' perceptions and interests act as another force pushing foreign technological solutions in client countries (Heeks, 2002). These systems are likely to be designed and developed with assumptions that may not be totally valid in the underdeveloped world. Once these assumptions are embedded in the technology, social changes in the host country are needed for the technology to be successfully implemented.

3   Research Approach

The above mentioned aspects of research context describe *some* of the key the environmental expectations for our exploratory study of stakeholders' practices in ICT4Dev projects. To achieve a theoretical explanation of the described research context, we need to engage in an exploratory study aimed at explaining the "context" and "process" of IS as enacted by the participants. Following Walsham (1993), we adopted a qualitative approach guided by an interpretive epistemology (Myers, 1997). In our study, the IS "context" is the surrounding social environment of ICT4Dev implementation and the "process" is the enactment of varied stakeholders' interests in creating a new order.

Out of the extensive typology of qualitative research (Tesch, 1990), the grounded theory method (GTM) (Glaser, 1978, Glaser, 1998, Glaser and Strauss, 1967) presents a good fit with (1) the nature and intention of this study, (2) the type of data we have access to and (3) with our skill set. GTM aims to develop inductive theory from data through incremental and systematic progression in knowledge, deriving conceptual deduction and hypotheses, and then testing those hypotheses with both the grounded data and extant theory (Glaser and Strauss, 1967). This primarily inductive process of exploration is a critical requirement when researching organisational phenomena (Van de Ven and Poole, 1989). GTM offers a rigorous approach to assist our understanding of complex IS project implementations (Nasirin and Birks, 2002) and, critical to us, the method facilitates the achievement of dual objectives of rigor and relevance of our study(Fernández and Lehmann, 2005, Eisenhardt, 1989).

The grounded theory method offers a well-signed research path (Urquhart, 2001), which guides the research process toward the formulation of a substantive theory. The emergent theory is grounded on data collected in the field of research and also takes into account the relevant literature (Glaser, 1998).

Dealing with the literature in GTM is important and demands a specific approach consisting of the following phases: *noncommittal*, *comparative*, *integrative* and *transcendent* (see Martin, 2006). The noncommittal (or preliminary literature review) that informed this paper allowed us to develop theoretical sensitivity while remaining open to emergence (Glaser, 1978).

The overarching research approach is provided by GTM (as explained in Glaser and Strauss, 1967, Glaser, 1978, Glaser, 1998) and provides critical flexibility to pursue emerging lines of enquiry, following a theoretical sampling strategy (Glaser, 1998). The primary source of data will be extracted from case studies. The use of GTM generated from case study data is common in IS studies and allows for congruent and rigorous studies (Lehmann, 2001, Fernández, 2004).

While the number of cases is not a primary consideration, we have identified a number of cases that could be used to gather data for this study. However, in accordance with the methodology, the final number of cases to be studied will depend on reaching data saturation (Glaser and Strauss, 1967). For each case study, data will be collected from interviews, documents (government and public) and observations. Data will be analysed following the GTM and subsequent cases will be determined by the requirements of the theoretical sampling technique (Glaser and Strauss, 1967).

4   Research Location: ICT4Dev in East Timor

Our empirical study will be conducted in the Democratic Republic of Timor-Leste (also known as East Timor), one of the countries classified by the UN as LDC in accordance with a criteria considering low-income, human capital status and economic vulnerability[1]. East Timor human development is ranked even lower than countries with long history of armed conflicts in Africa such as Congo and Sudan (UNDP and RDTL, 2009). According to the latest "Survey of Living Standards" published by the Government of East Timor, around 50% of the population living below the national poverty line, which is only 0.88 USD per day (RDTL, 2008). Moreover, in the 2009 Millennium Development Goals - Timor-Leste National Report, published jointly by the Government of East Timor and the United Nations Development Program (UNDP), it was reported that children's primary education enrolment level is 74%, however the completion rate is only 56% (UNDP and RDTL, 2009).

