Master’s Thesis in Informatics

Application Outsourcing Governance Model

Critical components of a Successful Application Outsourcing Governance Framework

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Abstract

Emerging technologies have changed the environment of global competition; many IT-firms are adapting new trends of offshore software development to attain latest and low costs services. This research report is aimed to fill the literature void on application outsourcing governance and emphasize on the components critical for a successful application outsourcing governance model. The research is conducted on a service-buyer IT-firm which forwards software development assignments to its vendors locally as well as globally. Research employs qualitative method where social constructivist philosophical worldview is used to gain practical understanding of participants’ viewpoints on the research topic; research uses inductive approach which is intended at theory building. Three types of interview methods are used for data collection; analytical process of Grounded Theory is used to analyze the data systemically. GT coding technique is used to code collected data into different concepts by constant comparison and by asking questions; similar concepts are gathered under different categories. One core category and seven key categories are emerged from the data; these categories represent the key components of application outsourcing governance model. Finally, these components integrate in order to form application outsourcing governance framework for successful deliveries of application outsourcing projects.

Keywords: Application Outsourcing, AO Governance Components, AO Governance Model, Grounded Theory.
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Linnaeus University
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Aurang-Zeb Choudhry
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<th>Description</th>
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<tbody>
<tr>
<td>AO</td>
<td>Application Outsourcing</td>
</tr>
<tr>
<td>AOP</td>
<td>Application Outsourcing Project</td>
</tr>
<tr>
<td>AOO</td>
<td>Application Outsourcing Operation</td>
</tr>
<tr>
<td>ADP</td>
<td>Application Development Project</td>
</tr>
<tr>
<td>ADO</td>
<td>Application Development Outsourcing</td>
</tr>
<tr>
<td>AD</td>
<td>Application Development</td>
</tr>
<tr>
<td>ADP</td>
<td>Application Development Project</td>
</tr>
<tr>
<td>CRM</td>
<td>Customer Relation Management</td>
</tr>
<tr>
<td>CMMi</td>
<td>Capacity Maturity Model of integrating</td>
</tr>
<tr>
<td>eSCM-CL</td>
<td>e-Sourcing Capability Model for Client Organization</td>
</tr>
<tr>
<td>FirmABC</td>
<td>IT-Firm select to collect data</td>
</tr>
<tr>
<td>HR</td>
<td>Human Resources</td>
</tr>
<tr>
<td>OSD</td>
<td>Offshore Software Development</td>
</tr>
<tr>
<td>OAD</td>
<td>Offshore Application Development</td>
</tr>
<tr>
<td>IAOP</td>
<td>International association of outsourcing professionals</td>
</tr>
<tr>
<td>IS</td>
<td>Information Systems</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>ITGI</td>
<td>Information technology Governance Institute</td>
</tr>
<tr>
<td>ITO</td>
<td>Information Technology Outsourcing</td>
</tr>
<tr>
<td>IP</td>
<td>Intellectual Property</td>
</tr>
<tr>
<td>IA</td>
<td>Intellectual Assets</td>
</tr>
<tr>
<td>PM</td>
<td>Project Management</td>
</tr>
<tr>
<td>SMI</td>
<td>Software Engineering Institute</td>
</tr>
<tr>
<td>UN-ESCAP</td>
<td>UN Economic and Social Commission for Asia and the Pacific</td>
</tr>
<tr>
<td>UK OGC</td>
<td>United Kingdom Office of Government Commerce</td>
</tr>
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1 Introduction

The first chapter starts by introducing application outsourcing and importance of governance system. This chapter presents problem formulation, aim of research & research question. Delimitations of the topic and disposition structure of the report are depicted at the end of this chapter.

Rapidly growing innovative technologies have changed the trends of global competition amongst the companies. Physical world is converting into virtual world where companies can have access to costs effective and latest technologies. Many IT companies are finding alternative ways of doing their businesses and this raised the trend of offshore Information Technology services amongst the IT-firms (Davies, 2004; Gartner, 2005; Hill and Jones, 2008; Leimeister, 2010; Oshri & Kotlarsky, 2010). According to Gartner (a world’s leading information technology research and advisory company) money spends on IT Outsourcing (ITO) surpass 251 billion in 2012. A survey by Goldsmith (2003) mentions that 79% IT-firms in United States outsource IT; major benefits of IT outsourcing (ITO) are to save development costs and getting access to quality and latest technologies, and further to gain competitive advantages (Davies, 2004; Leimeister 2010). IT-firms consider outsourcing their software or application assignments to external sources; according to Blokdijk (2008) software outsourcing practices are saving up-to 70% of companies’ expenditures (p. 144).

Application outsourcing benefiting many IT-firms by costs savings and getting competitive advantages yet many IT-firms are not comfortable to offshore their application assignments (Taipala, 2008, p.1). Service buyer IT-firms are often unable to attain satisfactory results from their vendors (Sunder, 2011, p.115). Governance systems of service-buying organizations play very vital role in attaining satisfactory deliveries of their application outsourcing projects. Governance is not a new concept, it is about decision-making and process by which decisions are implemented, and this statement can be used in the context of corporate governance (UNESCAP). Cohen & Young (2006) consider poor governance as the key elements in offshore application development which leads to clients’ dissatisfaction (Hirschheim et al. 2009, p.246). A study conducted on over 1,600 outsourcing contracts proves that better governance capabilities at service buyers’ side help in attaining higher levels of satisfaction compared to those having weak governance processes in places (Sourcing magazine, 2013).

This research highlights that the trend of application outsourcing is on its rise but in most cases it fails to meet service buyer IT-firms satisfaction because of ineffective governance model they use. Researcher chooses inductive
approach which intends at theory generation and attempts to highlight components critical for AO governance model success. Data is collected by a service buyer IT-firm via interview methods; grounded theory is used to systemically analysis data and uses coding technique of data comparison and categorization. In the end of the research report, an integrated governance framework is emerged from the data which hopefully will be helpful for service-buyer IT-firms to manage their governance systems in a better way.

1.1 Problem Formulation

Offshore software development is increasing because numbers of firms who outsource their application assignments are growing (Plugge, 2012, p.1). The key elements which force companies to offshore software development are, costs saving, gaining outside expertise, global presence, round the clock services, getting access to quality & latest IT services & competitive advantages (Davies 2004; Leimeister 2010). Deloitte Consulting (2005) survey has found that 70% of respondents had negative experiences of outsourcing (McIvor et al. 2010). Poor project governance leads to project failure; Garter (2005) observed that 80% firms lost their opportunities of successful outsourcing because of their poor sourcing decisions; they do not have proper governance in place (Oshri and Kotlarsky 2010, p.119). According to a report (UK OGC) governance in ICT projects is one of the top reasons of projects failure (Garland, 2009, p.1). Bad governance system leads service buyer IT-firms towards dissatisfaction; this involves organization structure and management (Hirschheim et al. 2009; Cohen & Young 2006).

Researcher starts this research report by searching topic on internet; scientific articles and online literatures are studied and clear evidence of failure of application outsourcing governance had found. Most of the literatures searches are done on ‘Google Scholar’ by using keywords ‘IT Outsourcing’, & ‘application outsourcing governance’. Further, libraries are visited to find relevant research literature. After selecting a specific literature on application outsourcing governance and reviewing it, researcher spotted the gap and found that neglect technique suitable to address the void in the literature on application outsourcing governance (Sandberg and Alvesson, 2010). Research question are formulated by focusing on specific research area of application outsourcing governance. A descriptive research background is presented based on previous researches and literature.

This research paper is vital for application outsourcing governance where critical governance components are on focus. Researcher has studied literatures on AO governance in different corporate, governmental institutes and IT-firms but no literature has been found which specifies application outsourcing governance model or its vital components. Insufficient literature
references found that focus on how a proper service buyer-oriented governance framework works and details about its vital components. This research emphasizes on a specific topic which is not comprehensively investigated previously. Often firms start outsourcing by aiming to save firm’s extra overheads without understanding the importance of outsourcing structures (McIvor et al. 2009). One of the reason of AO governance failure is that offshore application development is one of the most complex jobs compared to other IT outsourcing services, it is not easy job to define targeted goals of the application development projects (Mezak, 2006, p.116). Governance related challenges lead service buyer IT-firms towards failure of application outsourcing and ultimately lead to customers’ dissatisfaction. Usually, vendors or service providers are geographically located at distant then their service buyers, and make it difficult job to manage outsourcing. These distances create issues for service buyers to manage and control AO projects without using proper governance model.

This research report is important for service buyer IT-firms who are involved in application outsourcing activities. Researcher has found little information on the key governance components for successful AO governance model. Most of the service buyer firms are often failed in AO because of bad governance systems which are usually related to firm different activities such as selection of job, vendor or contract, relationship management, communication interfaces and project management etc. A good governance model may help service buyer firm to attain satisfactory results from its service providers by delivering application outsourcing projects successfully.

1.2 The aim of the research

The aim of this research project is to emphasize on application outsourcing governance. Researcher is intended to focus on components which are critical for a successful application outsourcing governance model; he is interested to underline on how these components integrate to develop AO governance framework which assist service-buyer IT-firms to attain satisfactory deliveries out of their application outsourcing projects.

1.3 Research question

Above discussion is intended to understand the importance of a successful application outsourcing governance model and its components for an IT-firm involved in application outsourcing activities. Following question is formulated from the discussion.

Q. What are the essential components of a successful application outsourcing governance model?
This research question is not addressed by the previous researchers as shown in above discussion; research report is intended to build a successful application outsourcing governance framework for the service buyer IT-firms to gain success in their application outsourcing projects.

1.4 Delimitations/limitations of research

IT outsourcing is a vast field; this study specifically stresses on software development or application development by external sources of a firm, this type of outsourcing is categorized in offshore software development (Davies 2004; Leimeister 2010). Further, Research report focuses on service-buyer IT-firm’s perspective that outsources application outsourcing assignments to its service providers (i.e. VENDERS). The research intended to assist the service buyer IT-firms to enhance their understanding about application outsourcing governance model, and about the components critical for a successful AO governance model. This research is inductive in nature and focuses on a single case (i.e. IT-Firm), in-depth interviews help in data collection on firm governance. Grounded theory analytical approach is used to build AO governance framework; theory emerged from the data by constant comparison and coding the data into categories.

1.5 Target Audience

This research focuses on applications outsourcing governance of a service buyer IT-firm. Following are targeted audience of this research paper.

1.5.1 Service Buyer firm

Service Buyer firm is a local IT-firm which outsources complete or part of its application development projects to local as well as global application development service providers. Service buyer also keeps a software house; and forwarding most of its application/software development activities to its vendors.

1.5.2 Service Providers

Service providers are external sources which provide expert technical knowledge, manpower, and other intellectual resources to service buyer IT-firm. Service providers are also called vendors in this research report.
1.5.3 Client

Clients sometimes refer as customers, application development projects are being developed by the collaboration of service buyer firm and its venders; clients of service-buyer firm are the one who are being benefited by the outcome of application outsourcing.

1.6 Disposition

This research paper consists of seven chapters including References & Appendices chapters; general thesis structure is shown in figure 1.1 and brief overview of each chapter is as follow:

Chapter 1 Introduction
The first chapter starts by introducing application outsourcing and importance of governance system. This chapter presents problem formulation, aim of research & research questions. Delimitations of the topic and disposition structure of the paper are depicted at the end of this chapter.

Chapter 2 Literature Framework
This chapter is aimed to provide background of application outsourcing governance; chapter starts by defining and comparing outsourcing governance. Chapter further emphasizes on Governance literature to present different models, frameworks and application outsourcing Governance components.

