Analysis of Impact on IT Personnel of outsourcing IT services in organization: A case study of procurement of IT services for "Maintenance, Upgradation and Support Services for BRTA-IS" in Bangladesh Road Transport Authority (BRTA)

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ABSTRACT

Information technology outsourcing has been an increasingly important phenomenon in recent times. IT outsourcing refers to the use of a third party vendor to provide IT services that were previously provided internally. In recent years, information systems (IS) have become increasingly crucial to the ability of an organization to compete effectively. Outsourcing of IT functions in the organization has been prevailing in today's business environment, and is used as a strategic incentive for the organization to reach organizational goals. The increasing importance of IS has placed a strain on the ability of an organization to produce and manage information in a timely, relevant, and cost effective manner. Many organizations have begun to rely more heavily on external vendors to meet their IS needs (outsourcing). Despite the growth of IT outsourcing and its promise to save costs, few studies have empirically examined the impact of IT outsourcing on cost savings. In fact, whether IT outsourcing will lead to cost reduction is largely an empirical question. IT outsourcing can save costs for firms through increased efficiency in IT operation and effective use of IT staff, due to vendors' production cost advantage stemming from economies of scale. Relying on an external supplier for a resource may allow an organization to take advantage of economies of scale, thereby generating cost savings, but it also often means relinquishing some degree of control over that resource. Several factors must be considered by managers in order to make rational outsourcing decisions which do not adversely effect competitive strategy. The objective of this dissertation is to study the role change for IT personnel and the impact it has on the organization. IT personnel's roles are changed with knowledge, and the impact would be there on the organization after the IS has been outsourced.

The dissertation is based on a case study of procurement of services for "Maintenance, Upgradation and Support Services for BRTA-IS" in Bangladesh Road Transport Authority (BRTA). The key term were investigated; roles and responsibility change and the relationship with the service provider. Findings imply that outsourcing of IT functions can have severe impact on IT personnel's role change. The study found support for the need of more job training for IT personnel. Although, existing literature emphasizes the need for service oriented knowledge, our findings also imply the demand for theoretical technical knowledge. The case study found support for a new role for IT personnel with the service providers.

Several factors contribute to the challenge IT personnel with the service provider. For the case study, we purpose improvement points in order to make IT personnel perform their new role better.

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CHAPTER 1 INTRODUCTION

1.1. Background

Information Systems (IS) Outsourcing means that the physical and/or human resources related to one organization's Information Technologies (ITs) are supplied and/or administered by an external specialized provider. This situation can be temporary or for an indefinite period and can affect all the IS of the client-firm or only a part of it. It can include data centers, wide area networks, applications development and maintenance functions, end user computing and business processing (Cardinali, 1998). This type of service became very popular in the nineties after the success obtained by Eastman Kodak with the externalization of its ISs. Information systems out-sourcing options have existed since the dawn of data processing. Early forms of IS outsourcing typically dealt with single-system contracts comprising a small portion of the IS budget — payroll, insurance processing, credit cards, or mailing lists. Vendors actually operates, manages and controls the IS functions. A typical outsourcing arrangement of this type works like this: The vendor charges a fixed fee for a pre-specified number of services, known as the "baseline." The customer is guaranteed that its IS costs for this baseline will be fixed over the contract duration, typically five to ten years. During the contract period, services not included in the baseline may be purchased from the vendor for an excess fee. Deals are often sweetened with financial incentives, such as stock purchases, loans at low interest rates, and postponed payments. At the outset, these deals are extremely attractive, especially to an organization that suffers financially.

The benefits of successful outsourcing are; cost reduction, improvement of system quality, access to expertise, organizational flexibility and the ability to focus on core competence. However, there are risks associated with outsourcing such as vendors over optimism, loss of control, increased governance costs, and technological inflexibility (Beasley et al, 2004). Outsourcing has in many cases increased the cost and introduced complexity to the organization.

However, outsourcing of IT is different from other organizational resources that have been successful outsourced. A number of factors contribute to this statement: it evolves rapidly, it underlies economic change rapidly, the switching cost of underlying technologies and IT suppliers is high, customers tend to be inexperienced with IT

outsourcing, and it is IT management practices rather than economies of scale that lead to economic efficiency (Lacite and Hischheim, 1995). This paper's focus is on the issue of IT personnel's role change after IS outsourcing. According to Martinsons and Cheung (2001) outsourcing of IT functions has an impact on IT personnel's role change and responsibility in the organization. Outsourcing of IT functions changes IT personnel's traditional work role. The impact of outsourcing of IT functions will alter the demand for a particular type of IS expertise in an organization. Hence, outsourcing can have impact on IT personnel's career ambition in the organization. Due to the great impact outsourcing poses on IT personnel, finding effective ways to manage organizational change is a key outsourcing success factor.

1.2. Thesis aims and objectives

The aim of the dissertation is to study IT personnel's role and responsibility change due to IS outsourcing. With emerging practices like outsourcing of IT functions, many organizations loose IT key staff (Martinsons, 1993) and in some cases the process leads to reorganization of the whole IT department (King, 1996). According to Beasley et al (2004), some of the negative aspect of outsourcing can lead to loss of control over cost and IT innovation, and a higher degree of monitoring of SP's work. Others address the role change from a technical responsibility to a more service oriented responsibility for IT personnel.

The aim of the research gives a guideline over further work. Hence, the objectives of this paper are:

- Conduct a literature review over existing research in this area
- Investigate a real life case and conduct interviews with IT personnel at BRTA
- Present a discussion and a conclusion of the findings .

CHAPTER 2 *LITERATURE REVIEW*

2.1 Definition of outsourcing

CIPS defines outsourcing as "the process of identifying the most suitable expert third party service provider to undertake the management, administration and provision of the service in question". Facilities management is a type of outsourced service in that it is the contracting out of all activities connected with the organization and control of a facility such as catering or security.

According to Ronald Coase (1937) there are a number of transactional costs to using the marked. From his perspective, there are additional costs than only the price of the goods or services. Hence, in case of IS outsourcing the price is not only the cost by SLA contract but also the cost for searching for information, administration of SLA and keeping the right knowledge in the IT department. Hence, organizational change and the new roles for IT personnel should be adapted to saving certain marketing cost.

IS outsourcing is a term that encompasses a variety of approaches for IT services. The IS outsourcing has an impact on change in management process of the IT organization. Loh and Venkatranam (1992) define IS outsourcing as the process of turning over part or all of an organization's IS functions to external service provider. Others define outsourcing as a company that contracts another company to provide services that might otherwise be performed in-house by the employees.

Willcocks and Fitzgerald (1994) define outsourcing where 80% or more of the budget is spent on outsourcing, while selective outsourcing is defined to less than 80% of money spent on outsourcing. Some claim that the selective outsourcing is more successful than total outsourcing.

The outsourcing topics that are widely studied can be classified into (Gonzales et al, 2006):

- Outsourcing from the perspective of the client
- Outsourcing from the perspective of the service provider
- Outsourcing from the perspective of the relationship
- Outsourcing from the perspective of the economy
- Others (also from the perspective of IT personnel such as role change)

2.2 The drivers for IS outsourcing

According to studies in 'Outsourcing Center's Best Practices Series' (Outsourcing Center Market Survey, 2010), the key drivers to successful outsourcing are:

- Achieving the projected cost reduction;

- Delivering best-in- Achieving the SLAs and KPIs;

- Decreasing cycle times and time to market;

- Achieving initial and continual process improvements;

- Achieving successful implementation;

- Achieving increased business agility;

- Increasing innovation; Working together seamlessly despite ongoing change;

- Achieving approved customer satisfaction.

Viewed from outsourcing partner's perspective IT Service outsourcing can be considered as successful if IT Service is delivered according to client's expectations. In practice, this means that quality of service is satisfied according to predefined Service Level Agreements (SLAs), which are measured by Key Performance Indicators (KPIs The outsourcing engagement results in increased profitability for both the client and the outsourcing partner, while keeping the risks at expected levels.