Part of the international efforts to support countries like East Timor in their development process is through the implementations of ICT4Dev projects. Among these projects, implementations of e-government initiatives are perceived to have a significant degree of importance. This is so because the adoption of ICT in government can contribute to achieve higher efficiency, more transparency, increase participation of citizens in governance process and better service delivery to the people and organisations (Von Haldenwang, 2004). ICT4Dev implementations in areas such as education, health, information sharing for farmers and income generation are expected to contribute to the improving of living conditions of ordinary Timorese.

Since the deployment of technologies can fosters a new order (Ciborra, 2005), for the system to be successfully implemented users and decision makers need to participate and support the new order. However, experiences in East Timor have shown submission to the new order has been very difficult to obtain, for technical and non-technical reasons. Technical reasons related to the breakdown of technology, including a highly unreliable power supply, while the non-technical reasons are related to changes in the social order.

The above examples show how local culture affects technology adoption. There are many factors could contribute to forming the above culture, and in the case of East Timor, the available literature suggest that its culture was mostly influenced by its tradition and also by a long history of foreign dominations through colonization by the Portuguese, Japanese and the Indonesians. Even after its formal independence in May 2002, East Timor is still dependent on the international (donor)

---

[1] For a full explanation of this criteria see http://www.unohrlls.org/en/ldc/related/59/

community which could be argued as a form of symbolic domination (Bourdieu, 1977) or controlling from afar (Ciborra, 2005). Understanding the situation and how to unlock it would be beneficial to the introduction of technology and beneficial to the quality of life in local communities.

5   The Foundation Case

Identification of a suitable foundation case and subsequent cases is a very important step in order to generate theory from data (Lehmann, 2001). Up to date, several e-government projects have been implemented in East Timor with the supports of donor institutions. These are significant projects that are relevant to our enquiry; for example, the UNDP sponsored USD34 Million 'Justice System Programme' to provide ICT supports and an Electronic Case Management System to facilitate the office of East Timor Prosecutor General (UNDP, 2010).

Among those projects, we have few potential candidates for this study. For brevity sake and as an example, we will only briefly describe one foundation case project. This project is the Finance Management Information System (FMSI) implemented by the East Timorese Finance Ministry. The system adopted is a commercial system originated in a developed country. The system was initially adopted by the United Nations Transitional Administration in East Timor (UNTAET) in September 2000, during a brief period of UN transitional government from 1999 to 2002. In May 2002 the system was transferred to the East Timorese Government after its official independence formally recognised by the UN on the 20th of May 2002.

Very recently, the government of East Timor has announced a major extension to the FMIS by incorporating a new online procurement system (RDTL, 2010). As a consequence, the system will have new types of "users" which are the private sector (who are going to participate in the procurement process), public in general (who will be accessing the system for general information) and the civil society groups, who will be interested in accessing details of government procurement process. The introduction of the online procurement system comes with its presupposed changes and therefore, will require new policies and the creation of new procedures (the new "order") which will be different from the existing procurement procedures; and in the creation process of this new "order", tensions of power and politics will surface between parties (government officials, decision/policy makers, private entities and donor institutions). Moreover, although East Timor's official languages are Portuguese and Tetun, the Freebalance system is operating in English (as it was inherited from the UN), this contributed to another degree of complexity of the project. This project offers a very good fit with the requirements of our enquiry and is likely to produce very rich data for analysis.

6   Conclusion

Developing countries constitute a majority of the world's population, and the majority of the population in this group of countries are still struggling to obtain basic services such as education, health, clean water and housing (Walsham et al., 2007). Therefore, the success of ICT projects in developing countries can be considered as one of the important contributors to the betterment of lives of a great number of people.

In this paper, we discussed the initial approach adopted to explore the processes enacted by key stakeholders in the implementation of ICT projects in East Timor. We described the focus and nature of our research and the initial interest on how stakeholders' power, politics and culture dynamics affect the implementation process of ICT4Dev (e-government) project. We also described a suitable foundation case that contains the required socio-technical complexity for the investigation.

As any study, our research is limited by its nature and scope. The study is bounded by the substantive field in which it is immersed; therefore it may not provide valid conceptualisations for fields other than the observed. Yet, we expect to generate conceptualisations that may transcend the cases studied

(Glaser, 1978) and to provide a significant theoretical contribution that will help explain how key stakeholders behaviours influence the outcome of ICT4Devprojects.