Chapter 3 Method
Method chapter talks about research methods and approaches, data collection and analysis methods; research quality is derived by validity and reliability approaches and ethical concerns are mentioned in the end of the chapter.

Chapter 4 Data Presentation & Categorization
This chapter briefly presents data collection procedure, and participants’ roles and responsibilities; Case-firm’s background and hierarchy structure is depicted. Grounded Theory coding procedure, open codes examples and unique categories are presented in the end of this chapter.

Chapter 5 Analysis of AO Governance Framework
Data is analyzed and key categories are developed; one core category further emerged by using GT analysis technique. Key components of AO governance model are highlighted and integrated to build AO governance framework at the end of the chapter.
Chapter 6  Conclusion
This is the final chapter that concludes and relates whole research paper, briefly summarizes of research problem, research question and research methods. Talks about application outsourcing governance critical components and presents application outsourcing governance framework. It gives some suggestions for future research at the end.

References & Appendices
This gives a list of literature references & presents list of three Appendices which includes interview questions & a set of 8 questionnaires.

Figure 1.1: General structure of thesis.
2 Literature Review

This chapter is aimed to provide background of application outsourcing governance; chapter starts by defining and comparing outsourcing governance. Further, emphasizes on Governance literature to present different frameworks and application outsourcing Governance components.

2.1 Defining Outsourcing

The focus of research is to highlight essential components of application outsourcing governance model. Before going into the details of the topic, it is vital to understand term ‘outsourcing’. Lankford and Parsa (1999) define outsourcing as: “the procurement of products or services from sources that are external to the organization” (Schniederjans et al. 2005, p.3). Barthelemy (2003) states that IT-outsourcing is the practice of turning over all or part of an organizations IT-services to a service provider. In other words, IT-outsourcing is about allocating IT activities from internal source (i.e. SERVICE-BUYER) to external source (i.e. SERVICE-PROVIDER).

2.1.1 Geographic based forms of Outsourcing

According to international association of outsourcing professionals (IAOP) outsourcing is divided into many forms based on geographical division.

- **Onshore outsourcing**: obtaining services from a vendors in the home country
- **Near-shore outsourcing**: getting services from nearby country usually sharing a border.
- **Offshore outsourcing**: is a term which is used for contracting with a country which is distant.
- **Best-shore outsourcing**: it is a resent term, which is used to offer better communication, productivity, low costs and most values considering risks vs. benefits (iaop.org, 2013).

2.1.2 Types of Outsourcing

Outsourcing has many types which involve on varied level of processes. Below list of five typical outsourcing types are briefly described for the reader to grasp a general picture of IT-outsourcing, and further to understand where application outsourcing practice exactly stands.
2.1.2.1  *ITO – Information Technology outsourcing*

Innovation in ICT has changed models of businesses and economics, and forced companies to adopt new changing modes of technology to thrive in the competitive market (Taipala, 2008).

2.1.2.2  *BPO – Business process outsourcing*

In BPO business tasks are outsourced to the third party firm; it can be divide into two part, front office and back office tasks. In front office tasks are focused on marketing, customer support and HR etc. Back-office tasks usually consist on accounts, billing and purchasing. Examples of BPO are CRM, HR, accounting, logistics, documentations, healthcare and security etc (Ciravegna, 2012).

2.1.2.3  *Offshore Software Development*

Software development outsourcing quite young concept compared to other outsourcing types; it is to develop applications from external sources. Mostly IT-firms adopt it to reduce costs and get competitive advantages (Davies 2004; Leimeister 2010).

2.1.2.4  *Cloud Computing*

The emerging trend in IT outsourcing is called cloud computing which can include software as a service, infrastructure as a service and platform as a service. There can be personal or private cloud owned and managed by individuals or companies their-self. There is no doubt that cloud providers are providing many advantages compared to traditional outsourcing yet they have limitations such as privacy, downtime, internet requiremet, slow process and insecure data which prone to lose or attacked by hackers.

2.1.2.5  *KPO – Knowledge Process outsourcing*

The latest type of outsourcing is KPO; analytical and technical skills are much considered in KPO and person is given managerial control over the process. KPO includes pharmaceutical research, intellectual prosperity research, database development and content writing etc (Blokdijk, 2010).

2.2  *Outsourcing vs. Insourcing*

In-house development of business activities can be called insourcing which contrasts to outsourcing. Insourcing is allocation or relocation of the resources internally with the same firm even their location differ
geographically (Schniederjans et al. 2005). Figure 2.1 depicts a triangular relationship between benefits, risks and governance during insourcing activities. In-house application development holds marginal benefits to a firm, especially when a firm involves in custom application development. Insourcing gives high level of control to application development operation as there are always less uncertainties or risks during governance processes (Kohleick, 2008 pp.231-2).

![Figure 2.1 Insourcing operation and level of benefits, risks & Governance](image)

Benefits, governance and risks levels in In-house application development are different compared to application outsourcing (Kohleick, 2008, p.232). Insourcing AO costs are usually very high compared to outsourcing costs, yet transition cost is very low because of low coordination costs. Governance raises the level of control which reduces service-buyer firm’s dependence on its vendors. Figure 2.2 shows a service-buyer firm relationship between benefits, risks and governance during application outsourcing projects. It shows that firm may gain good benefits but risk factors are at its climax. A Firm stands in-between the advantages and disadvantages during application outsourcing operation. Level of control reaches to minimum level, it relates to firm governance at different organizational levels; a poor control means, application outsourcing process expect to have poor governance in place (Montana and Charnov, 2008).
2.3 Best sourcing

Insourcing have lowest level of risks yet a firm needs to involve into outsourcing in order to widen its horizon and to look outside resources to get job done by saving costs and get access to latest and competitive technologies. (Davies 2004; Leimeister 2010). Many risks are associated to application outsourcing which directly or indirectly related to firm’s governance system. A better application outsourcing framework is formed when service-buyer firm adopts a suitable governance model which is quite similar best-shore outsourcing (mentioned in section 2.1.1) that is to attain best outsourcing model by using better communication, productivity, low costs and most values considering risk vs. benefits (IAOP.org. 2013).

This shows that an outsourcing should be productive, low costs and values added activity where there are more benefits and fewer risks because of better
communication between service buyer and service provider. According to *table 2.1*, a service-buyer firm gains maximum benefits by placing a proper application outsourcing governance system.

**Table 2.1: Level of Benefits, Governance & Risks in Application development processes**

<table>
<thead>
<tr>
<th>Sourcing Type</th>
<th>Control/Governance</th>
<th>Challenges</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insourcing</td>
<td>High</td>
<td>Very Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Outsourcing</td>
<td>Low</td>
<td>Very High</td>
<td>High</td>
</tr>
<tr>
<td>Best sourcing</td>
<td>High</td>
<td>Low</td>
<td>Very High</td>
</tr>
</tbody>
</table>

Best sourcing governance model assists a service-buyer IT-firm to gain success in its AO projects; and critical components of best sourcing model support each other to form a better governance model. It is very vital to measure outsourcing projects in order to shun risks and raise controls. According to Badiru (2009) a project can be well controlled and many of its risks are avoided to trade-off between the cost, time and quality of a project; time limitation is expressed as schedule, cost is known as budget and project performance and quality relate to project scope (p.22).

### 2.4 Governance

This paper focuses on application outsourcing governance; global software/application development involves the governance system which requires varied level of communication, coordination and management between service buyer and service providers (McIvor, 2010, p.117). According to Van Grembergen (2004) IT-governance focuses on the issues related to business and IT; IT Governance Institute gives a more comprehensive definition of IT governance that “IT Governance is the responsibility of the board of directors and executive management. It is an integral part of enterprise governance and consists of the leadership and organizational structures and processes that ensure that the organization’s IT sustains and extends the organization’s strategy and objectives.” (ITGI, 2001) Van Grembergen (2004) defines IT governance as “IT Governance is organizational capacity exercised by the board, executive management and IT management to control the formulation and implementation of IT strategy and in this way ensure the fusion of business and IT”. IT Governance is about decision-making for IT activities which also includes management decision-making about application outsourcing; IT-Governance is not different than firm’s governance, it is a part of it. Governance is not only a process of decision-making but also a process by which decisions are implemented (UNESCAP). Peterson (2001) describes Governance as:
a) The distribution of IT decision-making rights and responsibilities among different stakeholders in the organization, and
b) The rules and procedures for making and monitoring decisions on strategic IT concerns. (Van Grembergen, 2004, p.41)

It divides decisions making into two dimensions, one is about decisions making and second is as mechanism to implement them. At organizational level outsourcing governance has three levels, which include strategic, tactical and operational levels, where top to bottom management is involved in decision-making (Plugge 2012; Montana & Charnov 2008).

Governance alone is inadequate for the trends of outsourcing such as information processing and coordination demands; IT governance requires extra structure and processes in order to align between business and IT (Beulen et al. 2006, p.175). According to ITGI (2000) organization governance activities with the help of IT must align with organization’s activities. Corporate governance is used to direct and control enterprise entities, and today corporate governance cannot solve governance issue alone without the use of information technology, for that organization set IT-governance (Van Grembergen 2004, p.4). Many authors are agreed that both corporate and IT governance are not different from each other and IT governance should integrate to overall corporate governance structure (ibid, p.5). In case of outsourcing governance, governance is more complex as there is a need to set common goals for both service buyer and service provider mutual interests. For example service buyer may focus more on cost reduction rather service provider more think of return on investment goal. In this case service buyer should make sure it’s contract clearly states its outsourcing governance objectives (Beulen et al. 2006).

2.5 Governance models & components

Research emphasizes on governance components, these components work as most critical elements in application outsourcing operation’s success or failure. These elements help in understanding background of governance and assist preparing interviews questions. A detailed governance model is presented by Information technology Governance Institute (ITGI) which states that governance is:

“set of responsibilities, roles, objectives, interfaces and controls required to anticipate change and manage the introduction, maintenance, performance, costs and control of third-party- provided services” (Simmons, 2005, p. 7).

This definition gives a more succinct governance framework which includes many vital aspects of governance. An effective governance model focuses on
business objectives by the support of organizational structure and authorities in the process of decisions-making. IT Governance Institute (2004) definition of governance is used by many authors in literature, according to ITGI governance is “... the responsibility of board directors and executive management. It is an integral part of enterprise governance and consists of the leadership and organizational structures and processes that ensure that the organization’s IT sustains and extends the organization’s strategies and objectives (ITGI. 2001). ITGI definition emphasizes on key component of governance; research takes this definition more as application outsourcing governance of an IT-firm.

Gewald and Helbig (2006) provide comprehensive definition of outsourcing governance model:

“Overarching structure which helps to support the business objectives of the customer on [the] strategic, functional and operational level... It addresses the rules, processes, metrics and organizational structures needed for effective planning, decision making, steering and control of the outsourcing engagement in order to mitigate the risk inherent in any outsourcing relationship” (pp. 3-4).

