

Perception Formulation of ICT: A Case at Sri Lanka Ports Authority

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ABSTRACT

There is a widespread and growing concern in organizations and senior management that investment in information systems (IS) improves both the efficiency and the effectiveness of the organizations. However, a recent study revealed frustrating results in that many IS projects did not improve the value of organizations while meeting business objectives. IS expenditure was regarded as both costly and risky. Yet many IS investments appear to go ahead without the use of formal investment appraisal and risk management techniques. Often the implementation is left to the IS professionals alone and organizations find themselves in an impasse wrestling with the problem of how to recoup the investment. This paper uses a case of the Sri Lanka Ports Authority which was seeking to implement ICT initiatives to consolidate and integrate many, often disparate, internal systems that had evolved over the recent past. It examines how ICT-based initiatives shaped management's 'perception' that the ICT initiatives would achieve the organizations' objectives.

INTRODUCTION

There is an ever-increasing demand for organizations to become more efficient and effective. To assist with this process, the importance of Information Systems (IS) is being recognized. Organizations have been investing heavily in the deployment of IS to obtain value and benefit. Although IS expenditure is regarded as costly and risky (Robson, 1997), many IS investments appear to go ahead without the use of formal investment appraisal and risk management techniques (Ward, 1996). Often, the specification and implementation is left to IS professionals only, with little or no involvement from organizational management or the user community, which can lead to ineffective or failed IS (Sauer, 1993). Earl (1996) has further suggested that if IS implementation is left to IS professionals and users alone, then, the investment is rarely recouped.

In the history of information systems in business, it is probably true that there have been more failures and disappointments than successes. Work by Butler Cox (1986), Lyytinen (1988), and Galloway and Whyte (1989) suggest that one in two information systems projects will not lead to successful systems. If end users are asked what they think about systems that have been delivered to them they are likely to display a degree of indifference. Experts working with information technology often perceive successful systems to be concerned with the successful use of the latest technology and not with the relevance of that technology to the users' needs. Project managers see success as a project, which has been completed in the face of inevitable difficulties, which may in fact have been self-inflicted. Users seem to have no clear means whereby they can judge the success of a system, although they are more easily able to determine that the desired business benefits are not being delivered by the system. These are signs of an immature discipline which is probably not yet understood and which therefore cannot be managed properly. ICT management and systems project leaders need to understand their users' view of success and the factors that affects its achievement. The technological and project management viewpoints need to be balanced by other considerations, which take appropriate account of the users' needs and expectations.

The selection of the case was based on one single reason. It is simply and unanimously the fact that the Sri Lanka Ports Authority is a major foreign exchange earner of the country and is considered the life- blood of the nation. The ports and shipping sector has been identified as a key growth area of the economy. The recently formulated National Ports and Shipping Policy seeks to transform its embodied vision into a series of interrelated and integrated strategies directed at different aspects of port and shipping development, with a view to consolidating Sri Lanka's natural strategic position. These include, inter alia, the development of physical and technological infrastructure, management and financial superstructure and ancillary service facilities to enhance and maintain the competitive edge of Sri Lanka in the shipping field.

PURPOSE OF THE RESEARCH

System implementation efforts offer extraordinary challenges to information technology professionals and the organizations are impacted by the implementations. A successful implementation can reap vast rewards in organizational strengths and efficiencies. A failure can drain an organization of people, funds and vitality. Consequently, many people have puzzled over the reasons for the successes and failures experienced with these implementations.

However, the complaint the IS professionals of SLPA get most frequently from the financially inclined top management members is that they have not realized much business value from the high priced technology they have installed. Meanwhile, the list of seemingly necessary ICT capabilities continues to grow, and ICT spending continues to consume an increasing percentage of their budgets. Where is the payback? Also there is a complaint that the information systems do not meet business objectives. This issue is of major concern in the Sri Lanka Ports Authority as a pioneer ICT user in the country for organizational efficiency and as an ICT user with a relatively high ICT budget. Therefore the scenario warrants a fresh examination is needed in order to understand those attributes of information systems by which users perceive success and failure, and through which they establish their expectations.

The purpose of this research was to examine these posers as reflected by the case analysis of the Sri Lanka Ports Authority and to attempt to answer those within the analysis framework. By uncovering these posers and forming subsequent constructs, a conceptual starting point in the proper contextual environment can be identified, and strategies can be developed for the successful implementation of information systems in future.

RESEARCH METHODOLOGY

The philosophical assumptions underlying this research come from the interpretive tradition. This implies a subjective epistemology and the ontological belief that reality is socially constructed. The research strategy adopted was to conduct an in depth case analysis on Sri Lanka Ports Authority: a government-owned organization in Sri Lanka that enjoys a monopoly in its business domain. The fieldwork was conducted at the site during the period from February 2003 to November 2003 and a steady correspondence has been maintained with the different informants at the site. The main data collection techniques used in this research study, were semi-structured interviews, participant observation, group discussion and documentation analysis. Personal interviews constituted one of the most important and valuable sources of information. In this study, a total of 57 interviews were conducted with directors, senior managers, managers, users and IT staff. The data about IT projects were gathered from SLPA publications and project reports. The data so gathered were validated using the triangulation method.