Outsourcing has been applied in sectors such as manufacturing, cleaning, security, catering, transportation, maintenance engineering, finance and accounting, personnel administration, travel services, and information and communication technology (ICT). During the last decade, the emphasis shifted towards the ICT sector, with 40% of all outsourcing contracts in 1998 (Elmuti et al., 1998).Gartner (2006) has estimated that IS outsourcing is a global industry with an annual value of approximately $233 billion and has an annual growth rate at 8%. The trend today is that outsourcing includes larger companies, a greater range of service, service providers who are accepting management responsibilities and risks, and the changing nature of relationship with the service provider (Yang and Huang, 2000).

According to Antoucci et al. (1998), outsourcing of IT functions provides the organization the ability to focus on core competency, access state-of-the-art technology,

increase flexibility for the organization and cost saving aspects.

Information technology outsourcing has been an increasingly important phenomenon in recent times. IT outsourcing refers to the use of a third party vendor to provide IT services that were previously provided internally. With an increase in offshore outsourcing and the emergence of cloud computing, IT out-sourcing is gaining even stronger momentum. Gartner's forecast shows that global spending for IT outsourcing services reached U.S. $314.7 billion in 2011, and will increase with a 4.4 percent compound annual growth rate through 2015 (Gartner 2011).

According to a report by Global Industry Analysts (2011), the size of the global business process outsourcing (BPO) market will reach U.S. $280.7 billion by 2017. According to Information Week (Vallis and Murphy 2008), on average, U.S.firms spend about 14 percent of their IT budget on IT out-sourcing. One of the main reasons for IT outsourcing is the potential for cost reduction due to vendors' production cost advantage. Indeed, a survey by ITtoolbox (2004) found that the top reason for firms' IT outsourcing is cost savings (37.9 percent of total responses). Similarly, according to AMR Research, more than 70 percent of the respondents mentioned reducing operating costs as a key driver behind outsourcing (Fersht and Stiffler 2009).

One reason for outsourcing that actually is unrelated to cost aspects is outsourcing cause of political reasons. An organization may outsource purely with the aim of reducing the IT department (Lacity and Hirschheim, 1993). Hence, the organizations in-house capability will be reduced. Organizations are outsourcing troublesome IT functions that are difficult to assets (Lacity and Willcocks, 2000).

IT is known to have a short life cycle. For average IT technology the life cycle is around 2 years or less. It is difficult for an average IT user to keep up with the changes in technology. Hence, it is important that the IT department can have the necessary up-to- date IT technical knowledge available. The argument that IT has a short life cycle can be an incentive for contracting out because of the difficulty for smaller IT departments to retain enough IT knowledge in the organization.

2.3 Negative aspects of outsourcing

Outsourcing also have a negative impact in the organization. It has left some people unhappy, jobless and loss trust on the organizations or company who practice outsourcing and many feel that long term outsourcing will harm or affect the national Economy and Workforce. Especially those in customer service or technical fields, it reduces employment opportunity and people will experience financial problems which they will need to limit their money on spending on their needs and this will hurt the economy of the certain country because it will lower the quality life of its citizens. There will be loss of direct control by the company over the management, the quality problems because American workers outrank overseas workers in terms of the size and availability of the labor force, education level, relevant experience, language skulls and turnover rate, some customers have problems understanding the accent of some agents, the problems above usually lead to unhappy customers, employees and unions.

Negative outcomes of outsourcing are: increased cost, the introduction of complexity cause of vendor underperformance, loss of control, intellectual property loss and knowledge loss. While, international outsourcing (off shoring) can encounter problems like cultural, political and legal differences (geopolitical uncertainties), and could be perceived as more risky (Geishecker, 2008). Earl (1996) found that IT outsourcing brings risk like lack of competence of IT staff, loss of control, lack of organizational learning, loss of innovative capability, and the lack of divisibility of IT.
Some researchers even found in their study that nearly 70% of all outsourcing deals fail to meet at least some of their targets, while nearly 20% completely miss their objectives (Krishnamurthy et al, 2009). Although it is difficult to generalize the successfulness of the outsourcing tasks in exact percentage numbers, the findings of Krishnamurthy et al (2009) gives us an indication that outsourcing projects are complex and can have high failure rates.

Some argue that outsourcing organizations have to compromise operational flexibility and innovation. Innovation is the factor that SP fails to deliver to the organization (Fawthorp, 2004). Lack of innovative capability can hinder business organizations to change to market demands.

One major risk of IS outsourcing is the loss of vital know-how with respect to core competence in the organization. It is of the organization's interest to retain the

company's competitive core competence in order to have the ability to compete in the fast moving and unpredictable market. Reve (1990) argues that not only core competences but also special skills should be kept in house and not vanish because of outsourcing.

Khalfan (2004) identifies several factors that are risk issues in IS outsourcing:

- Security Issue (data confidentiality)
- Hidden cost (Unspecified in contract)
- Loss of flexibility and control
- Lack of prior outsourcing experience
- Ability to operate or manage new systems

Table 2.1 explains advantages and risks with IS outsourcing according to Harris et al (1998). These are the factors that can have impact on IT personnel's new role.

Advantages	Risks
Cost reduction	Long-term contract inflexibility
Access to leading technology	Being tied to updated technologies
Reduction of headcounter/employees	Reduction in in-house IS expertise
Reduction in IS department's power	Lack of supplier responsiveness
Firm focuses on the key skills it does best	Loss of control over IS decisions
	Poorly managed outsourcing contracts

Table 2.1: Overview over advantages and risks with outsourcing (Harris et al, 1998).

2.4 Organizational change and outsourcing

In organization limited attention has been paid to the human resource aspects of outsourcing and the impacts on employees (Benson, 1998; Khosrowpour & Subramanian, 1996; Logan et al 2004). Outsourcing can have a range of effects on individual employees who are directly involved in it. First, outsourcing is readily perceived as a breach of the psychological contract with the original employer (Coyle Shapiro & Kessler, 2002) and can therefore lead to a drop in morale. Second, it evokes job insecurity and concern about a deterioration of working conditions (e.g. relating to place of work, duration of commuting etc.). Although these aspects may be covered in

the outsourcing contract, it also happens that not all employees are hired by the new employer or remain on the pay role for a longer time (Due, 1992) which leaves tangible risks for some employees. Third, employees may consider outsourcing plans "as an underestimation of their talents and credibility", which may lead valuable staff to quit l aspect change and outsourcing More than ever there is As a result it is needed for the organization to be responsive and change in order to remain competitive (Covaleski et al, 2003). Outsourcing can change the way IT departments work. For organization with stakeholders depending on IT functions, the changes in IT personnel's role can have an impact on end-users and other employees in the organization. Hence, the issues that this paper addresses can also be considered as a study in organizational change.

In the case of outsourcing of IT functions, IT departments change from being suppliers of their own services to assuming the function of controlling and administration of the SP. The importance of key IT personnel's involvement in outsourcing decisions has been stressed by Guphta and Guphta (1992). IT personnel in general are more prompt to follow their IT managers than the CEO of the firm (Kiely, 1992).

2.5 IT personnel and role change

Outsourcing of IT functions in an organization can have impacts on IT personnel's working roles and create new responsibility, and hence affect the way IT personnel's work (Martinsons and Cheung, 2001 and Menard-Watt, 1993). However, other researchers claim that IT personnel are unenthusiastic about new technology and hence have a resistance to changes in this field. A study by (Rose, 1995) supported this findings for IS managers in IS development groups. Hence, IT managers like to stick to the old way of doing things.

Gupta et al (1992) found that IT personnel support end-users often experience role conflict and role ambiguity after outsourcing. While Martinsons (1993) claims that outsourcing changes the role of IT personnel from performing IS activity to monitoring subcontracted work, and senior IT personnel spending more time negotiating contractual issues rather than managing their projects and personnel.

Geishecker (2008) found a correlation between outsourcing and individual's risk of leaving the organization (leaving employment) due to role change. Outsourcing can

pose a potential threat to IT personnel's jobs (Martinsons, 2001). Hence, IS represents a major technological shift that leads to the devaluation of IT personnel capital in an organization.