Gewald and Helbig (2006) present a governance framework based on best-practices which includes organizational structures for communication, processes, relation management and management role, this model mainly focus on large size service providers only. Above model shows that a service-buyer firm starts its AO governance by focusing on its objectives at strategic, tactical and operational levels of organization; this model raises many questions which will help in structuring interviews questions. This model asks questions such as:

"what to do",
"how to do it",
"who should do it" and
"how it should be measured". (Gewald and Helbig, 2006, p.3)

Above questions help in developing interviews questions for this research report for example what decisions to make? what best practices require to support AO governance model? who is responsible for what and what measurement tools are used to measure the performance of AO projects? Other elements of the model such as rules, processes, metrics and organizational structures needed for successful planning, decision making, steering and control of the outsourcing in order to reduce the risk inherent in application outsourcing relationship (ibid) help in building independent and related questions to the AO governance topic. From the above definitions we understand that Governance is not only about decision making but also
controlling decision making process. Above definition emphasizes that governance is a system which helps service buyer IT-firm to attain its goals that shows the importance of objectives in organizational structure and decisions making. Above definition also highlights that who is responsible to take decisions and who should control outsourcing engagement in order to handle risk associated to outsourcing relationship, gives a guideline to prepare interviews for this research report.

OECD’s Principles of Governance (2004) states that through governance structure, organizational objectives are set, attained and monitored (Leimeister, 2010 p.51). The basic goal of governance here is to develop and continually focus on business objectives of an organization. Governance assigns decisions rights related to objectives setting and assessment in organization whereas management function makes and implements decisions that align with governance frameworks (ibid). Coso is enterprise risk management framework which includes essential components, concepts and principles of risk management and applies to all size organizations; this framework provides board and managers with a clear roadmap to identify and avoid risks (Beulen et al. 2006).

Software Engineering Institute (SEI) presents a CMMi model; capacity maturity model of integrating focuses service providers to improve the quality of their products and services, and their development and maintenance processes (Beulen et al. 2006, p.179). Simon et al, (2009) mentions that better governance is needed where a service provider is involved in relation with many clients around the world and more geographical, cultural and language issues require being bridge (Beulen et al. 2006, p. 179). One of the other model to support software outsourcing is eSCM-CL; eSourcing Capability Model for Client Organization is consider a good model to manage and improve outsourcing relationships with it service providers; but this framework do not include the best practices required by a service buyer to successfully outsource (ibid). Two types of key governance frameworks are focus in many researches which are contract based and relationship based models (Leimeister, 2010, p.52).

Above governance frameworks are good models and are being used widely to support ITO. Many frameworks or models are presenting either corporate governance or IT-governance in the literature (Leimeister 2010; Van Grembergen 2004; Beulen et al 2006). Researcher does not find any specific framework which explicitly address application outsourcing governance framework. Few software governance models are also mentioned but they either do not address application outsourcing governance in a service buyer or not presenting the governance components for a successful AO governance model. This research is intended to emphasize on application
outsourcing governance critical components and uses ‘bottom up’ approach which is inductive in nature, intended to present a more comprehensive application outsourcing governance model. This report starts from general observation to theory generation; build a framework that will not only use pre-specified frameworks of contracts or relationships but includes critical components which emerge from data.
3 Methodology

Method chapter talks about research methods and approaches, data collection and analysis methods; research quality is derived by validity and reliability approaches and ethical concerns are mentioned in the end of the chapter.

In this chapter methodology of the thesis is presented to give readers insight on how the research has been conducted. There are several methods and approaches that contribute to develop research design. Coming section is going to address the methods and research design which are being used in this research report to address the research question and shows how research design & research methods help to collect and analysis the data. Figure 3.1 shows methodology of this research project by depicting research onion layers, adopted from Saunders et al. (2000). There are several stages to lay out research strategies which researcher should go through (Oriesek, 2004, p.37). Saunders et al. (2000) structure of research onion is being followed to address methodology and research strategy of this research report (ibid).

![Figure 3.1 Research Onion adopted from Saunders et al. (2000).](image)

Creswell (2009) methodologies and research strategies are presented in this research onion. Creswell (2009) states that worldview along with research
strategy and research method together develops a research design (Creswell, 2009, p.16). *Figure 3.1* presents the research methods chosen for this research report. In the first step philosophical world view needs to be defined, which will help in selection of research approach. This section presents the research methodology and explains logic to choose it. In the next layer research strategy is chosen to analyze the data, in the forth layer time horizon is defined. Finally data collection method is chosen to collect data for the research report. Below *Table 3.1* highlights the scientific perspective, research approaches and methods for the reader to understand the viewpoint of the researcher and possible logic of the research methodology.

Table 3.1 Overview of the Methodology for the Research

<table>
<thead>
<tr>
<th>Research Layers</th>
<th>Research Method/Approach</th>
<th>Method Name</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Layer</td>
<td>Philosophical Worldview</td>
<td>Social Constructivist</td>
<td>To understand Participants’ point of views</td>
</tr>
<tr>
<td>Second Layer</td>
<td>A</td>
<td>Research Approach</td>
<td>Inductive</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Research Method</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Research Strategy</td>
<td>Grounded Theory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time Horizon</td>
<td>Longitudinal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data Collection Method</td>
<td>Interviews</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Three types of interviews Methods</td>
</tr>
</tbody>
</table>

### 3.1 Philosophical worldview

Creswell (2009) presents a worldview as a general perception of world and the nature of the research by the researcher; he has presented four worldviews Postpositive, Social construction, Advocacy/participatory and Pragmatism which help many researchers to develop their perspective of research (pp.6-12). Social constructive philosophical world view seems valid in order to collect participants’ data on application outsourcing Governance (Creswell, 2009), where researcher is not intended to change the existing situation of a firm rather his focus is to understand and explain the AO governance system. Social constructivists perceive the world in the context of social and historical perspective of people that how staff is working, their relationship and experiences in application outsourcing; it is a process in which staff interact with others (pp.8-9).

Social constructivist worldview aligns research philosophy of this research and can come up with a positive outcome. This report helps in gaining subjective and practical understanding of application outsourcing
governance. It depends much on participants’ personal expertise and experiences rather than on others knowledge. According to Creswell (2009) the objective of social constructivist worldview is to “rely as much as possible on the participants’ views of the situation being studied” (p.9). Three types of focused interviews are used as data collection methods in order to explore the multiple viewpoints or responses of participants regarding certain AO governance issues. The research relies much on the participants’ viewpoints to answer the research question.

3.2  Research Approach & Method

There are different possible approaches dependent on the way research is conducted; first researcher decide either take inductive or deductive approach and then decides on whether it has qualitative or quantities characters. Qualitative method is more acceptable in information system research over the past decade; it is best way to get direct information about a real environment by providing information about real-life situations (Creswell, p.15). It is important part of research to select on research method to address the problem. ‘Bottom up’ Inductive approach is used for theory generation where qualitative method is appropriated to address a contemporary phenomenon of application outsourcing in a real organization context. Qualitative research method helps to gain deep understanding of a situation (Yin, 2003). Inductive research approach is used as research approach leads to predictions & deductive approach is usually aimed at theory testing. This research is focused at theory generation and starts from data collection and then develops AO governance framework based on that data.

3.3  Research strategy

A medium sized IT-firm is selected to collect empirical data to examine the application outsourcing problem in the real life context. Case is detailed in section 4.1.3 of the report and data is collected by predefined questions as mentioned in section 2.5. This report uses qualitative research method, according to Creswell (1994) a qualitative study can further divide into five main research types which are Biography, Phenomenology, Grounded Theory, Ethnography & Case Study. This research is intended at building new framework for application outsourcing governance, where GT coding technique seems a suitable approach to analyze the data systemically and works as research strategy. Glaser and Strauss (1967) have provided strong initial grounds for using qualitative research to develop theoretical analysis by using grounded theory (Goulding, 2002, p.41). According to Goulding (2002) GT is the most commonly used method to generate theory where little is known about a phenomenon or to provide a fresh direction on existing knowledge; and researcher works in natural situation to analyze data (p.42).
This research focuses on an application outsourcing phenomenon related to application governance; little information is found on successful application outsourcing governance framework. Ground theory is one of the most used methods of data analysis. “A grounded theory is one that is inductively derived from the study of the phenomena it represents” (Strauss and Corbin, 1998, p.23). Now a day, GT approach is being used in the disciplines of nursing, business, education and most recently marketing. GT works as methodology for data analysis and it stresses on the significance of social processes, human relations with each other (ibid). Grounded theory is a research process usually associated with qualitative enquiry. According to Glaser and Strauss (1967), in general it is a method of comparative analysis. It intends to generate a new theory about a process or event where nothing or little is known about the topic.

Researcher tries to conceptualize, reduce, elaborate and relate data and categories to develop as new theory. Coding technique is the central method of data analysis by which theories are built from the data; this is a process by which data breaks down, conceptualized and put again in to new way, Strauss and Corbin (1998) have given a three coding phases to develop a theory during empirical investigation of data which are open coding, axial coding and selective coding (p.57). Process of theory generation through grounded theory is detailed in data analysis section 3.5.

3.4 Data collection method

According to Creswell (2009), there are four common methods of data collection which are documentation, surveys, interviews, and observations. (pp. 179-182) Data collection can include more than one method in evidence gathering. In this paper primarily data is collected by in-depth interviews, such as asking semi-structured and open ended questions (Niles, 2010, p.68).

3.4.1 Interviews

Interview method has many types such as structured, semi-structured and unstructured interviews. In a structured interview the questions are prewritten and arranged in order to be asked. During a semi-structured interview, questions are developed and asked on the determined area during the interview by the researcher; and an unstructured interview is like a conversation. Structured, semi-structured and mix interviewing methods are used in this research. Interview method gives researcher direct access to primary data on application outsourcing governance and processes related to it. This research involves in-depth interviews with management of the FirmABC where all participants are related to firm’s application outsourcing governance. In this research, data is collected by using interviewing methods
which consists of three parts & four sections are shown in figure 4.1 & table 3.2. Lists of interviews questions and questionnaires are placed at the end of this report under appendices heading. Participants’ data is collected by answering interviews questions that make data easier to collect understand certain categories and theme related to interviews questions. Interviews questions are mainly based on Gewald and Helbig (2006) model which is mentioned in section 2.5 above; this outsourcing governance framework talks about firm’s objectives at different organizational levels, its processes, structures, decision-making and control to mitigate any risk inherent to any outsourcing relation (p.4).

3.4.2 Interview types

Data collection through interviews method consists primarily on three types of interviews, are shown in table 3.3:

- General Questions
- Open-ended Questions and
- face to face Questionnaires

<table>
<thead>
<tr>
<th>Part</th>
<th>Type</th>
<th>Method</th>
<th>Number of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part-1</td>
<td>General</td>
<td>Structured</td>
<td>9</td>
</tr>
<tr>
<td>Part-2</td>
<td>Open-ended</td>
<td>Semi-Structured</td>
<td>13</td>
</tr>
<tr>
<td>Part-3</td>
<td>Questionnaires</td>
<td>Structured</td>
<td>8</td>
</tr>
</tbody>
</table>

Interviews taken for this research are mainly based on open-ended questions where participants are expected to give answers in detail and close-ended questions are based in yes or no answers. Simple questions are used and they are kept short each question with one precise idea. Data collection procedure is detailed in section 4.1.1; details of each part of interview are given below.

3.4.2.1 General questions – part 1

First part covers general information which includes questions on participants’ responsibilities in application outsourcing, professional experiences and personal life etc. Structured questions are asked to get insight into participants’ personal & professional life.
3.4.2.2  Open-ended questions – part 2

In the next part in-depth open-ended prewritten questions are asked; further researcher aims to get feedback on questions during interviewing. These are semi-structured or mix type of questions which are conducted to gain deeper understanding of participants’ viewpoints. At the end of each question, participants are asked to add more information if they wish, so that no aspect related to application outsourcing governance remains unanswered.