This research is relevant to the particular context of East Timor and has the potential to guide project management practices in ICT4Dev initiatives. In particular, to increase common understanding of prime objectives and deficient pre-project arrangements observed in traditional IS project teams (Jiang et al., 2000); identity issues of auto-stereotype and hetero-stereotype, arising from encounters of groups exhibiting organisational or national cultural differences (Hofstede, 1997); and, understanding of challenges posed by interpersonal communication deficiencies, changing organisational environment and inadequate leadership style (Atwater and Bass, 1994).

Finally, results from this study will be able to contribute to our knowledge of how differences of project stakeholders' perceptions, assumptions and perspectives can be managed in ICT4Dev projects to produce the expected organizational changes presupposed by the system being introduced and, in doing so, to achieve the promised benefits. In other words, this study endeavours to contribute to the fulfilment of hope in least developed countries, and to the delivery of concrete outcomes from the good intentions and financial commitment of donor organisations.

References

ATWATER, D. C. & BASS, B. M. (1994) Transformational Leadership in Teams. IN BASS, B. M. & AVOLIO, B. J. (Eds.) *Improving organizational effectiveness through transformational leadership.* Thousand Oaks, Sage Publications.

AVGEROU, C. (2003) The Link Between ICT and Economic Growth in the Discourse of Development. *Organizational Information Systems in the Context of Globalization.* Boston, Kluwer Academic Publisher.

BOURDIEU, P. (1977) *Outline of a theory of practice,* Cambridge, Cambridge University Press.

CIBORRA, C. (2005) Interpreting e-government and development: Efficiency, transparency or governance at a distance? *Information Technology & People,* 18**,** 260-279.

EISENHARDT, K. M. (1989) Building Theories from Case Study Research. *The Academy of Management Review,* 14**,** 532-550.

FERNÁNDEZ, W. D. (2004) The Grounded Theory Method and Case Study Data in IS Research: Issues and Design. *Information Systems Foundations Workshop: Constructing and Criticising.* Canberra, Australia.

FERNÁNDEZ, W. D. & LEHMANN, H. P. (2005) Achieving Rigour and Relevance in Information Systems Studies: Using grounded theory to investigate organizational cases. *The Grounded Theory Review: an international journal,* 5**,** 79-107.

GLASER, B. G. (1978) *Theoretical Sensitivity: Advances in the methodology of grounded theory,* Mill Valley, Calif, Sociology Press.

GLASER, B. G. (1998) *Doing Grounded Theory: Issues and Discussions,* Mill Valley, California, Sociology Press.

GLASER, B. G. & STRAUSS, A. L. (1967) *The discovery of grounded theory: strategies for qualitative research,* New York, Aldine Pub. Co.

HEEKS, R. (2002) Information Systems and Developing Countries: Failure, Success, and Local Improvisations. *The Information Society,* 18**,** 101-112.

HEKKALA, R., URQUHART, C. & IVARI, N. (2009) "Who is in charge and whose rules are followed?": power in an intra-organisational IS project. IN NEWELL S, W. E., POULOUDI N, WAREHAM J, MATHIASSEN L (Ed.) *17th European Conference on Information Systems.* Verona, Italy.

HOFSTEDE, G. (1997) *Cultures and organizations: software of the mind,* New York, McGraw-Hill.

JASPERSON, J., CARTE, T., SAUNDERS, C., BUTLER, B., CROES, H. & ZHENG, W. (2002) Review: Power and Information Technology Research: A Metatriangulation Review. *Management Information Systems Quarterly,* 26**,** 397-459.

JIANG, J. J., KLEIN, G. & MEANS, T. L. (2000) Project Risk Impact on Software Development Team Performance. *Project Management Journal,* 31**,** 19-26.

KEEN, P. G. W. (1981) Information systems and organizational change. *Communications of the ACM,* 24**,** 24-33.

KIMARO, H. & NHAMPOSSA, J. (2004) The challenges of sustainability of health information systems in developing countries: comparative case studies of Mozambique and Tanzania. IN LEINO T, S. T., KLEIN S (Ed.) *Twelfth European Conference on Information Systems.* Turku School of Economics and Business Administration, Turku, Finland.