2.6 IT personnel and knowledge change

IT capability means an organizations capability to modernize and deploy IT resources in combination with other complementary resources. It's the organizations capability to combine IT resources with business knowledge and competence to realize business value for the organization.

In order to create sustainable innovation in the organization, an organization must be able to incorporate IT knowledge with the firm's business knowledge. Hence, according to Agarwal and Sambamurthy (2002), the most important objective for the IT department is to construct a partnership with business users in the organization. It is important for the organization that there is a connection of knowledge sharing between IT personnel and end users.

Willcocks et al (2004) address the negative impact IS outsourcing has on an organization's know-how. Therefore organizational managers should emphasize on keeping key know-how in the organization after outsourcing. While Jae-nam (2001) opposes this view by claiming that IS outsourcing can be a mechanism to integrate IS vendor's knowledge to the organization.

2.7 IT personnel and SLA

A service-level agreement (SLA) is a part of a service contract where a service is formally defined. Particular aspects of the service - scope, quality, responsibilities - are agreed between the service provider and the service user. A common feature of an SLA is a contracted delivery time (of the service or performance). Goo and Huang (2008) define SLA as a formal written agreement, often developed jointly by service recipient SR and service provider SP that specifies products or services to be provided at a certain level in an outsourcing agreement. The quality of the SLA contract can have an impact on the success to IS outsourcing (Mingay and Govekar, 2002). The study from Goo and Huang (2008) finds that the characteristics of the SLA are significantly related to trust between SR and SP. However, there is a risk that organizations can be too dependent on the service provider.

There are two forms for inter organizational governance, the formal and the relational control. Organizations use SLA as a formal control between service provider SP and service recipient SR. Researchers observed an increasing range of outsourcing activities that are organized through complex contracts (Goo and Huang, 2008). Willcoks et al (1995) address the importance of accurately measuring the vendor's performance before and after the SLA contract is signed. Outsourcing creates new roles for IT personnel and makes them responsible for monitoring the SP's work. This demands knowledge on contractual issues in SLA, and increases cooperation with external service partners.

2.8 IT personnel's attitude and effectiveness

Employees experiencing a positive attitude and collaborative effort can increase the organization's effectiveness (Ostroff, 1992). From an organizational effectiveness point of view, Organ (1977) claims that employees that feel grateful to the organization, will have job satisfaction and hence increase effectiveness. Others like Harter et al (2002) studied the relationship between employee satisfaction and turnover. Hence, it is natural to assume that IT personnel's job satisfaction after the IS outsourcing could have positive correlation with their effectiveness.

2.9 Summary of the literature review

The focus of this paper is to study the role change for IT personnel in an outsourcing context. Organizations use IT outsourcing as a strategic incentive to reach organizational objectives. The gain of successful IT outsourcing can be reduced IT staff and hence cost reduction for the organization. However, studies have indicated a high failure rate in outsourcing. The indicators used to monitor these aspects are reduced IT knowledge, loss of control over IT functions and too much dependence on the SP. One important role change in IT is related to the monitoring and administration of the SP work. Others relate the role change with dismissing IT knowledge in the organization. Hence, based on the literature review three key terms are presented for further research as bellow:

- Roles and responsibilities

- Job training & knowledge

- Relationship with service provider SP

CHAPTER 3 RESEARCH METHODOLOGY

3.1 Introduction

The BRTA IS was chosen as a case example for this study of IT personnel's role change due to outsourcing of IS functions. BRTA IS has its main roles in BRTA regarding the Collection of all the   fees (e.g. Motor vehicle registration fees, route permit fee, licensing fees ownership transfer fees etc), issuance of driving license, fitness certificates, registration certificates and driving Instructor's license etc collection of MV Tax. All these functions are true online. The database is centrally maintained through central database server. The central database is accessible by the entire network by Wide Area Network (WAN). Virtual Private Network (VPN) is used to ensure the data security. The BRTA IS facilitates the demand of the citizens with need-based, client oriented, hassle-free, cost-effective, timely services from the authority. The system is now fully automated. Some examples may be that, there are no chances of duplication of any transaction or registration ownership is almost impossible. The IS is integrated with the import authorities to ensure the harmonized duty/tax collection to the National Board of Revenue (NBR). The total IS is maintained by outsourced organization.

When the BRTA-IS was not implemented, the activities mentioned above were carried out with traditional paper based services. As there was no central data base to cross check the information. The work wok process was slow and hassles were almost in the entire step to deliver any service. Chances were there for falsification of statement of information and hence possibilities or duty/tax waiver in illegal manner, so a huge loss in revenue collection and so on.

The authority implemented the true online BRTA-IS by the out sourced manpower to maintain and support the operational activities. The existing manpower, who were independently delivering the services are now fully depended in their operations over the outsourced manpower. The study will analyze the different perspective of impacts in the existing context of the operations in BRTA.

Currently BRTA has head office, 60 circle offices and 5 regional/divisional offices throughout the country. The overall resources, activities, operations management and specially the information management are becoming huge, more complicated day by

day due to rapid growth of vehicles and drivers in Bangladesh. Therefore, the era of Information and Communication Technology (ICT) has been adopted to manage this huge resources and activities efficiently and effectively for achieving the organizational goal. Being the only authority and public service provider in the country its IT function has a very vital role regarding data processing effectiveness and efficiency with its data security. BRTA has a small IT division which is not enough to handle the BRTA Hence, IS outsourcing can have a severe impact for a large group of IT personnel in The BRTA. Another factor for studying this case is that the result of the IS outsourcing was perceived as a failure with high cost overrun, lack of risk analysis, problems with SLA and the introduction of more complexity and inertia in the organization outsourced. In addition, the possibility of large research samples will ease the data collection process.

Based on our literature review we propose 3 key terms (appendix A) for further research . Our aim is that the case study of The BRTA IS will provide us with research data to further understand this research area. The first key term to investigate is the role change for IT personnel. According to Martinsons and Cheung (2004), outsourcing has an impact on IT personnel's role and responsibility change. Hence, we want to find out the new roles and responsibilities of IT personnel).

The second key term is job training and knowledge. The aim is to find out if job training is provided for IT personnel and IT personnel's perception on knowledge issues. The third key term addresses the new relationship IT personnel have to the SP. IT personnel spend more time on monitoring and administrating the SP work after IT outsourcing. Hence, we want to find out more about the new relationship IT personnel have with the SP.

3.2 Research methodology

The dissertation's approach is based on an explorative inductive process (Backman, 1998). From research literature a framework of three key terms was investigated. Our aim in investigating the role change for IT personnel is based on answering question like 'how'. The research is based on a qualitative approach (case interview) because this can give us understanding of the respondent's opinion about the role change issue. A qualitative approach can give us in-depth understanding of the respondents motivation in their natural environment over the issue.

A case study analyses the topic in its natural environment, and data is obtained by direct observation, interviews, document analysis etc. The case approach refers to an in-depth study of a contemporary topic using multiple sources of evidence within the real life context (Yin, 1994). The main idea in this research lies in theory development, and a case study is viable for adding deeps and knowledge to our understanding of the research questionnaire and key terms (Appendix A).

However, there are some limitations with case study approach. These can be lack of control over individual variables, location causality, and generalization based on a case study (Yin, 1981).

Reasons for using case data can be elaborated in (Yin, 1981):
- Limited prior knowledge in these field (Gonzales et al, 2006 and Martinsons, 2001)
- Inadequate extant theory
- Complex explored phenomena

Hence, we chose case study approach because we could focus on the topic, and accommodate several data gathering techniques. According to Guba (1981) and Yin (2004) this approach, together with other data gatherings methods like questionnaires, interviews and documentary analysis, can give us higher data validity. Hence, a triangulation process by using multiple data sources can be more convincing and accurate (Yin, 1994).

3.3 Data Collection

The collection of research data is from key informants, and is based on a set of personnel working at IT functions to provide us with information on the case study (Ventkatraman, 1989). Main data was collected through in-depth face-to-face interviews and unstructured phone interviews of 3 departments through which BRTA is operated. The unstructured phone interviews were performed to add more information to the research. In addition second hand data was collected through documentation and web sites.