3.4.2.3  Questionnaires with open-ended questions - part 3

Finally, detailed set of questionnaires is added to get participants opinions, these questionnaires can be said are based on open-ended questions. Questionnaires are usually a time consuming task and participant need to spend much time to answer the questions. Researcher has phrases these questions in a way they do not remain too open and focus on a specific area or issue. Further, he has collected a list of possible answers to these questions in order to save the participants’ time. Researcher does not forget the essence of the open-ended questions by still keeping questionnaires open for the respondents by asking to add their own points if not found in the list. Unlike usual rating scale questionnaires these questionnaires do not limit the participants’ viewpoints and they give their own thoughts on each question. A remarks column is added in order to get more feedback on these questions. The motive to choose questionnaires is to attain unbiased and more accurate results.

Researcher not only taken interview on these prewritten face to face questionnaires but he also provided a copy of all these questions to the participants in advance. Researcher collected these remarks or participants comments in the final section of the interviews to reach data saturation. In this way participants get some extra time in the end of interviews to fill out all questionnaires’ lists and add their remarks.

3.5  Grounded Theory as data analysis technique

Grounded Theory technique is used analyze data which is collected by different types of interview methods. Strauss and Corbin (1998) have given a three coding phases to develop a theory during empirical investigation of data which are open coding, axial coding and selective coding (p.57). Figure 3.2 shows the process of theory generating by using grounded theory; process starts from literature reviews and topic selection. Researcher decides on qualitative inductive approach to answer the research question. Data is collected by participants (data collection method is explained above in section 3.4) and compared to reach saturation of data. Theory is expected to
develop from data inductively and there is continuous interplay between data collection and analysis during theory generation process.

Concepts are basic units of analysis in grounded theory analysis. It is easy to read raw data but hard task for researcher to conceptualize it. Comparison of concepts and asking generative questions are two vital part this theory generation procedure. Procedure follows the following steps:

- Labeling data
- Discovering category
- Naming category
- Developing categories in-term of their properties & dimensions

Conceptualizing data or break down data into concepts is done by reading through data and giving name to each new incident, idea or event. It is also done by asking questions for each incident that what is this and what it represents? Researcher compares these incidents and gathered same incidents under one heading to emerge the concepts into categories (Strauss and Corbin, 1998, p.63). Coding process forms too many concepts or labeling which cannot be presented in a report, so researcher groups similar codes under one category. Grouping concepts that seem to pertain same event or phenomena is called categorizing and give phenomena a new conceptual name (ibid, p.65).
Name is made in logical way and represents data it relates to; borrowed names are avoided to use as they may bring with them common meanings and associations. Another other way of naming is words or phrases used by informants and can draw attention to them, they are called “in vivo” codes by Glaser (1978) and Strauss (1987) (Strauss and Corbin, 1998, p.69), coding types are as follow:

- **In-vivo** code is directly coded by participant
- **Priori code** is mentioned in literature
- **Question addressed** – need question arise
- **New Idea**, code is emergent as an original concept (ibid).

**Figure 3.2:** Illustration of Theory building through the GT
According to Strauss and Corbin (1998) a category is first developed in the term of its properties and then it can be dimensionalized. Properties are actually the characteristics or attributes of a category and demission represent the locations of a property along with continuum. During open coding process not only categories are developed but also their properties and dimensions are presented. Properties and dimensions help in creating relationship between categories and subcategories. Collection of generative codes helps in finding major ideas in data; research gives each concept a name and then goes back for detail analysis on these concepts. Researcher keeps on comparing these concepts which further grouped under certain categories. Comparison of categories properties and dimensions is a better way when already categories are defined; researcher compares them with previous identified categories and finds similarities and differences during their analysis. Constant comparison helps in reaching saturation stage and no new ideas left to be written down. At this stage a core category emerged which connects all key categories at common dimensions. All these abstract categories are defined and integrated together to form application outsourcing governance framework at the end.

3.6 Role of the researcher

It is very vital to define the researcher role during a qualitative research; he is the key player to interpret the whole empirical data. This research has been conducted by the author of this research project; researcher is a student of Informatics and also holds some IT work experiences in an IT system security company and of running his own IT-services firm. Researcher has adequate understanding of IT development services and has contacts with a local IT-firm which offshore outsourcing activities. Researcher tries to remain impartial during collecting data, data analysis and data outcomes; considering that this report will be beneficial in order to deliver an unbiased results. Researcher gives consideration to certain ethical concerns during the research; he takes interviews to the selected people, and they all took part as volunteers.

3.7 Research Quality

Validity and reliability of a research is very vital to improve the credibility and transparency of a research report. Quality of a research paper is quite dependent on validity and reliability. High reliability and validity are the elements required to establish a high quality research in a qualitative research work (Bryman & Bell, 2011).
3.7.1 Validity

This section helps to make the reader convinced regarding findings’ validity. The paper implies strategies of validity to ensure if the data and findings are valid (Creswell: 2009). According to Yin (2003) there are three types of validity which are construct validity, internal and external validity. It is also important that researcher collect data from interviewing of people who hold good experience and knowledge on research topic. Moreover records the interviews to write transcription on certain answers (Bryman & Bell, 2011).

In this report data is collected by interview methods. Asked questions also facilitate to validate research, interviews questions are structured in a way that they clearly demonstrate what they meant to be. Internal validity is very important and it reflects the results of the finding. Researcher conducts internal validly by using different strategies; it is done by observing data and then rechecking it and re-listening recorded data. Researcher asked participants to look and verify the collected data and this also validate data. The credibility is very much dependent on the research area; valid and credible results get positive feedback from the participants and help in improving the research area, and improve the validity of participants’ data (Bryman & Bell, 2011).

Triangulation is an effective technique in validating empirical data; researcher has used three types of distinct interviews from each participant. In this way researcher has collected the data related application outsourcing governance topic from each participant in three ways. This practice helps researcher to look at collected data in different angles to analyze it and collect more accurate interpretation of participants’ viewpoints, this validates the findings as well.

3.7.2 Reliability

Reliability of a research is important to reduce the mistakes and risk of errors in the report. It is hard to find reliability for a qualitative research, where many participants participated and information is gained by different types of interviews methods such as general question, open ended questions & questionnaires type interviews. It is not always an easy job to interpret interviewees’ data. A qualitative research is subjective in nature and research results tend to change if research is taken in different time periods and interviewees answer can be changed and lead to different results. Researcher make data reliable by reading & listening data again and again; and by making sure that he has interpreted actual opinions’ of participants, and it is done by doing internal validation of data as well. All participants have good insight in the problem area and responded as reliably as possible which helps
in achieving high transparency in the research data (Bryman & Bell, 2011). This research hopefully will not change its results as researcher remains impartial. Reliability is much dependent on transparency of the research. Transparency in a qualitative research is difficult task to achieve; researcher is much concern about participants in order to gain reliable results.

3.8 Ethical considerations

Research topics related to information systems have ethical concerns; ethical issues arise during the qualitative research process (Creswell, 2009). Here are some ethical aspects which are taken into consideration during the research:

- Confidentiality and anonymity of all participants’ is taken into consideration as per their request.
- The objectives of the interviews are clearly defined and articulate to the participants in writing as well as orally.
- It is conveyed to participants that their participation is taken as volunteers and they will not be paid any reward.
- It is made sure that no participant is harmed psychologically.
- Participants have given their consent before interviews
- Written interpretation of interviews data will be available for the participants. (Creswell 2009; Bui 2009)

Further, all data, literature usage and logical interpretations attain by interviews are used with academic honesty. A special ethical care has been used to make sure that researcher personal opinions do not mixed with participants’ opinions and make fair interpretations of empirical findings so that data collected reflects the actual results.
4 Empirical Presentation and Categorization

This chapter briefly presents data collection procedure, and participants’ roles and responsibilities; Case-firm’s background and hierarchy structure is depicted as well. Grounded Theory coding procedure, open codes examples and unique categories are presented in the end of this chapter.

This research is encountered with different participants’ opinions on application outsourcing governance, their opinions sometimes differ from each other and also researcher finds some relationship in the data. Data collection methods are presented above in section 3.4. It is hard work to make a sense of empirical data collected by interviews. Most challenging and basic step in data analysis is to give meaning to the data (Bui, 2009). After data collection, next important step for researcher is to emphasis on data from interviews and field notes to explain the phenomenon. Bazeley (2013) considers qualitative data analysis as intense, engaging, challenging, contextualized and highly variable work. Grounded theory helps in breaking down data into concepts and categories, in other words this can also be called as data reduction process.

4.1 Empirical information

Method section details the data collection and data analysis methods; in this section researcher tries to elaborate on some important aspects of the results which help reader to understand on data collection procedure, case firm’s structure and its participants roles.

4.1.1 Data collection Procedure

Application outsourcing governance system is much more related to management so it is vital to involve management into data collection process. Top management is requested to participate in interviews to collect data; researcher tries to find those participants who have good experience and knowledge in the outsourcing process in order to gather more reliable data on firm’s governance process. Most of the interviewees have direct or indirect link with application outsourcing governance. Managers at different levels are interviewed which facilitate in presenting adequate information on the subject. Data is further transcribed in to notes and memos, further interviews are recorded so that researcher re-listen interviews data to interpret the exact opinions of the participants. Grounded theory approach best suits the situation and is used to analyze data which finally helps in building a
framework of AO governance based on data collected by asking different questions to the participants.

Each interview consists of three parts and further all interviews are divided into 4 sections in order to reach data saturation. Figure 4.1 & Table 3.3 present details on interviews types and sections; interviews method include primarily structured and semi-structured interviews mostly consist on open-ended questions to answer the research questions.

A set of general questions is asked at the beginning of each interview to get to know about participants personal and professional lives. Second interview method is to ask a list of open-ended questions to understand participant viewpoints on application outsourcing governance. In the last part of interviews, set of questionnaires are asked to get unbiased understanding of participants on the particular aspect of application outsourcing governance; a list of possible answers are prepared to facilitate participants in choosing suitable answers in order to save participants time. Data triangulation of above three types of interviews helps researcher to find more accurate data on application outsourcing governance activities. Further, interviews’ data is collected in four different sections as shown in figure 4.1, in first section interviews are conducted with three participants, second section contains two more interviews and in 3th section, interview is conducted with sixth participant to collect data which helps in reaching data saturation. In the last section, written data, comments and questionnaires final data is collected by all six participants. The reason to divide interviews in four sections is to
collect more data on different categories which evolve from the initial interviews to reach to conceptual framework of AO governance.

4.1.2 Participants’ information

In hierarchy structure of the FirmABC executive committee includes chief executive offer and business shareholders. CEO is responsible to make new strategies and take decisions at strategic level. Six top managers participated in interview their roles and responsibilities are as follow:

Senior Development and operation manager:
Key job is decision making at tactical level & implementation of decision made by CEO. Development and operation manager job is to align projects objectives with business objectives in order to attain strategic goals. Further he is responsible to implement change management up to low level of the firm. Senior project manager and other departmental manager are responsible to report him; he is a key play in organizational structure.

Senior Projects Manager
Manage projects development and responsible to manage projects managers, and relation management with its vendors; he prioritize projects tasks and authorize all new project and delegate tasks to lower managers.

Low Project manager
Responsible to gather projects requirements; estimation of scope, time line and cost of every project; manage daily outsource activities and check the work follow between firm and its vendors on day to day basis. They are usually involved at operational level decision-making.

QA manager
Quality assurance manager is a senior software engineer; a highly dedicated and professional QA experts team, a developers’ team and deployment team work under him to test the and deploy the projects and to assure the quality of all ongoing project which are in final phase of development.