INFORMATION SYSTEMS DEVELOPMENT CONTEXTS AT SLPA

It is equally important to analyze the social contexts within which the ICT deployment takes place in an organization. This helps constitute an attempt to take into account the local, and also the regional and national contexts in which the ICT initiatives were implemented. Internal and external contexts as well as the demands of the wider organizational and societal contexts seem to have influenced the settings of the case. For example, Du Plooy, (1998) pointed out six social context components, namely the environmental, organizational, group, task, innovation and individual contexts that are of utmost importance and worth being looked at when examining ICT-based initiatives in an organization. The following sections analyze the ICT deployment landscape in SLPA with respect to these contexts.

Environmental context

The environmental context of the SLPA represents the influence of strong unions, institutions and regional competitors. There had been some forces that contributed to the implementation process of the ICT initiatives such as the liberalization of the economy.

The experiments with the restrictive import policy that reached a climax in the seventies with the operation of an inward looking economic policy soon proved to be an ineffective solution to the persisting problems of the economy. The ill effects of this policy percolated to the wider spectrum of the socio-economic life of the people, the most apparent and dismaying feature being the scarcities of essential consumer goods and widespread unemployment (Dharmasena, 1988). The general economic situation in the country, being such the government that came into power in 1977 followed the most pragmatic policy of an outward- oriented development strategy to boost up a stagnant economy (ibid). The impact of such policy began to be felt in almost every sector of the national economy, which inevitably exerted a salient impact on the Port of Colombo in changing its destiny. Since then international lending organizations began to rest confidence in the port's development and offered huge monies in terms of loans. Under the circumstances, SLPA found no constraint in investing in infrastructure development initiatives. But for these grants in terms of loans, ICT initiatives would not have taken shape in SLPA so vigorously. According to recent financial reports, SLPA spends nearly 300 million Rupees a year on ICTs excluding the salaries of IS staff.

Organizational context

The organizational context includes different elements such as the organizational culture, information politics, organizational learning, organizational norms and values, and organizational information sharing politics. These elements of the organizational context influence the adoption and use of ICT initiatives in organizations. As SLPA is a government organization that has a cost control culture, it possesses no authority to exercise autonomy in procuring ICTs without following government procurement regulations. As government procurement procedures emphasize quantitative aspects rather than qualitative aspects, it has to accept the lowest tender in procurement unless there are good reasons to appose such a choice. Most of the time, TECs and tender boards are unwilling to find those so-called good reasons lest there should be audit queries. Therefore, there were occasions reported where SLPA had to pay a heavy price at later stages for the momentary savings gained by selecting the lowest bid.

Task context

The task context is related to how ICT initiatives could introduce changes in the work content. Many interviews revealed that the system users were not satisfied with the functionality offered by the systems but they demand more and more. This means that employees are willing to see more and more ICT initiatives and there was clear preparedness on the part of employees to understand and make sense of changes being brought about by the ICT initiatives. Many employees were found proactive in the process of institutionalizing new ICTs in the network.

ICT-related initiative context

This context corresponds to the innovation context of the human environment model. In this context, different aspects related to the innovation to be introduced in the organization are outlined. These aspects are as follows: the influence of the innovation on values and judgment, on business process, on organizational learning and on internal communication. Generally, ICT innovations in SLPA has supported many organizational processes as the port services sector has been moved to the top right quadrant of the Porter and Miller's Information Intensity Matrix (Porter and Miller, 1985)

Group context

The group context is a further component of the human environment that influences the process of adoption and use of specific ICT initiative. The

following elements form part of the group context: the technological frame of the groups, relevance, shared understanding, making sense of the role of the ICT initiative, partnership between ICT initiative and users, group resistance to change, the role of ethnic culture, attitudes towards management, users and the IS division relationships and user ownership.

The institutionalization of an ICT initiative is often related to a particular division as the SLPA is having a divisional structure. The structure of the IS division is so arranged that no single senior IT officer can be identified as solely responsible for application development work in a given division. Work has been distributed among them on the basis of applications. Sometimes, one senior officer could be found responsible for two separate applications catering to two divisions. This structure is incapable of providing a conducive climate to exploit the full potential of ICT endeavors since promising application areas may go unnoticed by the analysts. This set up acts as an impediment for proper liaison between the IS division and other divisions.

Individual context

This includes elements of ethnic culture, worldviews, technological frames of reference, power bases, empowerment and disempowerment. These elements express the role of individuals relating to the adoption and use of ICT. In each of the episodes there were users of the same organizational culture, and each of them had been influenced by the new initiative while also influencing the way in which the initiative was implemented and institutionalized in the organization. Preparing users within the human environment perspective means informing the users about changes that will occur in their job, and how they will work differently. In the Cybernet Application the initiators have failed, to some extent, to enthuse port workers to use Internet for knowledge enhancement. Commenting on other episodes, it can be deduced that as the development methodology adopted by the internal development staff is not characterized by user participation throughout the process, there seem to be large gaps between those who design the technology and those who actually use it, which cannot simply be bridged by a mere training component.