Face-to-face interviews were taped in the beginning of the process. However, as we saw that this hindered the respondents to express their view freely, the method was

abandoned.

Data was collected through interviews with IT personnel from different departments of BRTA . However, we limited the interviews with units in BRTA where the different services are being delivered through BRTA IS.

Data collection can be divided into two phases; phase one consisting of the interview, and phase two consisting of following up with a protocol which was written after every interviews.

3.4 Interviews

The research method is based on semi-structured interviews which require that the respondents have some concepts and themes over role-change issues in BRTA. The unstructured interviews were used limited here as we want the respondent to relate to the key terms we found from the literature research.

The qualitative analysis was based on in-deep interviews and unstructured phone Interviews with 3 departments of BRTA. And the in-deep interview lasted for 1-2 hour for each department which consisted of 1-2 personnel.

An interview questionnaire based on literature findings was designed and served as interview guide (Appendix A).

Although interview is a common data collection technique, it has limitations. We have to assure that the respondents fully understand the research topic, and that the interview order and place may not represent a bias to the result.

3.5 Data analysis

The analysis of case data is based on literature review and key terms stated in chapter 2. Although generalization based on a case study has limitations in scientific generalization, Yin (1994) opposes this view by stating that it has value for researcher whose aim is to expand and generalize theories. The data are gathered in the data matrix (Appendix C) and findings are drawn out of this data matrix for further

discussions. The findings and results from the interview process were presented in chapter 5.

We could have determined how strong the responses were if the answers had been quantified. However, since the dissertations aim is to have an in-depth understanding of the theory based on a qualitative approach, we will not quantify the answers. However, in order to retain a high quality of data gathered, only answers that represent 2 or more departments (at least two interviews) will be presented.

To increase the validity and reliability, the paper will follow the same procedure across all cases, including preparation of interview and semi-structured questionnaires, data collection and analysis (Yin, 1984).

3.6 Ethical considerations

The dissertation also to ensure that the research was conducted ethically. This paper followed practices to ensure good ethical conducts, hence avoid unethical behavior. Unethical behavior can be understood by consciously doing something one knows, or society says should not be done like deception, lying, falsification, distortion and withholding information.

This study involved research participants from BRTA. And the paper followed these procedures to ensure good ethical conduct:

• Voluntary participants: The informants are chosen on a voluntary basis consisting of IT personnel from The BRTA.
• Informants consent: The objectives of the research are explained to the participants, their role and the risk involved are clearly informed in advance. The information is given both written and in oral at the interview site.
• Avoidance of harm: There should be no risk of physical or psychological harm for research participants. An evaluation of potential ethical risks for the respondent are conducted in advance of the research.
• Confidentiality and anonymity: This research will take action to provide participants with necessary confidentiality and anonymity.

CHAPTER 4 THE CASE

4.1 The BRTA-IS

Bangladesh Road Transport Authority (BRTA) under the Roads Division **of** the Ministry of Road Transport and Bridges is only regulatory body of Government of peoples republic of Bangladesh in Bangladesh in Road transport sector. Road Transport Authority (BRTA) is responsible for registration of Motor vehicles, Issuance of Fitness Certificates, Issuance of Route permit of commercial vehicles etc. BRTA have been maintaining an information system called BRTA - Information System (BRTA-IS) for those activities since 1994. ERTA-IS is the heart of the enterprise solution used by BRTA to work on the regulations and issue various registrations, permits, certificates and licenses under Motor Vehicle Ordinance

Currently BRTA. has head office in Dhaka, 60 circle/field offices and 5 regional/divisional offices throughout the country. BRTA has been maintaining a centralized true online database of registered motor vehicles and Motor driving Hence since 2011. Presently following 04 (four) contracts are running at BRTA in IT sector:

- Existing BRTA-IS maintenance and up gradation;

- Motor Vehicle Tax & fees revenue collection through online banking system;

- Supply of Smart Card Driving License;

- Supply of Retro-reflective vehicle registration plate;

The above four services are outsourced from the following SP:

- Computer Network Systems Limited(CNS)

- TigerIt Bangladesh Limited.

- Bangladesh Machine Tools Factory ltd.

Though the different SP are there, they all are sharing same IS (database) to render different services to the end users. The contract for maintenance and up gradation of IS is with CNS.

4.2 The outsourcing history

The IT services were first outsources 1994. The business case was to render the services to the end user by online system instead of paper based manual system. Before that all the services e.g. RC, DL, FC etc were issued manually. The fee collection all are done manually. After that the IT services was outsourced to different SPs till 2000 All the operations were done through local network system using LAN. Different circle offices used their own IS using the LAN. The problem was huge regarding the duplication of the information. For example, it was not possible to find whether same vehicle was registered in different IS of different circle office. Also is was not possible to check whether the services were render with proper government fees(revenue). This sort of critical issue created a business need of centralized and true online IS

In 2011 the IS was outsourced from CNS . The contract was first made for 2 years onward. After that the IS was outsourced again from CNS which is currently in operation.

Total no of PC/ Workstation	Around 250 PC/Workstation
Total no of Printers	Around 20 HP LaserJet & Around 150 Epson Dot Matrix
Total no of LAN (Router- Switch)	Local Area Network (Router/Switch) at 70-75 offices
Network Setup (WAN/Intranet)	Wide Area Network (WAN/Intranet) connection through GPRS Internet Modem with 64 districts with 70-75 locations using servers, Cisco Routers etc.
Database System	VDIS, HRIS & CSI, Fitness picture application software modules have been developed with Oracle 11g database and run under Linux enterprise O/S environment /Windows 2000 Server/windows XP.
Internet/Intranet	Two web-based intranet server run to inter-connect with HQ
The system	Three-tier system architecture that have hardware and software security, routine back-up system and run 24/7 to serve users.

Fig: 4.1 Hardware used in BRTA-IS

4.3 The IT Division of BRTA after outsourcing

BRTA being a regulatory an enforcing authority, they are mainly rendering services to the public and now after outsourcing its IT department is now small. The roles and responsibilities for IT personnel are divided into three functions. IT management is responsible for technology and organizational aspects. Business management is responsible for business related IT aspects. IT operations are responsible for operational IT functions. New job task related to IT strategic issue and contract related activities are now authorized to Department of Engineering.

Table 4.2 shows the IT functions in The BRTA IS according to whether they have been outsourced or provided in-house. End-user support is provided by IT personnel in-house, if the problem is not resolved it is forwarded to SP and the operations. The same goes for the day-to-day monitoring of the SP work. After IS outsourcing the contract management were centralized to Department of Engineering, while the day-to-day monitoring of SP work was provided in-house in the organizations. Data centre and mainframe management, system design and integration; and application development and support were outsourced to external SP.

Areas	After outsourcing IS
Data centre and mainframe management	Outsourced
System design and integration	Outsourced
Application development and support	Outsourced
Project management	Outsourced
Telecommunications/communications networks	In House
Technical and user support	In House
IT/IS strategy	In House
Contract monitoring (day-to-day)	In House
Contract management	In House

Table 4.2: Present Scenario of BRTA IS in different areas regarding outsourcing/in-house.

The BRTA signed contracts with 3 service providers for IT functions that were

outsourced. Hence, three external companies were responsible for delivering the outsourced IT functions to the organization.

CNS Limited is responsible for providing servers and network functionality. The data security also their part of scope. In addition the company has the overall responsibility for the maintenance and upgradation works of BRTA-IS. According to the SLA agreement the maintenance responsibility of all the hardware is on CNS.

Department of Engineering (central unit inside BRTA) is responsible for centralized IT functions like IT procurement and SLA contract administration.

CHAPTER 5 RESEARCH FINDINGS & RESULTS

5.1. Introduction

In this chapter we present the interview answers from the case study at BRTA. The answers were extracted from table in appendix C which is based on semi-structured interviews and unstructured phone interviews of 3 departments in BRTA. The findings present answers from one or many respondents from the interview process and do not represent a statistical average answer from the respondents sample. The findings can give us in-depth understanding about the Impacts on the personnel of IT functions in case of outsourcing.