IT/Business Development Manager
His main duty is to identify outsourcing opportunities in global market; responsible of building relationship with firm’s clients and vendors. He is directly reportable to development and operation manager and under him teams of marketing and sales work. He assists development and operation manager on firm’s drawbacks at operational and tactical levels and gives solution for the survival of the firm in the competitive market.
HR Manager
Manage in-house teams; formulate contracts for the vendors & clients and allocate rewards and penalties. He manages accountability of the staff and reportable to non but the CEO of the firm.

All participant roles and responsibilities are mentioned in Table 4.1, each participant is label with a name ‘Person’ from 1-6; this label will be used to represent the participant during this research report.

Table 4.1: List of Participant roles and responsibilities

<table>
<thead>
<tr>
<th>Participants Titles</th>
<th>Roles</th>
<th>Responsibilities</th>
</tr>
</thead>
</table>
| Participant 1       | Senior Development and operations Manager | -Decision making  
                     |                   | -Align projects objectives with business objectives.  
                     |                   | -Develop strategies  
                     |                   | -Introduce change management to operations |
| Participant 2       | Senior Projects Manager | -Responsible to manage, control and monitoring offshore projects and vendor |
| Participant 3       | Lower Projects Manager | -Gather projects requirements,  
                     |                   | -Prioritizing projects tasks.  
                     |                   | -Estimate scope, time line and cost  
                     |                   | -Manage daily outsource activities  
                     |                   | -Check the work follow between firm and its vendors. |
| Participant 4       | QA Manager | -QA expert team of developers’ team work under him to assure the quality of all ongoing project which most they receive from vendors |
| Participant 5       | IT Business Manager | -Identification outsourcing opportunities in market  
                     |                   | -Responsible in selection and building relationship with clients and vendors. |
| Participant 6       | HR Manager | -Manage in-house teams  
                     |                   | -Formulate contracts for the vendors & clients  
                     |                   | -Allocate rewards and penalties. |

4.1.3 Case description
In this research, the main focus is a medium-sized IT-company having software house located in heart of city of Lahore; the research is conducted in
Pakistan in order to gather findings and results. Lahore city is second largest city in the country and a growing hub of Information Technology in the country. Firm has a local software house which works as a dedicate development centre and all development tasks are managed locally by projects management teams. This firm is given a supposed name FirmABC by keeping its confidentiality in this research report. *Figure 4.2* gives the illustration of FirmABC onshore as well as offshore activities, firm has several clients around the world. Clients include the individual customers as well as global IT-firms.

![Diagram of FirmABC](image)

*Figure 4.2*: Illustration of FirmABC outsourcing activities.

FirmABC also offshore around 70% of its software development projects to its vendors. Firm is involved in offshore outsourcing, near-shoring and on-shoring as well. Along with offshore software development to distant country, it also transfers its applications to its neighbor as well as its local region. FirmABC has vendors from India, China, Philippines and Pakistan who are involved in application development different aspects.

### 4.1.4 Firm’s hierarchy structure

FirmABC structure consists of chief executive offer, he takes part in top level decision making and new strategies implementation; under him work development & operations manager, senior project manager and HR managers at midlevel and responsible of policies making which helps in attaining strategic goals of the firm. Under them come project managers and team leaders who take decisions during daily operations.
Grounded Theory analytical process is start right after data collection. This process starts by coding data and collect similar data under same categories. Strauss and Corbin (1998) have divided coding in three phases of data analysis such as open coding, axial coding and selective coding (p.57). Process starts by using open code analysis to create categories. During open coding process data from field notes and memos is transcribed in to different paragraphs which contain similar concepts, codes and form categories. This is done by constant comparison and asking questions about these notes (Strauss and Corbin, 1998). Each category (idea, concept, process) has given a discrete name which reflects its actual idea. Many categories emerge from the coding process and are presented in table 4.2 below. This is achieved by organizing collected data in to different categories based on theoretical concept and more categories or sub-categories are emerged during data analysis. Data organization and explanation is done once key categories form. Researcher tries to compare categories with subcategories and relates properties and dimensions with each other. Grounded theory technique is considered the most effective methods to analyze data (Strauss and Corbin, 1998).

### 4.2.1 Codes identification

The systematic process of coding starts right after the data collection. Relevant and conceptual data is transcribed into paragraphs; similar labeled
data from notes and memos with common concepts are gathered into common paragraphs. Theatrical sensitivity is done by asking questions about data: asking questions such as who, when, where, what, how, how much etc. It helps to understand data and is done at the start of analysis of data. Researcher personal and professional experiences, literature and analysis of the concepts work as grounding tools for conduction grounded theory approach. A memo is maintained throughout data collection which helps in capturing key concepts in the data. About 150 codes are founded in data by labeling data. After constant comparison these codes are grouped under 38 different concepts. These concepts/codes have linkage with data and provide rich explanation of results. After sorting these notes and reading through data again and again, researcher understands many similarities in these concepts, many of them regrouped again. 15 unique categories are emerged from these concepts. Coming examples will show how systematic opening coding process of GT works to form codes, concepts and finally develops categories from raw data.

### Open coding examples

Examples are taken from open-ended interviews and show different participants viewpoints on FirmABC objectives & performance tools. In first example many codes emerged such as good quality, high quality, clients’ satisfaction, customer satisfaction, high priority, low cost, cost reduction etc. All these codes are further grouped under three concepts cost reduction, quality & clients satisfaction and further all these are linked to firm’s objectives.

**Table 4.2:** 2 examples of open codes/ categories and their properties emerge from the text.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Concepts/Properties</th>
<th>Participants’ Word Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives</td>
<td>Cost Reduction</td>
<td>Person3- I understand good quality as our client’s satisfaction.</td>
</tr>
<tr>
<td></td>
<td>Quality</td>
<td>Person4- fail to deliver a quality application always results as failing to achieve firm’s objectives.</td>
</tr>
<tr>
<td></td>
<td>Clients Satisfaction</td>
<td>Person1- Firm’s focus on its objectives is key to its growth.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Person2- cost reduction, high quality and customer satisfaction are highly priority objectives of the firm.</td>
</tr>
</tbody>
</table>
Person 5- I count good quality, low cost & our customer satisfaction as our firm’s key objectives.

Person 6- Firm’s contract always reflects its objectives which are attained at all levels of firm.

<table>
<thead>
<tr>
<th>Performance Measurement</th>
<th>Scope</th>
<th>Time</th>
<th>Cost</th>
</tr>
</thead>
</table>

Person 3- If scope of a project suddenly changes we understand that we are going to have thought time. It adds up in budget and affects the timeline which overall effect a project quality.

Person 4- we learn from our past, if a project failed because of late delivery we take it as measuring tools for future.

Person 1- Once project scope is added, its budget over run & we understand that a balance is very necessary between them factors.

Person 2 – for a project success, It is very important to have a full control over a project scope, budget and timeline.

4.2.2.1 Example1

FirmABC has very clear objectives which align with its business goals. Most of the managers consider it vital to focus on objectives for the firm to grow in a competitive market to meet with different governance challenges. FirmABC is focused to provide quality application development services to its clients by focusing on cost reduction & reaching condition of customer satisfaction by boosting the level of its control over application outsourcing operation. Core area which is on firm’s focus is software/application development, it includes custom application development. Firm-ABC designs and develops application projects; a professional and dedicated developers’ team make sure the QA of all development work, development covers testing and deploying for all projects up to the satisfaction of its customers’ needs. When asked to participants about the key objectives of the FirmABC; most of them replied to provide quality services to its customers, cost reduction & client satisfaction. Participant2 words very clearly states the key objectives of
the FirmABC that cost reduction, quality and customer satisfaction are highly priority objectives of the firm.

4.2.2.2 Example2

Project specification can also be called project scope. FirmABC considers scope as a helpful tool to measure its performance. Firm includes overall work of the AP into the scope. A participant 3 says that If scope of a project suddenly changes we understand that we are going to have thought time. It adds up in budget and affects the timeline which overall effect a project quality. FirmABC scope includes the following characteristics: Project features, Functionality, Data, Contents, Verification of requirement. A participant2 says that for a project success, It is very important to have a full control over a project scope, budget and timeline. Firm budget of a project run-over if there is lack of clarity in requirement of work or scope of the project creep if more function or features are added into it. Keeping scope of the AO clear is very essential in the firm’s success in AP. Time is what FirmABC count as the schedule of a project, which would vary from project to project; sometime it also considered as speed to the services or projects, it is estimated time which a project would take to finish. Firm’s time areas include: Schedule of project, Delivery time, Difference in time zone. Third tool which FirmABC consider to measure its performance is cost which comes after scope and time is estimated. FirmABC s concerned about cost of each project, it believes that there is always some hidden costs which usually are ignored and bring a project to failure. Firm tries to estimate every cost related to a project in order to avoid future challenges in software outsourcing. List of the key costs which firm states are as follow: Outsourcing costs, Vendor’s selection costs, Resources costs, Contract management cost, Transition cost (often considered as coordination cost doing in-house project), Project management costs & Severance cost and retention bonuses. Management is taking certain decisions to check performance of AO. Above three constraints which are scope, time and cost are taken as performance metrics or tools by the management. Management has a policy to measure performance at operation level by studying the cases they have failed in past. Management tries to avoid the same mistake it has done in the past. One manager says that we learn from our past, if a project failed because of late delivery we take it as measuring tools for future. Same way if a project scope is added and budget over run, we understand that balance is very necessary between these factors. FirmABC takes decisions about three factors such as Scope, Time & Cost as a project performance metrics; if a project fails to meet any of them it would fail to qualify. All participants include scope, time and cost estimation as top decision to measure performance of ADO operation.
Table 4.3: List of Unique categories properties & dimensions emerge from the data.

<table>
<thead>
<tr>
<th>Unique Categories</th>
<th>Concepts/ Properties</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>Interfaces</td>
<td>Virtual, face to face</td>
</tr>
<tr>
<td></td>
<td>Levels</td>
<td>Vertical, Horizontal</td>
</tr>
<tr>
<td></td>
<td>Doer</td>
<td>Executive, Midlevel, low Management</td>
</tr>
<tr>
<td></td>
<td>Transformation</td>
<td>Decisions, Information</td>
</tr>
<tr>
<td>Decisions</td>
<td>Levels</td>
<td>Strategic, Tactical, Operational</td>
</tr>
<tr>
<td></td>
<td>Types</td>
<td>Structured, Unstructured</td>
</tr>
<tr>
<td>Organizational Hierarchy</td>
<td>Levels</td>
<td>Top, Midlevel, Low management</td>
</tr>
<tr>
<td></td>
<td>Performance</td>
<td>Rewards, Accountabilities</td>
</tr>
<tr>
<td>Roles</td>
<td>Executive</td>
<td>CEO, Senior PM, Development &amp; Operations Manager</td>
</tr>
<tr>
<td></td>
<td>Mid</td>
<td>QA Manager, HR Manager, IT Manager</td>
</tr>
<tr>
<td></td>
<td>Low Management</td>
<td>PM Managers</td>
</tr>
<tr>
<td>Vendor</td>
<td>Infrastructure</td>
<td>Poor</td>
</tr>
<tr>
<td><strong>Human resource</strong></td>
<td><strong>Good</strong></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>selection</td>
<td>Available</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hard job</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Single &amp; Multi vendors</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Contract</strong></th>
<th><strong>Term</strong></th>
<th><strong>Short term</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Long term</strong></td>
<td></td>
</tr>
<tr>
<td>Contract type</td>
<td><strong>Fixed Price</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pay per Task</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pay per Project</td>
<td></td>
</tr>
<tr>
<td>Characteristic</td>
<td><strong>Decision-making &amp; implementation,</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Allocate rewards &amp; penalties,</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Formulate contracts for the vendors &amp; clients</strong></td>
<td></td>
</tr>
</tbody>
</table>

