

# **MEASURES FOR ASSESSING RISKS IN GLOBAL IT OUTSOURCING**

**MOHAMMED ASIF PASHA**

## **MEASURES FOR ASSESSING RISKS IN GLOBAL IT OUTSOURCING**

Submitted by Mohammed Asif Pasha to the University of Skövde as a dissertation towards the degree of M.Sc. by examination and dissertation in the School of Humanities and Informatics.

**Date**

I hereby certify that all material in this dissertation which is not my own work has been identified and that no work is included for which a degree has already been conferred on me.

Signature: \_\_\_\_\_

## **Acknowledgments**

I gratefully acknowledge the support of my supervisor Dr. Eva Söderström for her guidance, encouragement, insights and contribution to the making of this thesis. I especially thank for her patience. I would also like to thank my examiner Prof. Benkt Wangler as well as the rest of the people who have been involved in this thesis.

# MEASURES FOR ASSESSING RISKS IN GLOBAL IT OUTSOURCING

Mohammed Asif Pasha

## Abstract

The concept of outsourcing is a hot topic even today. The area of IT has received more attention when compared to other areas of outsourcing. Many organizations started outsourcing IT functions to other countries to access international markets. There lie many risks that are overlooked by these organizations. These risks need to be properly assessed and managed. This research investigates the potential risks perceived to be most relevant in the process of IT outsourcing from the customers point of view and how organizations can eliminate these risks by providing measures to assess risks. Literature analysis is the methodology used for conducting this research as it is assumed to cover all aspects of risks that lie in global IT outsourcing process.

**Key words:** IT, IT outsourcing, global, supplier, motives, risks, category, measures.

## CONTENTS

1. Introduction and Background.....	1
2. Focus and Expected Result.....	2
3. Research Approach.....	2
4. Information Technology	
4.1 Definition.....	4
4.2 Major functions of IT.....	6
5. Outsourcing	
5.1 Definition.....	10
5.2 Motivation for Outsourcing.....	11
5.3 IT Outsourcing.....	13
6. Risks	
6.1 Definition.....	15
6.2 Types of Risks.....	15
7. Related Work.....	18
8. Analysis	
8.1 Financial Risks.....	20
8.2 Technical Risks.....	21
8.3 Managerial Risks.....	23
8.4 Geographical Risks.....	25
8.5 Concluding Analysis.....	28
9. Results.....	29
10. Conclusions and Future work.....	30
References.....	31

## 1. INTRODUCTION AND BACKGROUND

The concept of outsourcing is not a new phenomenon but yet it's a hot topic today. Almost every computer and the business magazines focus everyday about outsourcing. Many new outsourcing deals are regularly announced in the press. Outsourcing is representing a major institutional change that allows new ways of conducting business (Frost, 2000). All forms of public and private sectors, small and large are increasingly outsourcing due to the advantages it offers (Gupta and Gupta, 1992). In today's business environment world it is possible to outsource virtually any aspect of the business (Embleton and Wright, 1998). The first major outsourcing initiative to receive worldwide publicity came in 1989 when Eastman Kodak hired outsiders to buy, operate and maintain its information processing systems (Sparrow, 2003). Outsourcing is becoming an increasingly more common practice among organizations looking to alleviate some or all of their information systems/Information technology functions. Outsourcing is now a significant and accepted element in the business strategy of major organizations (Augustson, 1998). The goal is better quality at lower costs.

The area that has received substantial attention in the outsourcing literature has been IT (Hurley, 2001). IT outsourcing has been encouraged by the technological advancement, dramatically increasing in quality and significantly decreasing cost (Kakabadse and Kakabadse, 2005). IT systems are expected to meet very high standards of operation and processing integrity, while offering round-the clock availability, security, and good performance (CICA, 2003). Outsourcing information technology operation has been recognized to have important potential benefits, including cost reduction, improved quality of services, and access to technological expertise (Bahli and Rivard, 2004). Trend indicates that more and more IT spending will go to global solution providers (Nair and Prasad, 2004). Global outsourcing strategies were believed to help improve performance, increase access to international markets and leading-edge technologies (Elmuti and Kathawala, 2000).

There is no human activity that does not involve risk. IT outsourcing is no strange to risk. There will be risks at every stage. It would be appropriate to consider risks in outsourcing before embarking on this journey. Once the risks have been identified they should be assessed and proper programs should be put in place to mitigate those risks.