The table under presents the main findings based on the 3(three) chosen key terms in our research. The findings are supported by existing research literature, but there are distinctions which shall be discuss in chapter 6.

Key terms	Main findings
Roles and responsibilities (Chapter 5.2)	Outsourcing of IT functions has an impact on roles and responsibility change for IT personnel in the organization.
Job training & knowledge (Chapter 5.3)	The role change requires new job training and there are more demands for service oriented knowledge after outsourcing. Also demand for technical knowledge.
Relationship with service provider SP (Chapter 5.4)	New role for IT personnel is the monitoring and administration of the SP. However, SLA agreement has an important impact on the relationship IT personnel have with the SP. Trust issue between partners is important.

Table 5.1: Summary of the main findings from the case study

5.2. IT personnel: new roles and responsibilities

5.2.1. IT personnel role, working tasks:

The departments in BRTA have different impacts after outsourcing BRTA-IS functions to the SP. The respondents answered that they had a new role and working tasks after outsourcing. Formally they have got a new defined role by Engineering Department. The task for a the personnel working in the IT functions is less technical but more based on reporting to the Director of the Department of Engineering . In addition, they are responsible for monitoring the work of SP and Department of Engineering. The respondents claimed to experience role conflict due to unclear role definitions and little role information to end- users.

5.2.2. If you have got a new working task, how is it related to your knowledge?

Most respondents answered that they did not need more IT knowledge after outsourcing. As one respondent said; when we outsource this function, the IT knowledge needed to run that system is also outsourced. The new knowledge that they need after outsourcing is more service oriented knowledge because they have more interaction with SP than between Department of Engineering and end-users. However, some actually say they need more IT knowledge despite outsourcing and they explained this with the demand of keeping up with new IT trends in order to discuss IT strategy with their SP, and also to monitor their work.

5.2.3. How is your motivation for assigning new responsibility and working task

Respondents generally had the same motivation as before the outsourcing process. Some argued that it was due to age and gender factors. However, they do express empathy to IT personnel that might have a low motivation due to the outsourcing. They understand that ambitious IT personnel may have little to do in their new roles after outsourcing. Other factors that may enhance positive motivation is that Department of Engineering is doing whatever they can to improve routines and processes after the

outsourcing of IS functions. Many are very loyal to the system; they feel that they can't change what already decided by the authority.

5.2.4. *Please explain how is your motivation with regards to new responsibility and the power distribution of your new role?*

The respondents were very clear on that the power distribution after the outsourcing has changed. The ability of personnel working at IT functions to decide on IT issues for end-users has changed. They can't have the same impact as before; rather they have a role as coordinators to SP and Department of Engineering. Some found the situation frustrating because they sometimes only needed more administrative rights to solve problems for end-users. Instead they have to report to the IT support problem through the Engineering Department. However, some have actually reported satisfaction with having less power and argued that the small IT department can't handle more.

5.2.5. *Do you have more control and power over end-user now?*

The respondents agreed to have less power over end-user after the outsourcing. However, in order to provide for a better service, many of the respondents answered that they wanted more administrative-rights. With those right they could solve some IT tasks much quicker than the SP. One plausible explanation is that they could make the priorities themselves. It was also reported that SP handled routine tasks much quicker than no routine tasks. Some have also reported the necessity of Department of Engineering's role and that they should take more responsibility to resolve conflict-issues or bottleneck-issues.

5.3. Job training & knowledge

5.3.1. *Do you feel that you have the necessary skills to cope with the new environment?*

The respondents say that they have enough IT knowledge to handle the new routines. There is a shift from IT intensive knowledge to service oriented knowledge. SP have given courses to IT personnel, in addition, new routines are settled in the

organization. Demand for knowledge in IS modification/upgradation in order to understand SP. Have received web based, pc-based and multimedia training. Some have different job task after outsourcing and demands more specific job training. New routine has been developed on a trial and failure basis.

5.3.2. Do you think that the organization should emphasize on more job training programs for IT personnel? Please explain why.

The respondents answer that they understand the importance of both theoretical and practical IT knowledge in their new role. Important with job training for end users. More interaction with SP and end users requires knowledge in service oriented tasks. There are hidden roles and task that should be formalized and provide job training on. Generally we need more service oriented knowledge and less IT knowledge because of change in IT responsibility. However, some argues that they still need theoretical IT knowledge but less practical IT knowledge. Some say the training needs of technical vs. service is dependent on your role may have impact on training needs.

5.3.3. Is the new job training based on technological knowledge or more knowledge on service and interpersonal skills in the organization?

The respondents claimed that generally they need more service oriented knowledge and less IT knowledge because of change in IT responsibilities. However, some argued that they still needed theoretical IT knowledge but less practical IT knowledge. The theoretical knowledge is required because the IT department is still responsible for IT strategy, and in addition it is necessary knowledge in strategic discussions with the SP.

5.3.4. Is the new job training based on technological knowledge or more knowledge on service and interpersonal skills in the organization?

The respondents claimed that generally they need more service oriented knowledge and less IT knowledge because of change in IT responsibilities. However, some argued that they still needed theoretical IT knowledge but less practical IT knowledge. The theoretical knowledge is required because the IT department is still responsible for IT

strategy, and in addition it is necessary knowledge in strategic discussions with the SP.

5.4. Relationship with service provider SP

5.4.1. How is your experience with SP and BRTA after outsourcing?

Respondents claimed that the new role related to the SP is administration and monitoring of their work. The cooperation with SP is ok when it comes to routine tasks. However, when it comes to supporting non routine task, the procedure to report is very bureaucratic. In addition, the time it takes to solve non routine task is very long. Others have argued in the interview that SP lacks essential organizational knowledge in order to understand the organization's needs. The respondents claimed to see improvement of the SP's work after 2 years now.

5.4.2. Explain the communication with the IT department

The respondent say that the routine communication is via phone and email from operations. Exceptional they can use the phone or e-mail but this is not recommended for the critical or important issues.

5.4.3. Do you think that the SP's have enough knowledge to support your organization?

The SP now has the technical capability and capacity to support our organizations IS . But they don't know in organizational specific knowledge sometimes. Knows more about the organization after 2 years contractual agreement now. They standardize solutions. Only perform standard routines according to SLA. Some said that The BRTA IS is so different that a standardized solution doesn't fit all. The SP has little knowledge on organization's specific applications. The respondents also claimed that the personnel at the SP should know more about the organization they are serving. Some of the dissatisfaction lies in people at the SP not knowing what the case is about and hence forward the task to wrong personnel. Much of the role to IT personnel after outsourcing is to audit and follow up SP work through the SP. In many cases the SP had formally claimed to have solved the case where it actually had not.

5.4.4. Does the SP solve IT problems better than you before?

The respondent unanimously said that the SP did not solve the problem better than before the problem with SP is that the delivery is of poor quality, also the support time

is too long. One task has to go through many instances. The network after outsourcing is not more stable. Do not know local environment and needs. End users also said that the service is worse. Think that the decision to outsource is of political reasons and not economic. Few say it is ok. Anyway, we believe that the system will be better with time. Actually, the IT department of BRTA should take more responsibility to solve all these problems and challenge. The problem is that BRTA IT department has unclear ownership which results poor services from SP.

CHAPTER 6 DISCUSSION

The table under summarizes the main findings from our case study. And the discussion that follows is based among those points.

Literature Review	The research findings
Roles and responsibilities (Chapter 6.1)	Outsourcing of IT functions has impact on roles and responsibility change for IT personnel in an organization.
Job training & knowledge (Chapter 6.2)	The role changes require new job training and there are more demands for service oriented knowledge after outsourcing.
Relationship with service provider SP Chapter 6.3)	New roles for IT personnel are the monitoring and administration of the SP. However, SLA agreement has an important impact on the relationship IT personnel have with the SP.

Table 6.1: The research findings.