| **Management** | **Strategic** | **Develop strategies** |
|               | **Align projects objectives with business** |
| Tactical      | **Gather projects requirements** |
|               | **Responsible to manage,** |
|               | **Control and monitoring offshore projects and vendor** |
|               | **Building relationship with clients and vendors** |
|               | **Estimate scope, time line and cost** |
|               | **Prioritizing projects tasks** |
| Operational   | **Manage daily outsource activities** |

| **Relation Management** | **Contract Management** | **Needs and expectations of Stakeholders** |
|                        | **Strategic Level** |
| Vendor management      | **Build Trust** |
| Interfaces             | **Relationships** |
|                        | **Between Firm & its vendors** |
|                        | **Within Firm at Strategic, tactical & Operational** |
| Job Allocation | Prioritize Projects | Projects in regular order  
<table>
<thead>
<tr>
<th>Geographically Distant</th>
<th>First things First</th>
</tr>
</thead>
</table>
| Job Selection       | Jobs Decisions      | Critical Task  
| non-critical to tasks  
| in-depth analysis  
| IP protection |
| Senior Project      | Management          | Strategic Level  
| Control over Project  
| Minimize Risks |
| Controlling         | Objectives          | Scope - Quality  
| Time – Satisfaction  
| Cost – Cost Reduction  
| Decision-Making     | Strategic           
| Tactical  
| Operational levels  
| IP |
| Responsibilities    | Decision making     | Align projects objectives  
| with business objectives  
| Develop strategies  
| Introduce change management to operations |
| Projects Management | Gather projects requirements  
| Prioritizing projects tasks.  
| Estimate scope, time line and cost  
| Manage daily outsource activities  
| Check the work follow between firm and its vendors. |
| Business Development | Identification outsourcing opportunities in market  
| Responsible in selection and building relationship with clients and vendors |
| Resource Management | Managing Staff | Differences in Cultures & Languages  
Geographical Distances  
Operational level |
|---------------------|----------------|-----------------------------------|
| Collaboration       |                | Work Together  
Reduce distances |
| Requirement Analysis | Planning       | Hard task  
Tactical Decisions  
Scaling a project  
Expertise of management |
| Condition of Satisfaction (COS) | | Request  
Clarification  
Response  
Agreement |
| Performance measurement tools | Scope | Quality of project  
project features  
functionalities  
contents  
Project Requirements  
Operational level |
|                       | Time           | In-time Delivery,  
flexible delivery time  
Clients’ Satisfaction |
|                       | Cost           | Costs reduction  
unexpected costs  
Hidden costs  
Transition Costs |
5 Analysis & Discussion of AO Framework

Data is analyzed and key categories are developed; further a core category is emerged by using GT analysis technique. Key components of AO governance model are highlighted and integrated to build AO governance framework at the end of the chapter.

5.1 Developing key categories

Many categories are found during open coding process, in this section researcher tries to compare and relate categories to reach saturation state. Codes are compared with similar situation; categories with similar properties join under same conceptual categories. The aim of this section is to reach saturation, by reducing categories (data) in order to find relationship between them and find core category of the thesis. After reviewing identified categories, researcher finds relationship between above categories (see table 4.3). In this phase these categories are related to their subcategories, and are linked at the level of properties and dimensions (Strauss & Corbin, 1998). It moves the process to a higher level of abstraction by specifying the conditions that give rise to categories and forms basis for the development of the theory (Goulding, 2002). By constant comparison, links are established between categories properties and dimensions and finally 7 substantive categories are found which are shown in figure (5.1). These categories are very important to structure application outsourcing governance framework. They interrelate and depend on each other to support AO governance system.

List of key categories are as follow:

- Management
- Objectives
- Role and responsibilities
- Communication
- Decisions
- Best Practices
- Performance Measurement
Management is core for any application outsourcing governance system; they play key role in achieving firm’s objectives, support in making decisions and managing best practices. Without focusing objectives a firm cannot attain it AO projects success. Roles and responsibilities define who do what and rewards and penalties. Governance model success much dependent on right decisions making, best practices are the activities which support overall governance structure of a firm. Finally performance measurement tools are important to measure the success of AO projects in a governance framework.

During this process of finding categories, two things are expected to happen, first by constant comparison codes are reduced by finding relationship between categories. This helps in emerging some categories with other to reach theoretical saturation which is to make sure that no new codes exist in the data and this is very important for the validation of the theory. Second axial coding assists in finding core category.

5.2 Construction of core category

Selecting core category is the final step in coding process; according to Strauss & Corbin, (1998) this is a “process of selecting the central or core category, systematically relating it to other categories, validating those relationships and filling in categories that need further refinement”. The data is related not only on a broad conceptual level but also at the property and dimensional levels for each major category (Strauss & Corbin, 1998). In the last coding phase a substantive theory is built based on these categories. The
core category is emerged which relates to all other categories, this core category integrates all other categories as shown in figure 5.2.

Strauss and Corbin (1998) core category is selected on the following bases:
- It appears frequently in the data.
- It is central in nature and all other categories can be related with that.
- The name of core category behaves as sufficiently abstract.

Table 5.1: AO governance components’ relationship at Organizational Levels.

<table>
<thead>
<tr>
<th>Org. Levels/ Components</th>
<th>Strategic</th>
<th>Tactical</th>
<th>Operational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>Develop strategies /Align projects objectives with business</td>
<td>Gather projects requirements / Responsible to manage, Control and monitoring offshore projects and vendor</td>
<td>Manage daily outsource activities</td>
</tr>
<tr>
<td>Objectives</td>
<td>Long Term Goals (Quality, Satisfaction &amp; Low Costs)</td>
<td>Medium Term/ Support to Gain Strategic Goals</td>
<td>Short term / Support to Gain Tactical Goals</td>
</tr>
<tr>
<td>Role and responsibilities</td>
<td>CEO/ BM</td>
<td>Senior MGM / PM / HR</td>
<td>Low MGM / Staff</td>
</tr>
<tr>
<td>Communication</td>
<td>Horizontal / Vertical</td>
<td>Horizontal / Vertical</td>
<td>Horizontal / Vertical</td>
</tr>
<tr>
<td>Decisions</td>
<td>Strategic/ Unstructured</td>
<td>Tactical / Semi-structured</td>
<td>Operational / Structured</td>
</tr>
<tr>
<td>Performance Measurement</td>
<td>Cost Reduction/ Clients’ Satisfaction / Quality</td>
<td>Hidden Costs / flexible delivery time / Quality of project</td>
<td>Scope/ Time / Cost</td>
</tr>
</tbody>
</table>

All key categories are related to each other in different dimensions, the key dimensions which appear to be common in all categories are their linkage at strategic, tactical and operational levels; organizational levels relationship is shown in above table 5.1. A new category is emerged based on these three organizational levels and named as “Organizational levels”. This core category represents 7 key categories relationship at strategic, tactical and
operational levels of organization. Three organizational levels are appearing repeatedly in the data and their properties and dimensions relate to almost all other categories. All categories directly or indirectly relate at strategic, tactical and operational levels in the organization. Figure below shows the interrelationship between all categories emerged during axial coding phase.

**Figure 5.2:** Core category relation with other categories in AO Governance Framework

Linkage of all these categories at strategic, tactical and operational levels in application outsourcing governance model helps firm to form application outsourcing governance framework.

5.3 Identified categories - components of AO Governance

Eight components are found which are very vital for a company application outsourcing governance framework. Seven conceptual components link with core component at strategic, tactical and operational levels are show in table 5.1 in order to form a framework for successful deliveries of application outsourcing projects.

5.3.1 Organizational Levels

There are three organizational levels emerge from the data which are strategic, tactical and operational levels. All other elements link with each
other at these organizational levels to form AO framework; details of these dimensions are shown in Table 5.1.

5.3.1.1 Strategic Level

At strategic organizational level mostly unstructured decisions are made by top management and affect the firm at large. These are unstructured as they do not have prior procedure or solutions, in other word we may say that at strategic level processes or activities are un-programmed; this means that management has no processes in place to handle strategic level activities or decisions and need long time and brainstorming to develop proper solutions. Top management is responsible for activities at strategic level because they have complete picture of all complex elements and can put all aspects into a logical way to give solutions.

5.3.1.2 Tactical level

Different tactic are made at tactical level which last for months or up to a year; tactical activities are midlevel processes or activities which are more specific than strategic decisions. Midlevel management is involved in these processes and effects relationship between firm and its vendors.

5.3.1.3 Operational level

At operational level, management handles day to day tasks, which have defined procedure and rules and need short time to accomplish, these decisions, activities or practices are put under operational level of an organization. At this level low level management determines the way in which operations are conducted and designed to attain tactical goals. Operational activities are usually structured; they have well defined procedure and roles; and affect the firm for a short time.

5.3.2 Management

Management is important element in any governance model, they are the key people who are involved in decision making and implementation; they plan, control and execute the processes of application outsourcing. To manage projects and resources requires knowledge and skills for managers; knowledge factor is very vital in decision making; it helps to manage application development processes. Management of FirmABC is responsible of taking decisions at different organizational levels. In FirmABC executive management involves in activities at strategic level and these are usually
relates long-term decisions. Senior management is taking medium term
decisions to achieve defined objectives of the firm. At operational level
management takes structured decisions which involve day-to-day application
outsourcing activities. Low management and team leads are involved in
short-term day to day activities at operational level.

5.3.3 Objectives

Focusing on its objectives is basic factor of firm success in its AO
governance system; application outsourcing governance objectives are
similar to firm’s business objective (Gewald and Helbig, 2006, p.3). Firm
objectives affect governance process, and are kept in focus firm throughout
the applications development life cycle. FirmABC governance process helps
in supporting firm’s objectives at different organizational level. Sometimes
these three organizational levels overlap each other. FirmABC outsources its
application activities mainly to reduce development cost and to free up its
resources so it can concentrate on its core competencies to survive in the
competitive market by concentration on quality and customer satisfaction.
Here are three key objectives of the FirmABC:

5.3.3.1 Cost reduction

Cost reduction is the key objective which firm is striving to meet. Management major focus is to refine the application outsourcing governance
and make the process cost effective. Firm allocates most of non-critical job to
its vendors to save development costs where its vendors are responsible to
provide resources and infrastructure.

5.3.3.2 Customer satisfaction

Customer satisfaction is related to meet the customer needs; FirmABC sets
objective to attain customer satisfaction at the highest priority. It gains
clients’ satisfaction by developing the application projects as per their
demand. When an application project meets the requirements a customer
hope for that satisfied the customer need. A project in-time delivery is also
related to customer satisfaction.

5.3.3.3 Quality

Quality is much dependent on the performance control; it is mainly
dependent on managing scope of a project. It is about to gather requirements
as per its customer demand and deliverables do not creep the scope of the
project.
5.3.4 Decisions

Decision-making is a process which is related to overall application outsourcing governance. Decisions determine the present situation and decide on where to take the firm by taking a certain actions. FirmABC decisions are taken by the management at all three levels of a firm; they are made at three different organizational levels and affect the application outsourcing governance at large. The division of decisions is made in rational way, through management they are made and conveyed throughout the organization.