This research investigates *the potential risks perceived to be most relevant in the process of IT outsourcing from the customer's point of view and how companies can eliminate these risks i.e. providing measures to assess risks*. With this aim in mind, extensive review of the literature on IT outsourcing has been done. Based on the review of literature, this thesis identified major risk categories of global IT outsourcing. A precise account of potential motives and risks of global IT outsourcing provided a basis for sound research.

This thesis starts by introducing the reader what its focus and expected result is and the study's research approach. Then the concept of information technology, its advantages and the major functions of IT that are of interest to the area of outsourcing. Chapter 5 defines the area of outsourcing and reviews the main motives for outsourcing and the concept of global IT outsourcing. Chapter 6 outlines the potential risks identified in the process of global IT outsourcing. Chapter 7 describes the related work done in this area. Chapter 8 is analysis. Chapter 9 shows the results of the study. Chapter 10 concludes and gives future work.

## **2. FOCUS AND EXPECTED RESULT**

This thesis focuses on in-depth information of risks of IT outsourcing. Earlier research in the area of outsourcing has been investigated in order to gain knowledge about the process of outsourcing. This research investigates the potential risks perceived to be most relevant in the process of IT outsourcing from the customer's point of view and how companies can eliminate these risks. The primary motivation for this thesis is to build on previous studies and provide much needed analysis work in an area of importance to the managers of a customer's firm. The next section research approach shows an overview of the approach followed. The expected result is the assessment of risk from literature and providing measures for each identified categories through literature analysis. The managers of the companies who want to outsource their IT services to other countries can be benefited from this thesis as the division is made of different kinds of risks of global IT outsourcing. My goal is to widen manager's views of the global outsourcing of IT and to support them making aware of the potential risks.

## **3. RESEARCH APPROACH.**

The focus of the research is on the risks of global IT outsourcing and more specifically the types of risks emerging in the process of global IT outsourcing. Literature analysis has been chosen as the research method to achieve the aim of the thesis. It has been chosen, so that much focus can be achieved when compared to other research methods. In literature analysis, there is a possibility to focus on previous theoretical as well as empirical studies on a broader approach. Aubert et al (1998) proposed a framework for categorizing risk factors identified in the literature. Through literature analysis only the dynamics of risks can be discussed more when compared to other research methods like case studies, questionnaires or interviews. With these methods there is less possibility to focus on a broader approach. Thus literature analysis seems to be more suitable for this type of study.

The aim of the thesis is to develop a comprehensive overview of the available measures for assessing risks in global IT outsourcing. Measures in this context are providing specific information for accomplishing some task. The task here can be to act to put an end to the process or continue with some changes. The approach is a hierarchical structure built with aim including risk assessment and risk measure phases (Fig 1). The aim includes these two phases because it is assumed that risk assessment in the first step with the activities of assessing risks and categorizing them can obtain a proper comprehensive overview of measures. Only when risks are properly identified, measures can be put into place. With the categorization it can be made easy to provide measures in the second step for the categorized risk instead of concentrating on all the individual risks. This categorization forms a sound basis for providing measures. This thesis has analyzed literature as described as appropriate by Kliem (2004), which says when the risks are categorized they become even more narrow and easier to manage. This thesis can be handy to managers of the customers who wish to outsource its IT functions.