KRISHNA, S. & WALSHAM, G. (2005) Implementing Public Information Systems in Developing Countries: Learning from a Success Story. *Information Technology for Development,* 11**,** 123-140.

LEHMANN, H. P. (2001) Using Grounded Theory with Technology Cases: Distilling Critical Theory from a Multinational Information Systems Development Project. *Journal of Global Information Technology Management,* 4**,** 45-60.

LEIDNER, D. & KAYWORTH, T. (2006) Review: A Review of Culture in Information Systems Research: Toward a Theory of Information Technology Culture Conflict. *MIS Quarterly,* 30**,** 357-399.

MARTIN, V. B. (2006) The Relationship between an Emerging Grounded Theory and the Existing Literature: Four phases for consideration. *The Grounded Theory Review: an International Journal,* 5**,** 47-50.

MYERS, M. D. (1997) Qualitative Research in Information Systems. *MIS Quarterly,* 21**,** 241-242.

NASIRIN, S. & BIRKS, D. (2002) Factors Influencing the Employment of Grounded Theory Approach in Understanding IS Project Implementation Process. IN REMENYL, D. (Ed.) *European Conference on Research Methodology for Business and Management Studies.* Reading, UK.

NGUYEN, V. & FERNANDEZ, W. (2009) Bridging the gaps: Packaged software implementation projects in Vietnam. IN NEWELL, S., WHITLEY, E., POULOUDI, N., WAREHAM, J. & MATHIASSEN, L. (Eds.) *17th European Conference on Information Systems.* Verona, Italy.

NIXON, R. (2006) The crisis of governance in New Subsistence States. *Journal of Contemporary Asia,* 36**,** 75-101.

RDTL (2008) Timor-Leste Survey of Living Standards 2007. Dili, Government of Democratic Republic of Timor-Leste (RDTL).

RDTL (2010) Press Release - The Meeting of Council of Ministers. IN SECRETARY OF STATE OF THE COUNCIL OF MINISTERS-RDTL (Ed.). Dili.

ROTBERG, R. I. (2003) Failed States, Collapsed States, Weak States: Causes and Indicators. IN ROTBERG, R. I. (Ed.) *State Failure and State Weakness in a Time of Terror.* Washington, D.C., Brookings.

SILVA, L. (2007) Epistemological and theoretical challenges for studying power and politics in information systems. *Information Systems Journal,* 17**,** 165-183.

TESCH, R. (1990) *Qualitative research: analysis types and software tools,* New York, Falmer Press.

UN (2000) United Nations Millennium Development Goals Declaration. New York, United Nations General Assembly.

UNDP (2010) UNDP Justice System Programme - Programme Areas. Dili.

UNDP & RDTL (2009) 2009 The Millennium Development Goals, Timor-Leste. United Nations Development Programme and The Government of Democratic Republic of Timor-Leste.

URQUHART, C. (2001) An encounter with grounded theory: Tackling the practical and philosophical issues. IN TRAUTH, E. M. (Ed.) *Qualitative Research in IS: Issues and Trends.* IGI Publishing.

VAN DE VEN, A. H. & POOLE, M. S. (1989) Methods for studying innovation processes. IN VAN DE VEN, A. H., ANGLE, H. L. & POOLE, M. S. (Eds.) *Research on the Management of Innovation: The Minnesota Studies.* New York, Harper & Row.

VON HALDENWANG, C. (2004) Electronic Government (E-Government) and Development. *The European Journal of Development Research,* 16**,** 417-432.

WALSHAM, G. (1993) *Interpreting Information Systems in Organizations*, John Wiley & Sons, Inc.

WALSHAM, G., ROBEY, D. & SAHAY, S. (2007) Foreword: Special Issue on information Systems in Developing Countries. *Management Information Systems Quarterly,* 31**,** 317-326.

WEERAKKODY, V., DWIVEDI, Y. K. & KURUNANANDA, A. (2009) Implementing e-government in Sri Lanka: Lessons from the UK. *Information Technology for Development,* 15**,** 171-192.