5.3.5 Role and responsibilities

FirmABC has assigned different roles and responsibilities at different organizational levels. Roles and responsibilities of all participants are mentioned in empirical data. Once firm decided to transfer application development information to its vendors, this means to transfer responsibilities of application development to firm vendors’ procurement teams which need to be monitored. Whole development takes place at vendor side; vendor is responsible for providing resources to work on AO, infrastructure to support the development and security and IP protection of firm’s intellectual asserts. In this case in-house responsibilities also increase to make sure that AO process is in control so to avoid risks. This is about who is responsible of what, responsibilities also adding accountabilities and rewards. The responsible staff should hold accountable for wrong decisions and would be rewarded on good decisions.

5.3.6 Communication Interfaces

FirmABC uses different communication platforms to transfer and share information and decisions. Good communication improves the understanding between both firm and its vendors. Communication is made at strategic, tactical and operational levels in the organization which also helps in building trust & understanding. Communication interfaces help to reduce uncertainties between Firm and its vendor’s teams; in turn that reduces distances between them. Distance means not only geographical distance but knowledge, cultural and organizational distances. It is not only critical in understanding and conveying decisions during AO operation but also a good mechanism for controlling and assessing projects performance and relationship levels with firm’s vendors. The most effective way of communication are virtual spaces, firm’s memory, voip & skype conferences, e-mail, voice mails, video or audio conferences and groupware etc.
At three organizational levels, a certain level of formal as well as informal communication is going on amongst FirmABC. Horizontal communication is made between firm and its vendors; and vertical communication is expected within firm at different level so senior management knows what is going on tactical and operational levels so they may make decisions and control activities according to the situation. In this case communication is expected to take place between project team and firm’s upper management. More critical communication is expected between project team and its vendors’ team. Management communication with its vendors’ management increases the efficiency and overall relation and performance of application outsourcing governance.

5.3.7 Best Practices

FirmABC best Practices are the activities of the firm at strategic, tactical and operational levels in order to govern project development lifecycle. Best practices are essential part of AO governance model, they form processes to support AO governance model. A list of best practices of FirmABC is given below which are supporting AO governance at different organizational levels.

5.3.7.1 Vendor Selection

Vendor selection is Firm-ABC’s fundamental part of application outsourcing best practices, Firm’s vendor is its partner in business and governance affects firm’s relationship with its vendors. Vendor selection comes at strategic level where top management makes decisions in selecting the criteria of vendor. When firm allocates its assignments to external sources then it has to fully depend on them; it is very vital to understand who vendor is. Many factors can be considered in order to select a vendor such as, time differences must be consider in advance, infrastructure which includes internet, electricity, and hardware & software availability. Law and order situation of the vendors country, and polices of government also should be considered. Further, firm has vendor’s cultural ethics understanding & norms comparability; vendor’s legal environment includes copyright protection & intellectual property rights. Benchmarking technique is good way to select vendors, first firm select multi vendors after considering all the above discussed points. Next it benchmark and see who suits the firm the most. Firm-ABC vendor selection strategy is to avoid most of the risk factors which are very usual for a service buyer firm. Language and culture could also create many challenges for a firm but having local and neighboring vendors could avoid many geographical and cultural issues. Differences in geographical location may bring time zone differences and firm may have to make new strategies, for example to consider round the clock projects management. Cultural barriers
could create language & communication problems such factor could lead a
firm towards failure in its AO operation.

5.3.7.2 Contract arrangement

It is very necessary to include all the key points when writing a contract;
stakeholders consent is very vital for a successful contractual agreement.
Service Level Agreement (SLA) is an agreement between service buyer and
its vendors, where clear objectives and all parameters are defined between all
them. Top-mid level management involves in contract arrangement where
mid level management prepare contract and consult with top management for
approval and afterwards, midlevel management stay in constant connect with
its vendors to secure the contract and develop good contractual relationship
with its vendors. The three main areas are considered before signing a
contract which are general, financial and legal contract arrangement factors.
After analyzing the data researcher understands that FirmABC following a
fixed price contract model with its vendors, where firm considers a specific
price for a project after estimating it. Firm is focused on ‘fix-contract’ where
vendors takes the responsibilities of technologies, resources and maximum
work load whereas firm keeps relationship management and project
management activities in-house. Sometime, in fixed-contract a service buyer
has to sacrifice the quality of the application projects (McIvor, 2010, p. 123).
In designing a contract Firm-ABC focuses to gain maximum control over its
application outsourcing operation to secure the quality of the AO projects.

5.3.7.3 Project requirement analysis

Requirement planning is the vital activity in application development and
tactical level of organization. Scaling a project is not an easy task; it requires
time and expertise of management. Researcher has found from the interviews
data that FirmABC is using a quite effective policy for gathering a project
requirement shown in figure 5.3. Firm has adopted the practices to analysis
project requirements before the agreement with its clients. Four steps can be
observed which firm uses for preparing a condition of satisfaction (COS)
document. A request is received from the client, and then firm ask
explanation on request for the clarification. This request and clarification
cycle goes on till firm understands complete requirements of a project. In the
next phase firm gives its response on the request and after analyzing and
considering if firm is capable to satisfy client’s request. In the final phase
client restate its request and both client and FirmABC come to an agreement
on this project.
Figure 5.3: Steps of COS process

Scope & limitation are made in order to avoid future issues, and to deliver project in-time, within a defined cost and scope. Feasibility is prepared which not only includes financial but also the technical scales as well. This document of COS states budget, resources required, cost, infrastructure & technologies needed for the received request. Good decisions on requirement analysis make an application development project successful. This way firm receives accurate project requirements and FirmABC being a service buyer repeats same cycle with its vendors to transfer actual data on the application project.

5.3.7.4 Job selection

This is very critical task taken by senior management of projects; it is deciding on what job to keep in-house and what to outsource to vendor. This is a very significant stage here firm does in-depth analysis of all the core activities to decide on jobs. At strategic level a strategy involves in decision-making on which service would be delivered by internal department and which to outsource to external service providers (Beulen et al. 2006). Intellectual property (IP) protection is very vital element; a job which firm outsource should be partial and firm avoids outsourcing a complete AO project to its vendor in order to secure firm’s IP. Further firm is committed to give non-critical jobs to its vendors; and to keep critical jobs in-house. This way firm boosts it control on AO process and minimize risk during its AO governance.

5.3.7.5 Job allocation

“First things First” is mid level policy to handle firm’s application projects; usually projects are taken in regular order. Once a project enters, FirmABC prioritizes the tasks as per their order unless it is very important task and receive special instructions from senior management; process of job allocation is depicted in figure 5.4. a project enter and get authorization from senior management and project management department make analysis,
estimate and report back. Then this project transfer to firm’s vendors and after accomplishing goes to QA department and tested and deployed.

**Figure 5.4: Application development outsourcing - Job allocation process**

5.3.7.6 **Resource management**

Resource management is an operational level activity; it is difficult to manage outsourcing staff, project managers have to consider the difference in cultures and languages; it is not just to transfer information via e-mail for a project rather PM have to overcome all issues related to vendor’s teams such as cultural, geographical and language barriers in-order to attain a project objectives. Further, project managers not only understand these differences by themselves but also help onsite and offshore teams to work together more efficiently to reduce distances.

5.3.7.7 **Knowledge Management**

FirmABC job is to transfer knowledge smooth between the stakeholders, stakeholders include firm’s vendors and clients. KM activities are encouraged by management and most of the KM taken place at operational level in the firm. Knowledge factor within the firm is considered a vital factor. FirmABC onsite project management team communicates the project data to its offshore vendor teams and make sure that knowledge has been defined, captured, transferred and coded comprehensively by vendor’s teams so it deploys knowledge to attain project objectives. FirmABC uses different interfaces, skills and processes to make sure that information of a project enters into firm stays in its actual shape. Once a new project enters to FirmABC after authorization, its requirements are gathered and confirmed, and transferred to development center. It is vital to receive actual knowledge then transfer it to vendors and finally receive it back in application form accordingly. Knowledge transfer cycle is shown in figure 5.5.
5.3.7.8 **Control the projects**

Control over application outsourcing projects helps FirmABC to enforce its own decisions at all three organizational levels in the firm. Less control give an opportunist vendor a chance to invade firm’s intellectual asserts and damage its IP. Controlling a project also helps firm in controlling a project timeline, budget and scope. Control at different levels is made in order to solve issues to gain successful outcome of the projects. Changes in a project scope need to decide on revisiting project scheduling and resources. Strong control helps FirmABC to realign its projects’ objectives with its overall objectives. In this stage FirmABC works closely with its vendors’ teams to see if objectives are being met and deliverables are being achieved to ensure the success of the AO projects.

5.3.7.9 **Relation Management**

Relation management practice is taken place at all three organizational levels, at strategic level it is being maintained by contract management, at tactical and operational level relation management within firm and with its vendors’ team gets help by communication interfaces which coordinate management to build trust and relationships. It is very hard to manage onsite application projects; in case of offshore projects, project managers have much hard time in decision-making. Managing application outsourcing is more difficult as it is hard to communicate knowledge to those who are at distant geographically. Firm’s management assists in building offshore relationship; offshore relationship requires delicate handling and good efforts by management to maintain a long term relation. All stakeholders have different interest in a project and their needs and expectations are important from the beginning to the end of a project lifecycle; and its firm’s management responsibility to maintain good relationship with its key stakeholders by understanding their needs.

**Figure 5.5:** knowledge transfer to and from the FirmABC
5.3.8 Performance Measurement

The most critical practice in application outsourcing governance which is to measure the performance of AO projects; failure to measure project performance can take FirmABC towards failure. The empirical data shows that scope, time & cost are at top priority of firm. Scope, time and cost come into operational decisions and also called triple constraints of a project, shown in figure 5.6. Operational level management is daily involved in making decision about these constraints; a trade-off between these constraints is required for any project success (Badiru, 2009). Triple constraints are very important for the success of any AO operation if one constraint is not measured well other would over run and cause the failure of the project and trade-off between them is very necessary. It is a qualitative approach which is also used as an effective method to measure performance. (Badiru, 2009, p.27)

![Figure 5.6: Scope, time and cost as Performance Measurement tools](image)

Midlevel management also involves in authorizing a change in scope, time or cost of a project. Estimating and controlling these constraints is necessary for a project success. All these constraints directly or indirectly affect each other. Whole FirmABC application governance is dependent on these constraints. Objectives of application outsourcing governance are dependent of these three elements. Firm is much concerned about these components of a project to identify different challenges and further to handle them by adopting different solutions. Not only late delivery or hidden costs effects a project but also the scope of a project is very essential in order to gain a quality and satisfactory outcome from AO operation. Firm makes sure that all its project features, functionalities, contents and requirements are well estimated and verified. Even if a project of application outsourcing has low price but fails to meet its timeline, it will fail meet clients’ satisfaction. It is very essential for project managers to calculate a very flexible delivery time of the AO project. FirmABC considers all costs before finalizing a deal of AO project, in many cases hidden and unexpected costs leads to the failure of an AO project. Change in budget definitely effect the project status and lead it to failure if the firm has no or less margin of profit. All project costs including
outsourcing, transition and project management costs are estimated and controlled accurately.