THE CASE THE SRILANKA PORTS AUTHORITY

Introduction

Since 1918, the Port of Colombo had been administered by the Colombo Port Commission, a Government Department (Now Sri Lanka Ports Authority) which was made responsible for the supply and maintenance of

cargo-handling equipment and other infrastructure, pilot-age services, docking and slipping. Being close to international navigation lines, it provides the shortest and least cost deviation for shipping lines en route between the Far East and Europe as well as the East Coast of the United States of America.

The Information Systems Division in SLPA

The Corporate Information Systems Division of the Sri Lanka Ports Authority employs 110 staff members for general administration, applications, network operations and technical services in the Port of Colombo. The information systems division renders guidance and advice to the management and administers computer support services to the port. The division is headed by the Chief Manager Information Systems who directly reports to the Managing Director.

Information Systems Development in SLPA

The genesis of ICT deployment in Sri Lanka Ports Authority is traced back to early 1980's wherein a WANG Personal Computer was introduced for the first time to assist the data processing component of the container handling business, which was done on a very minuscule scale. For over twenty years since this humble beginning, a good many ICT innovations have taken shape in SLPA and today its computer installation is considered as the largest in Sri Lanka.

Although the superficiality is bright, the process of Information Systems Development in SLPA is somewhat gloomy and no evidence was found to the effect that any formal feasibility study has been done for any one of the above applications. No proper development methodology has ever been followed and the application development was completely haphazard. There had been no value or benefit appraisal, except for a broad estimate of costs for budgetary purposes. There was no management process in place to govern the achievement of the desired outcome and no process to evaluate what benefits were actually achieved. There had been no alignment or integration of Information Systems Strategy with the SLPA Business Strategy. The case study established a perspective on the organizational culture of the SLPA. Many users had not been consulted with regard to the selection and implementation of information systems which had led to user frustration. There had been no evaluation of the information systems deployed through a post implementation review process. Consequently, no difficulties were formally recorded and no subsequent refinement to the deployment process was identified or undertaken.

Moreover, it is evident from the research findings that the ICT initiatives of the Sri Lanka Ports Authority have been largely affected by a plethora of shortcomings ranging from lack of an IT master plan through to general lack of project planning. There is an IT Steering Committee consisting of senior managers but most of them have no ICT savvy and the very fact accounts for its lackadaisical performance. Most systems in SLPA were introduced as a recognition that things cannot continue as they are or simply for the fact that others have done it and we also should follow them. The past attempts to develop a financial system amply demonstrate the haphazard approach taken to develop systems.

Apart from this, there seems to be a lack of a motivation as pointed out by many an interviewee. Andersen et al, (1994) mention lack of motivation, team spirit and participation from users as dangerous pitfalls in the implementation process, and Engler (1996) mentions a survey of 300 IS executives where lack of user involvement was cited as the main reason for IT projects failures. The most important source of motivation mentioned by the end users and many of the managers involved was, as predicted by Maslow and Herzberg, recognition and “feeling important.”

Another phenomenon that goes in parallel with the above is communication among the main actors of an ICT project which brings about change. According to Tjäder, a critical activity in ICT projects is to facilitate the transfer of information among the parties involved (Tjäder 1998) and Andersen et al, (1994) mention lack of communication between the project manager and co-workers as a major project pitfall. The sole reason for the functionality problems of systems found in all the episodes is the failure of proper requirements identification or elicitation. This falls within the broader topic of communication. No formal SRSs (Software Requirements Specifications) had been prepared by internal staff for any of the systems developed in the port.

DISCUSSION AND CONCLUSION

The aim of this research was to contribute towards understanding the interplay between development and ICT-related initiative dynamics at the organizational level. To this end, the research adopted an interpretive stance and a single case study strategy. It is argued that ICT initiatives can only contribute to organizational development if the implementation of these initiatives is aligned with the development programs of the organization. Developing countries and organizations have increasingly been implementing ICT initiatives with the implicit objective of improving their development levels. This research has suggested that the implementation of ICT initiatives should take into account the social context and the need for situated change in order to fit the ICT initiatives

into the organizational context in which they are implemented.

One of the practical contributions of this research is the detailed insight provided by the case study. Though the senior managers anticipate ICT to transform organizations towards successful ones, the analysis reveals it is not the case as they do not have a proper understanding about the context within which the ICT initiatives take place. Since the very inception, ICT deployment at SLPA has been hindered by social, cultural, political and organizational contexts. The greatest challenge facing the SLPA will not be encouraging the use of ICT initiatives nor to introduce the best software solutions. Rather, the challenge is to ensure that an appropriate strategy is followed with an internal support program to manage the anticipated increase in demand for ICTs, and help educate staff in using these to support the implementation of service delivery plans. Most importantly, these factors require planning, managing and monitoring to ensure the best use, value and benefit are obtained from the investment. The case study also reveals that ICT professionals and managers need to acquire new skills of negotiation and communication in order to persuade other actors to join the network of adoption and use of the ICT-related initiatives.

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