The objective of IT outsourcing should be aligned with the business objective of an organization. According to the respondents, the decision to outsource was based on a political diction and not based on business strategic issues supported by empiric data.

This incentive to outsource is supported by the findings of Lacity and Hirscheim (1993). The study of Dorsi (1998) also stated that IT outsourcing has been used increasingly in the public sector as instrument for changing the way public funded services are provided. However, the decision to outsource in the case of The BRTA IS contradicts common norms in outsourcing decisions like cost reduction and access to technology (Harris et al, 1998).

Abstractly, the role of IT is to enable the business to meet its goals. With outsourcing of IT functions new role are created for IT personnel. We have seen that the gain of

successful outsourcing cold be better cost control and lower TOC in delivering IT solutions to the organization. Critics argue that outsourcing of IT functions can cause role ambiguity for IT personnel (Gupta et al, 1992), the SP get more power and reduced innovative capability to the organization.

Competitive advantage is now linked to the organization's ability to rapidly deploy IT solutions, and to change those systems as the business involves. In outsourcing arrangements, SP and SR have to collaborate in order to be able to adapt faster to this demand. However, a system based on formal governance of SLA and little based on trust, will challenge and hinder fast adaptation of IT functions to business needs.

One key success factor in the outsourcing process is the involvement of key IT personnel (Guphta and Guphta, 1992) in the decision process. The respondents claimed that lack of involvement from Engineering Department has been a major problem in our case. Hence, the process of contracting outsourcing could be more successfully by involving key IT personnel more.

6.1. IT personnel: new roles and responsibilities

Outsourcing of IT functions in BRTA has an impact on role change and hence the type of knowledge required for IT personnel to the new role.

The departments in BRTA had an incremental change rather than a radical role change for IT personnel. And new role associated with monitoring and administrating the SP is one of the major role changes we observed. IT personnel role is still to support end-users, and they claim that with more administrative-rights, better services and priorities could be provided to the end-users. However, as SP is attached to existing SLA, their main strategy is to provide standardized support according to SLA agreement. Given administrative rights to IT personnel is therefore not easily done because the mandate to the SP is restricted by the SLA. Because IT personnel's role has been reduced to be a coordinator for SP and Department of Engineering, they have lost the power to influence on end-user in the same way as before. However, they expect

that SP actually performs their new duty to the same quality. Dissatisfaction occurs when life performance does not meet up to expectations.

Many IT personnel are positively motivated about their new role and have few or little resistance to change. We found in our study that IT personnel generally have high motivations in their new role. They seem to be loyal to the system. However, bureaucratic and ineffective work during outsourcing by Department of Engineering has been much criticized by the IT personnel in BRTA. The findings from our case contradicts Martinsons and Chong's (2001) findings of IT personnel negative minded to IT outsourcing arrangements.

Outsourcing of IT functions in BRTA has an impact on power distribution in the IT department; and has an impact on IT personnel's working roles. The study finds support that IT personnel lose power to decide on support issues for the end-users. There is a power shift from IT personnel to the SP on support issues.

What we found is that both IT personnel, BRTA and SP are eager to perform their responsibility to the uttermost quality. However, ineffective system solution on responsibility area can cause dissatisfaction among stakeholders and hence hinder delivery of a good service to end-users.

Outsourcing has profound impact on IT personnel's role change and their mentality (expectation, work attitudes). According to Martinsons and Chong (1999) IS outsourcing changes IT personnel's roles and responsibility from a techno-dominant mind to understanding of business needs and human factors. Although our research support this view, IT personnel in our case still have to balance between the new and the old role.

6.2. Job training & knowledge

The respondents claimed to have received very little job training in their new roles. More job training and relevant courses should be provided in order to perform better.

We found in the study a change in knowledge from technical knowledge to service oriented knowledge. However, it still requires that IT personnel have theoretical technical knowledge about IT functions in the organization. This is because IT personnel still are responsible for IT development and strategy in the organization. The demand for less technical knowledge can be to hinder ambitious IT personnel. Our findings imply that IT personnel have adequate knowledge to perform their new job tasks after IS outsourcing.

The organization should understand that management support in knowledge building is important for IT personnel performance. Therefore, emphasize on job training programs for IT personnel should be done. In addition, end-users must get adequate information about the new role to IT personnel. Role ambiguity is one of the challenges faced by end users over IT personnel.

Hence, we found support that IT personnel claimed that the organization does not value job training for IT personnel after outsourcing. There is a paradox when it comes to required knowledge for IT personnel. With outsourcing of IT functions, one may think that the knowledge to retain that function in the organization also will vanish. However, when the IT strategic responsibility still belongs to the IT department, technical knowledge is still required to IT personnel. Organizational leaders do not seem to understand this connection. Our findings support the view that outsourcing of IT function can alter the demand for a type of IT expertise in the organization. However we also find that the organizations still have to retain theoretical IT technical knowledge.

Our study found support that IT personnel have a more service oriented role after outsourcing, and hence needs service-oriented knowledge. The new role is also related to collaboration with external parties like the SP and Department of Engineering.

Training of end-users is important after outsourcing. Hence, adequate information security and IT user policy must be developed, implemented and communicated to the end-users. End-users may have internal resistance to change, and that must be dealt

with by the IT department.

However, the competitive advantage in terms of IT knowledge, expertise, and innovative capability will be made dependent on outside stakeholder which in this case is the SP. The aim of the organization by outsourcing may lead to reduction in the organizations abortive capacity.

6.3. Relationship with SP

We found in our study that the SP had enough technical knowledge to serve the organization. However, we found that they lacked organizational knowledge and the use of organizational specific applications. The respondents also claim that the changing nature of the operations can pose a challenge too. Lack of knowledge on functional changes can also pose a threat to good service delivery.

IT personnel in our research claimed unanimously that the SP doesn't solve IT function better than before. The explanation to this is not necessarily the poor quality of the service, but rather a question of bureaucracy and longer support time.

The SP aim is to deliver a service to good enough quality in order to develop a goodwill. However, in this case one might think that the poor communication relationship with the Department of Engineering and the rest of BRTA might hinder good feedback on SP work. In general it should be the interest of the SP to keep and earn the trust of the SR as this would be one of the key selection criteria for future contracts.

Another major challenge is the role of SP and the Department of Engineering is the SLA. Some argue that DE treats the organization like external organizations. Hence, they only received limited access to SLA. Hence, effective contract monitoring means holding SP responsible for both existing service contract, and develop performance standards for new services.

In the case study, Department of Engineering is responsible for the administrative and contractual part of the SLA. They are also responsible for monitoring the SLA delivery.

According to the respondents, high barrier of information exchange between DE and Operations, hinders effective monitoring of the SP delivery. The results are unclear invoice and cost that are not traceable for IT personnel. In addition, high information exchange barrier hinders both parts in acquiring business knowledge about each other. We found in our study that the main communication channel was through authorized personnel. We also found that lack of standard systems for all parts can be to hinder for better` cooperation between stakeholders. The formal communication channel was perceived to be very bureaucratic.

The organization should be able to accurately measure IS service performance before they sign the contract and throughout the process (Willcocks et al, 1995). The clue is to hold suppliers responsible and accountable for their services to the organization. Lacity and Hirscheim (1994) argue that one benefit of outsourcing is to get a clear picture of the cost. Hence, according to our finding with unclear invoices, the result for the organization was not as expected.

There are two options; one is to have a detailed SLA where all aspects of communication are governed by the contract. The other is to have a less defined SLA where relationship between SR and SP are governed by trust. However, a bureaucracy governed SLA rather a trust based approach can be unproductive. However, beyond contract a fair amount of trust is required to make this relationship work. However there is a paradox inherent in this statement because of the short-time relationship with SP in outsourcing today. The degree of relationship with the SP is governed by the type of contract (selective or extensive) and the length of the contract. The literature also emphasize the importance of choosing the right service provider. The issue is not only outsourcing, but right-sourcing.