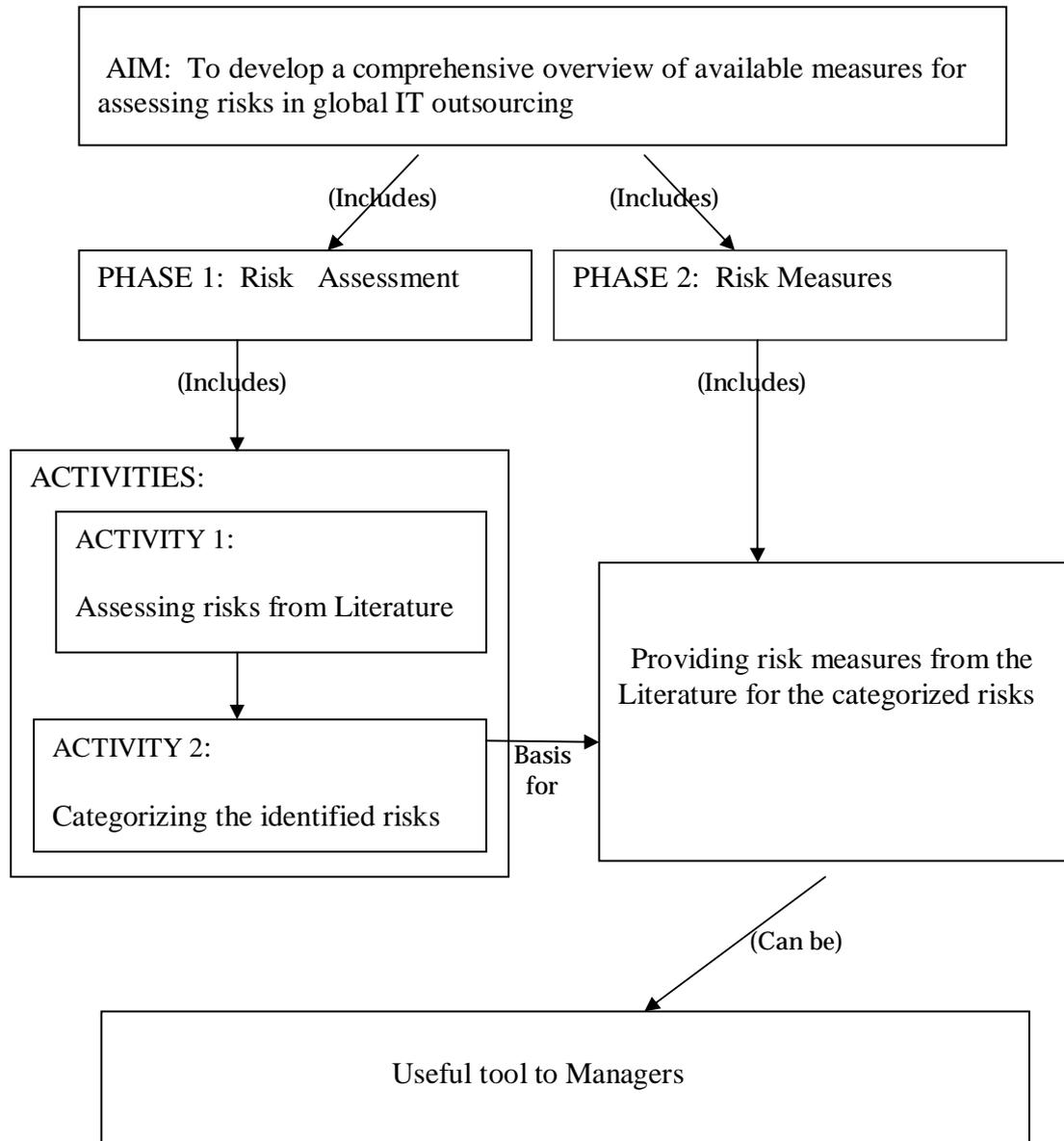


Fig. 1. Research Approach.

## 4. INFORMATION TECHNOLOGY

This chapter presents the basic concepts related to information technology and its advantages. It also includes the major functions of information technology that are of interest to the area of outsourcing.

### 4.1 DEFINITION

There is hardly an area of everyday activity where information technology is not utilized in some way (Bannon, 1996). So extensive is the use of information technology. Some definitions of information technology from the literature,

- Information technology deals with a wide range of mostly electronic devices for collecting, storing, manipulating, communicating and displaying information (Loudon, 2000).
- Information technology is the technology used to acquire and process information in support of human purposes (March and Smith, 1995).

From the above definitions information technology can be defined as,

“Technology that encompasses creating, storing, and utilizing of information in various forms to support the purposes of human beings”.

This is the definition to be used in the thesis. IT is today transforming almost all aspects of our lives. IT has become an organizational necessity in order to support routine data processing operations, initiatives for competitive advantage, and business transformation exercises in products, organizational structures, work-roles and patterns of relationship between organizations. IT products and services enable firms, organizations, and individuals to conduct their business transactions more efficiently, effectively and more rapidly (Eathington and Swenson, 2002). Information Technology (IT) is radically altering the balance of power between institutions, governments, and people by broadly disseminating various important information (Frenzel, 1996). So, many public and private organizations, large or small are showing their interest to transform their work functions into the services provided by information technology. Many organizations are heavily investing in information technology to enhance their market performance and competitiveness.

The literature says the following why information technology should be used,

- The successful companies of the next decade will be the ones that use digital tools to reinvent the way they work. These companies will make decisions quickly, act efficiently, and directly touch their customers in positive ways (Gates, 1999).
- The companies that effectively use information technology will be the ones that best improve customer service, whether those customers are external or internal (Siguaw and Enz, 1999).
- Information technology offers valuable opportunities in new product development for industrial companies. It can improve product/service quality (Ozer, 2000).