### 5.4 Integrated framework of AO Governance

Eight abstract categories emerged during the data analysis; each category represents a component of AO governance model. Components include organizational levels, firm’s management, their roles and responsibilities, decision-making, best practices, performance measurement, firm’s objectives and communication interfaces. All eight elements are vital and should integrate to form effective and efficient AO governance model and depict in Figure 5.7. Organizational level is emerged as core category and is placed in the middle of the AO model, and consists of strategic, tactical and operational organizational levels. Seven key categories are placed after the core category, whereas all other categories and sub-categories which emerge during coding process are circling key categories/components of AO governance framework. All other components of AO governance are directly or indirectly related to each other at organizational levels and facilitate to develop an integrated model of application outsourcing governance.

**Figure 5.7: Governance model for Application Outsourcing**
Management is a vital part of this model where top management takes strategic decisions which are long term; midlevel management is responsible for taking tactical actions to achieve strategic objectives. Low level managers handle operational level activities. Other key element is firm’s objectives; objectives cannot be spared from governance model in order to attain success in firm’s AO projects. Communication interfaces reduce the distances between service buyer firm and its vendors’ teams; communication is done on both horizontal and vertical ways. Horizontal communication is taken place between FirmABC and its vendors and vertical communication is taken place within firm at different levels.

FirmABC is involved in many best practices to support AO governance operation; these practices are taken place at different organizational levels. These best practices form processes which aid and sustain overall AO governance model. FirmABC takes projects measurement tools which measures the performances of AO governance components, measurement tools include scope, time and cost of each project which are controlled and measured throughout a project lifecycle. In the given framework governance components at all organizational levels are actively involved to form a successful AO governance framework. They integrate to form application outsourcing governance framework which leads FirmABC application outsourcing projects towards success.
6 Conclusion

This is the final chapter that concludes and relates whole research paper, briefly summarizes of research problem, research question and research methods. Talks about application outsourcing governance critical components and presents application outsourcing governance framework. It gives some suggestions for future research at the end.

IT outsourcing has changed the global environment of competition; IT companies are shifting their business activities from insourcing to outsourcing. Success rate in application outsourcing is very low because of poor governance systems of IT-firms. This research aims to fill the void of literature on application outsource governance framework. Researcher has found little information on components critical for the success of application outsourcing projects; these components require to integrate in order to form a successful governance model. Such a framework is specifically aimed at service-buyer IT-firms that are involved in offshore application development. The key question which is raised and answered during this research report is that “what are the essential components of a successful application outsourcing governance model?”

This study is conducted on an IT-firm that outsources most of its application assignments to its vendors in order save costs and gets access to its vendors’ infrastructure. Three types of interview methods are used as data collection methods, interviews are based on predefined questions from literature review. Interviews are conducted with the participants who work at managerial level in FirmABC, this is helpful to grab information on firm’s AO governance structure. This report uses a qualitative research method and inductive in nature, whereas social constructivist’s philosophical worldview helps to collect in-depth understanding of participants’ point of views. Grounded theory coding technique facilitates to analyze data; coding technique helps to code and categorize data into different components. Seven key components are formed during GT analysis process; a core component emerged from these seven components by relating them with each other. Finally, eight abstract components of AO governance integrate to form application outsourcing governance framework for successful deliveries of AO projects.

Research employs GT analytical technique to analyze data. During this a core component emerges as organizational levels and other seven conceptual components are formed such as firm’s management, firm’s objectives, roles and responsibilities of staff, decision-making, communication interfaces, AO best practices and performance measurement tools. All categories relate at
organizational levels; management supports firm’s objectives at strategic, tactical and operational levels and plays important role to make and implement organizational decisions. Best practices and decision-making processes support AO governance model and improve its efficiency and success rate. Horizontal communication between service buyer firm and its vendors improves relationship and vertical communication interfaces transfer management decisions within firm at different levels. Roles and responsibilities describe staff roles and responsibilities and it further defines the rewards and penalties. Final element is to measure the performance of AO projects; it is to estimate and control scope, time and cost of AO projects throughout their lifecycles. Trade-off between these elements is vital for a successful governance model. In the end of the report application outsourcing framework is formed by integrating all key components of application outsourcing governance; this governance model works well for service-buyer IT-firm for the successful deliveries of application outsourcing projects.

6.1 Future Research

This research is conducted on a single medium sized IT-firm that is involved in offshore software development; this case may face some limitations because it is just focused on one IT-firm where only top management takes part in interviews sections. Researcher tries to highlight the components which can be vital for a successful application outsourcing model in only in service buyer IT-firm perspective. Research does not emphasize much on the other side of the picture that is to illustrate the vital components of a framework in a service provider IT-firm perspective (i.e. VENDOR).

A qualitative research method is used in this report to answer the research question where interviews are used as data collection methods. Quantitative research methods can also be used to collect numerical data; this static data can also be presented into tables and graphics. Data can be collected by online surveys. More than one company can participate in survey; by involving many IT companies around the globe; this will help to come up with more dynamic results. Further, mixed method approach seems also valid for this type of research. For example, researcher may collect qualitative data first and then go to quantify the data or could collect quantitative data (experiment/survey) and then use qualitative interviews with participants to see how they view it and if they are agreed with the results collected quantitatively.
Additionally, this research can be conducted on an IT-Firm which is geographically located in different region compared the presented case. This research can further extend to larger IT-firm instead of just focusing SMEs to understand the bigger picture of AO governance model.
References


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Simmons, A. D., 2005. *Governance of Outsourcing*.: IT Governance Institute


Appendices

QUESTIONS ON APPLICATION OUTSOURCING PROJECTS

Purpose of the questionnaire:

The aim of this questionnaire is to understand the key challenges and risks factors in application outsourcing for a mid size IT-firm; best way to measure the risks and best practices to manage these risks. Your feedback is very important and would be much appreciated:

Appendix A

General Questions: 1-9

Date:

1. Name of Participant:

2. Organization Name:

3. Outsourcing responsibilities:

4. Designation:

5. Work Experience in IT-outsourcing?

6. Did you work with ITO Vendors in any other Firm?

   If yes, how long and what was your job’s responsibilities?

7. Have you work abroad in an IT-firm if yes, where and how Long?

8. Do you prefer to keep this Information confidential?

   Yes or No:
Appendix B

Open-Ended Questions: 1-13

This section would be recorded in order to listen more time to perceive the participant’s point of view on application outsourcing, and to gather and analysis empirical data!

1. Do you prepare risk management plans? Yes or No; briefly explain if Yes.
2. What are best Governance Decisions to manage risks associated to application outsourcing?
3. How important knowledge transfer is to attain satisfactory result from a AO?
4. Describe briefly firm’s Governance system?
5. What is your or firm view about focus on core competencies, what in the case if a project is not related to core competencies?
6. Any risks your suppliers or clients may have faced from your IT-outsourcing decision?
7. Do you consider scope, time and cost as a valid project estimation method?
8. What are the key objectives of the firm and how important are they?
9. Share any lesson learnt from your previous mistakes in AO?
10. Do you think that vendor selection is important, if so what are the elements a outsourcers should consider before selection a vendors
11. What do you think are the main elements a contract should have?
12. What were the measures taken to ensure the success?
13. How IT-outsourcing has helped to reduce the costs in your organization?

*Do you like to add any points more points, I appreciate your participation in this interview?
Appendix C

Questionnaires: 1-8

Q1. What do you think are the key Objectives of application outsourcing in the firm? Need your explanation …

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Objectives</th>
<th>Priority</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Costs Reduction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Focus on core activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Customer satisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Gain strategic goals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Competitive advantage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Professional services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Access to latest Technologies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Reduce time to market</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Manpower needs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>---Add Point (s)---</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:

1. You may give priority Very High, High, Normal, Low or Very Low to rank the Objectives list.
2. Please add any other objectives if you consider them to be in the list?

Q2. What are the key Challenges you or your Firm faces? Need your explanation …

<table>
<thead>
<tr>
<th>Sr.no.</th>
<th>Challenges</th>
<th>Priority</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Deciding what jobs to keep in-house and what to outsource</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Selecting the right vendor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Cultural barriers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Designing a contract</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Setting up a governance model</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Ongoing management of the vendor</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Contract management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Geographical location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Political stability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Vendor Selection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>---Add Your Point (s)---</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:

1. You may give priority *Very High, High, Normal, Low or Very Low* to rank the Challenges list.
2. Please add any other Challenges if you consider them to be in the list?

Q3. What do you think are the key Benefits of application outsourcing in the firm? Need your explanation …
Q 1. You may give priority Very High, High, Normal, Low or Very Low to rank the Benefits list.

Q 2. Please add any other benefits if you consider them to be in the list?

Q 4. What the key unfavorable outcomes of application outsourcing you have faced? Need your explanation …

<table>
<thead>
<tr>
<th>Sr. no.</th>
<th>Unfavorable outcomes / Risks</th>
<th>Priority</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hidden &amp; unexpected costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Delay in delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Service dissatisfaction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. Poor quality and reliability
5. Loss of organizational competencies / critical skills
6. Loss of control over projects
7. Vendor’s opportunism
8. Loss of innovative capacity
9. Vendor lock-in
10. Lack of trust
11. Contractual issues
12. ---Add Your Point (s)---

Notes:
1. You may give priority Very High, High, Normal, Low or Very Low to rank the list of unfavorable outcomes.
2. Please add any other unfavorable outcomes if you consider them to be in the list?

Q 5. Which you consider are the most useful Knowledge Areas to determine the risks associated to application outsourced IT projects? Need your explanation …

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Knowledge Areas</th>
<th>Priority</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Scope</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Human Resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Vendor Procurement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>---Add Your Point (s)---</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. You may give priority Very High, High, Normal, Low or Very Low to rank the Knowledge Areas list.
2. Please add any other Knowledge Areas if you consider them to be in the list?
Q 6. What do you think are the key Performance assessment factors to application outsourcing? Need your explanation …

<table>
<thead>
<tr>
<th>Sr. n.</th>
<th>Risk assessment factors</th>
<th>Priority</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cultural</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Political</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Geographic Location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Quality Standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>People</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Scope</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Intellectual Property Protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Contract - SLA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>---Add Your Point (s)---</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:

1. You may give priority *Very High, High, Normal, Low or Very Low* to rank the Performance Measurement Metrics from the list.
2. Please add any other Performance Measurement Metrics if you consider them to be in the list?

Q 7. Which are the critical components of application outsourcing Governance?

<table>
<thead>
<tr>
<th>Sr. no</th>
<th>Risk minimizing practices</th>
<th>Priority</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Round the clock project management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Project management control with the vendor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Planning a project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>PM control with the organization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Vendor technical knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Manpower needs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Intellectual resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Assessment of scope, time &amp; cost of the AOP</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
One team concept - Participative projects association with Vendor

Strong communication platforms

---Add Your Point (s)---

Notes:

1. You may give priority Very High, High, Normal, Low or Very Low to rank the critical components of application outsourcing Governance from the list.
2. Please add any other critical component of application outsourcing Governance if you consider them to be in the list?

Q 8. What do you consider the best Decisions to increase the control over application outsourcing projects? Need your explanation …

<table>
<thead>
<tr>
<th>Sr.no</th>
<th>Best Decisions</th>
<th>Priority</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Peer Relationships</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Quality assurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Communications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>First-come-first-go</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Add new professional to resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Knowledge transfer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Empowerment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Prioritize the work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Knowledge sharing and know how</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Work as a Team</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Key Strategic Issues Review Meeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Control over AO operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Stakeholder Buy-in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Management involvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Scale the Project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Focus on Objectives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Requirement analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>---Add Your Point (s)---</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Notes:

1. You may give priority Very High, High, Normal, Low or Very Low to rank the best Decisions list.
2. Please add any other best Decisions if you consider them to be in the list?

Thank you for your participations!