A large number of SLA contracts are being renegotiated or terminated (Hischheim and Lacity, 2000). Ensuring good quality contract is therefore necessary to have a longer time span on SLA contract, and hence better predictability for IT personnel's work role. One way to achieve flexible SLA contracts is to shorten the contract period. One easy way to define short contract is the degree the contract time I related to the technology

life cycle time. The formalized SLA doesn't support the relationship with SP based on trust. And in addition, makes it less collaboration between SP and SR.

We experienced that formal SLA and proactive SP can hinder the innovation to the organization. Although SP have access to the newest technology, they do not understand the organizational business needs fully. And hence, hinders innovation. Kern and Willcocks (2000) stressed the importance of partnership relationship beyond the formal SLA in IT outsourcing. Besides contractual issue, there must be a social process of give- and-take. Also the buyer's vision and values must be shared with the vendor's organization.

According to Lacity and Willcocks (2001) one of the problems encountered with SLA contracts is the inability to adapt the SLA to changing business and technology needs of the organization. The respondents in our research claimed that it was an issue that the SLA contract was to hinder for changing business needs. Task not defined in the SLA was very difficult to solve for the organization in BRTA.

Some argues that capable organizational culture between SP and SR could create better understand and knowledge exchange and enhance innovation. In our case it was an agreement between a public organization (SR) and private (SP) organization.

The advantages of using three vendors imply access to a diverse range of knowledge. However, many SP man cause difficulty in communication and knowledge sharing. Hence, the new arrangement doesn't promote innovation.

CHAPTER 7 EVALUATIONS

The objective of this chapter is to give an evaluation of the aim and objectives of this dissertation. Table 7.1 describes this dissertations aims and objectives, and the result.

Aims and objectives	Research results
Aim: Investigate the impact of IT outsourcing on IT personnel's role change	Conducted successfully based on three chosen key terms. However the scope could be changed to fit better.
Objective 1: Conduct a literature review	Conducted literature review with limited research literature in this area. Could be more critical.
Objective 2: Present the case study	A case of BRTA IS was presented.
Objective 3: Conduct interview and data analysis	Interview with three departments in BRTA IS were conducted.
Objective 4: Have a discussion and present the findings	Discussion and findings presented in chapter 6 and 8.

Table 7.1: Overview over aims & objective for the research.

The aim of the dissertation is to research on the role change for IT personnel after outsourcing. Although this is a topic with much interest in the IT/IS and HR field, it has been an area with little research. Hence, it has been hard to find relevant prior literature in this field.

Objective 1: was to conduct a literature research of the field. We found most literature from the perspective of the organization or the SP, but little about IT personnel's perspective. However, the dissertation could improve by linking the role change to organizational change, impact on the innovative capability of the firm and more.

Objective 2: A case study of BRTA IS was presented. Reasons for this choice is that the case could give us valuable information over the field studied because of its size and the nature of the IT outsourcing, and also impact on over the personnel working in the IT functions of BRTA. However, since this is a study of a case that has proved to be a failure in the public eye, we could progress by studying a successful case parallel.

Objective 3: Interview was conducted with 3 departments in BRTA. A combination with other data gatherings methods like questionnaires could improve our work and give us statistic data over the topic (Guba, 1981).

Objective 4: The discussion was based on literature found, key term presented and data found in the case. The assessment could improve by a more critical and a more balanced approach.

CHAPTER 8 SUMMARY, RECOMMENDATION AND CONCLUSION

8.1. Lessons learned from the case in BRTA-IS

Understanding the new role of IT personnel makes us perform better within risk mitigation also more importantly perform better in reward enhancement for IT personnel in the organization.

There are several lessons that we can extract from our case findings:

1. Our findings from this research illustrate many of the issues found in literature. The IT role change should be taken seriously by the IT personnel in the organization. The organization should provide for job training and information given to all employees in the organization.

2. Prior literature has focused on the change of knowledge from a technical aspect to a service oriented aspect. However, our research findings challenge the generalization of this claim. IT personnel also need to have theoretical knowledge and at the same time practical knowledge.

3. The new role of IT personnel should be informed to end-users in a better way. This is important to avoid wrong role expectation and role ambiguity.

4. IT personnel's new role and performance is dependent on SP's performance. Hence, the internal departments should change strategy and involve and include IT personnel more in SLA work.

5. Organization managers should emphasize more on job training for IT personnel. The HR department should emphasize on IT staff in order to build up their capacity, by training and so on and sustain the innovative capability to the IT department.

8.2. Implication for practitioners

Findings from the dissertation can help organizational manager specially in public sector to understand better the new role for IT personnel. Organizational manager should understand the importance of job training for IT personnel in their new role. Hence, offer job training incentives for all IT personnel involved in outsourcing. To avoid role ambiguity, information about the new role should be informed to all stakeholders, also end-users.

Not all IS outsourcing issues can be resolved in the SLA. Trust between SP and SR is another important issue to consider. Organizational manager should arrange for better collaboration and trust between partners.

8.3. Future research

Many issues are likely to become important in the future for manager and academics. Future research could investigate the relationship of IS outsourcing and innovative capability of the organization. Since we in this research found out that IT knowledge is being transferred from the organization to external entities such as the SP, we claim that the organizations innovative capability is reduced. Finding and mitigate the innovative capability leakages is of interest for researcher and practitioners. More research on tangible and intangible benefit of an organization by IT role change is needed.

8.4. Limitations

There are several limitations to this paper. One, we used only one or two informants from each departments to answer our questions. Second, demographic factors such as age can have impact for the result and our generalization of the findings.

The IT function of BRTA has been undergoing a project with the foreign aided project to reform the IS regarding the integration of all the activities with a title of "Digital-BRTA". Due to this ongoing project, the roles and responsibilities of IT personnel are also to be redefined. Which was not taken into account in this research.

However our research was based on a qualitative approach and gave us in-deep knowledge of the role change for IT personnel. It answers how-questions. However, the study could improve by adding a quantitative approach. Only interview were performed in this case study of BRTA. However, we think that the data quality would have been improved if we had combine interview with other data gathering methods.

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APPENDIX A: TABLE OF RESEARCH QUESTION, KEY TERMS AND QUESTIONS

Research Question	What is the impact of outsourcing on IT personnel?
Literature findings	1. Outsourcing of IT function have impact on IT personnel's responsibility and work tasks, and hence attitude. 2. Outsourcing of IT function has impact on IT personnel's job training need. 3. Outsourcing of IT function has impact on IT personnel's relationship with service providers SP.
Key terms	1. New task and responsibilities 2. Job training 3. Relationship with SP
Questionnaires	1. New task and responsibilities 1.1. What do you feel about new role or working task after outsourcing, and your meaning of role conflict/ambiguity. 1.2. If you have got a new working task, how is it related to your knowledge? 1.3. How is your motivation for assigning new responsibility and working task? If it is negative, please explain why. 1.4. Please explain how you feel with regards to new responsibility and the power distribution of your new role? 1.5. Do you have more control and power over end-user now? How is the optimal solution of power distribution in order to support end-user effectively.

	2. Job training 2.1. Do you feel that you have the necessary skills to cope with the new environment? 2.2. How is your experience of job training after outsourcing? 2.3. Do you think that the organization should emphasize on more job training programs for IT personnel? Please explain why. 2.4. Is the new job training based on technological knowledge or more knowledge on service and interpersonal skills in the organization? Please explain.
	3. Relationship with service provider SP 3.1. How is your experience with the new partners after outsourcing? 3.2. Explain the communication between IT departments. 3.3. Explain you perception on SP knowledge of your organization and its ability to solve problems for end-user.

Appendix B: Abbreviations

BRTA	Bangladesh Road Transport Authority
CNS	Computer Network Systems Ltd
IS	Information System
RC	Registration certificate
FC	Fitness certificate,
DL	Driving license
IT	Information Technology
RQ	Research Question
SLA	Service Level Agreement
SP	Service Provider
SR	Service Recipients
TCO	Total Cost of Ownership
DE	Department of Engineering

Appendix C: Interview and answers

Questions	Respondent A	Respondent B	Respondent C	Key points
1. Role and responsibility				
1.What do you feel about new role and working task after outsourcing?	No big changes after outsourcing. I have to report take feedback from operations and monitor their work. I find this bureaucratic. Role conflict where the expectation of SP and end users conflict to my new role.	I have more responsibilities now. I have got some new work and tasks. More support of end users and follow up circle offices. I experience role ambiguity because it is expected more from me than defined in the new role.	I have new role after . More coordination and follow up task with circle offices. Have to follow up people that have got new role also.	• New role and task after outsourcing • Less technical task and more support to circle offices. More cooperation with SP • More monitoring of SP's work and follow up problems.

Questions	Respondent A	Respondent B	Respondent C	Key points
2. If you have got a new working task, how is it related to your knowledge?	Need more knowledge to coupe up the design and structures of the IS. Though the SPs has the full responsibilities for the IS. So need further knowledge in IT to handle the new role.	No need of new knowledge. Prior knowledge is still be used on new role.	Have enough knowledge. Don't need more knowledge to handle service oriented tasks.	• No need for further IT knowledge in the new role. • More interaction and cooperation with SP. • More service oriented knowledge. • But some actually say they need more IT knowledge despite outsourcing.
3. How is your motivation for assigning new responsibility and working task?	I am not motivated by the situation.	I find this OK, things seems to be the same.	It is OK. I can understand that other have lower motivation.	• Generally the same motivation as before. • Can't change what have been decided. • Understand that other might have low motivation.

Questions	Respondent A	Respondent B	Respondent C	Key points
4. Please explain how do you feel with regards to new responsibility and the power distribution of your new role?	The power distribution has been changed. The rigidity of IT support is defined by SLA. Innovation stagnation is the result.	Yes there is a change in power distribution. Now only a role of a coordinator. More dependent on SP.	Yes absolutely changed. I have no power anymore. Could decide on more earlier, but now we have to rely on the SP. However, can still decide on organizational -specific systems. Not on IS system any more.	• The power distribution has change after outsourcing. IT personnel have little possibility to decide and help end users. • Have reduced the role of IT Personnel to administrate. • Centralized IT function with standard contract that inhibits IT personnel power to decide. • However, some actually like the situation and claims that they do not need more.

Questions	Respondent A	Respondent B	Respondent C	Key points
5. Do you have more control and power over end-user now?	Power of the SP is critical and their perception of what is implemented. I want more administration rights of IS in order to solve simple IT problems quicker. Routine task is solved quickly while non-routine task takes long time.	Administrator rights could help on service time. If have more power, can help end-user quicker. You cant decide on the priority to SP. SP take s long time to solve.	Have less power now. Problem with today's routines.	• Agree to have less power over end-user. • To solve this, many agrees on having more administrator for quicker service to end users. • Inertia in SP, routine task quicker than non routines. • SP decide on defining importance of IT problems
Job training				

Questions	Respondent A	Respondent B	Respondent C	Key points
2.1 Do you feel that you have the necessary skills to cope with the new environment?	Yes I have. Generally I need knowledge in IT. Need to understand IS in order to communicate with SP. Training offered by the SPas per the contract regarding the system is enough.	Yes I have enough knowledge. Less demand on IT knowledge in my current role. The role is more administrative.	Yes I have enough knowledge in this area. Actually easier to play my role here. No need in depth IT knowledge. Less demand on IT knowledge in my current role.	• The respondents say that they have enough IT knowledge to handle the new routines. • There is a shift from IT intensive knowledge to service oriented knowledge. • Training program provided by SP as per contract which is enough for the current role. • Demand for knowledge in IS modification/upgradation in order to understand SP.
2.2 Do you think that the organization should emphasize on more job training programs for IT personnel?	I see the importance of both theoretical and practical knowledge in order to do it well in the new role.	Yes it is always important to have job training.	Yes it is important with job training. If you have a new role you should have job training. Many have received IT role after outsourcing, but no training. Many hidden IT task and new role that are not formalized.	• The respondents answer that they understand the importance of both theoretical and practical IT knowledge in their new role. • Important with job training for end users. • More interaction with SP and end users requires knowledge in service oriented tasks. • There are hidden roles and task that should be formalized and provide job training on.

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Questions	Respondent A	Respondent B	Respondent C	Key points
2.3 Is the new job training based on technological knowledge or more knowledge on service and interpersonal skills in the organization?	The same. There are three phases; detect, report and solve. The report part of this is very bureaucratic.	Suggest that there are same demands on both technical and service knowledge. The role has been broaden (more tasks).	Less IT knowledge requires. More service oriented knowledge and support of end users. Needs more theoretical IT knowledge but not necessary practical IT knowledge.	• Generally we need more service oriented knowledge and less IT knowledge because of change in IT responsibility. • However, some argues that they still need theoretical IT knowledge but less practical IT knowledge. • Some say the training needs of technical vs service is dependent on your role may have impact on training needs.
3.Relationship with service provider SP				

Questions	Respondent A	Respondent B	Respondent C	Key points
3.1 How is your experience with the new partners after outsourcing?	The cooperation with SP is OK when it comes to routine tasks. Non routine task are very bureaucratic. SP have not enough knowledge to handle our organization.	No routine task takes to long time to solve. Routine task is better and efficient.	At the beginning it takes time to match the end users need. But now understand more about the activities of the operation . They know that it is a complex issue to outsource. BRTA personnel handle standard and routine task only.	• The cooperation with SP is OK when it comes to routine tasks. Non routine task are very bureaucratic. SP have not enough knowledge to handle our organization. • SP has unstable performance. • SP where arrogant in the start but now they understand more. • Feel that SP has been better and more efficient now. • However they have many new faces that need training all the time.

Questions	Respondent A	Respondent B	Respondent C	Key points
3.2 Explain the communication between departments and SP.	Main communication via formal letter . For operational and routines, e.g. technical assistance are done frequently by phone and email. The important issues are recommended to communicate by letter and email.	Designated officer makes the communication to the SP's designated officer. The communication is mainly over phones and emails for routines and technical assistance. The critical issues are communicated by formal letter.	The communication is mainly over phones and emails for routines and technical assistance. The critical issues are communicated by formal letter by phone, email and often by both by designated officer .	• The respondent say that the routine communication is via phone and email from operations. • Exceptional they can use the phone or e-mail but this is not recommended for the critical or important issues.

Questions	Respondent A	Respondent B	Respondent C	Key points
3.3 Do you think that the SP have enough knowledge to support your organization?	Yes, they have technical knowledge enough but no in organizational specific knowledge. Now the SP knows more about the organization after 2 years contractual agreement. They standardize solutions.	The SP do not know all aspect of our organization and hence our needs. Do only standard services and according to SLA. However, they have gain some expertise of the organization by hiring former IT personnel to their organization.	At the beginning they didn't know much need of the organization. Now they know need. But knows little about organizational specific applications that we run.	• The SP now has the technical capability and capacity to support our organization's IS . But they dont no in organizational specific knowledge sometimes. Knows more about the organization after 2 years contractual agreement now. They standardize solutions. • Only perform standard routines according to SLA

Questions	Respondent A	Respondent B	Respondent C	Key points
3.4 Do the SP solve IT problems better than it would be by own IT personnel ?	We unanimously can say that the SP is not solving the problem better . I experience the SP to be very bureaucratic.	Not solving better. They use long time to solve the problem. One task has to go trough many instances. The network after outsourcing is not more stable. And it is slower too.	Takes too long time to solve tasks. Do not know local environment and needs. End users also said that the service is worse. The decision to outsource is of political reasons and not economic.	• The respondent unanimously said that the SP did not solve the problem better than before. • The problem with SP is that the delivery is of poor quality, also the support time is too long. • One task has to go through many instances. The network after outsourcing is not more stable. • Do not know local environment and needs. End users also said that the service is worse. Think that the decision to outsource is of political reasons and not economic. • Mostly believed that the system will be better with time. Actually, the IT department of BRTA should take more responsibility to solve all these problems and challenge. The problem is, though BRTA IT department process the ownership of the IS but, in practical the role doesn't seems due to bureaucracy of the system which results poor services from SP.