- IT provides an organization with the opportunity to engage its customers in interactive communication and has led to the emergence of the one-to one marketing paradigm (Peppers and Rogers, 1993).
- Information technology had dramatically changed the structure of work (Embleton and Wright, 1998).
- Information technology can be an important source of economic growth and development for developing countries (Hira, 2004).
- Information technology systems are expected to meet high standards of operation and processing integrity, while offering round-the clock availability, security, and good performance (CICA, 2003).

The above statements show how much information technology is used today and the benefits from using information technology in future. Information technology plays a key role in helping organizations achieve profitable results and keep competitive forces in check.

As the advantages of the use of information technology are high, IT costs are continuing to increase at a rapid rate and investments in computers and telecommunications amount to approximately half of the annual capital expenditures in most of the large companies (Jurison, 1996). IT investments are made for a variety of reasons, including improved quality, increased variety of products or services, and better responsiveness to customer needs (Jurison, 1996).

But implementing IT takes a great deal of effort (Ozer, 2000). Because of high costs of IT infrastructure and the rapid change in technology, many organizations have been looking for external providers for their IT functions (Hoecht and Trott, 2005).

## 4.2 MAJOR FUNCTIONS OF IT

The functions of information technology are indeed many. This thesis has chosen some, which are of interest to the area of outsourcing. This section briefly explains 10 major functions of IT. Instead of focusing on any particular function of IT, this thesis focuses on the whole, as risks related to all these functions are assumed to be common. The fig.2 shows the major functions.

**Data Centres:** The world of business is considered to be dynamic and fast paced. In such situations access to accurate information is necessary. The information is needed to everyone whether small or a large business. So an overwhelming amount of data entry is required in order to progress. Many companies that are very large in business consider outsourcing their data entry services. This is because of the inefficiencies of the in-house personnel, for faster and accurate data entry or for an expertise in this field. Outsourcing data entry to professionals who are experts in this field is a more profitable procedure. If the data entry operations are outsourced, the companies has the chance of concentrating on their core activities concerned with the business. Large customers such as big corporations or service providers profit from spanning their data and applications over several data centres potentially owned by different organizations, combining the resources of these centres (Andrzejak, Graupner, Kotov, Trinks, 2002). Medical billing is one of the most popular examples of this service. Data centres are considered to be the computational hubs of next generation (Sharma et al, 2004).

**Help Desk:** Help Desks are computer-aided environments in customer support centres that provide frontline support to external and internal customers (Chan et al, 2000). Cost, quality, performance, and service demands are just some of the issues driving organizations to outsource all or part of their help desk functions (Fritz, 1997). Help may be provided by telephone, fax, and e-mail or through summary listings of typical questions and answers. The process is time consuming and expensive (Foo et al, 2000). If such processes are outsourced the organizations can concentrate on the core activities of the business.

**Network Maintenance:** Network Management includes the processes of quantifying, measuring, reporting, and controlling of responsiveness, availability, and utilization for the different network components (Keefe, 2001). With the rapid growth and modernization of communication technology, the task of network management becomes increasingly challenging. Due to the ever-growing demand for powerful online applications and expanding data-processing networks, the complexity of network topology and communication equipment becomes more and more sophisticated. Maintaining an organizations network can be a daunting task. A third party provider takes on responsibility for operating some or all of a customer firm's communications network (InfoTech, 2002). As modern client-server applications tend to be spread over several locations, savings introduced by outsourcing network management can be even more significant for multi location corporations. The advent of voice and data network convergence lends an additional sense of urgency to those companies considering outsourcing (InfoTech, 2002). Many aspects of systems management are non-regular, which means there are times when more attention is needed and times when things are much slower. Outsourcing can alleviate this problem as it is being viewed as an increasingly attractive business decision (InfoTech, 2002).

**Training:** Training of employees is another area where outsourcing can make a lot of sense. Consistent with growing trend toward the outsourcing of activities traditionally performed in-house, many HR activities are now being outsourced (Gainey and Klaas, 1998). Creating own training department requires a hefty on-going investment because actual training may only be needed sporadically. An outsourcing training company can come in and provide employees with the new skills they need, when they need them. Many of the outsourcers also have there own specialized training locations where employees can be sent for training. The training includes both proprietary hardware and software applications. Because proprietary technology often directly links to a company's core business. So it is critical that employees know how to properly use these systems. HR is the functional area where outsourcing is considered to increase the most in future years (Cooks, 1999).

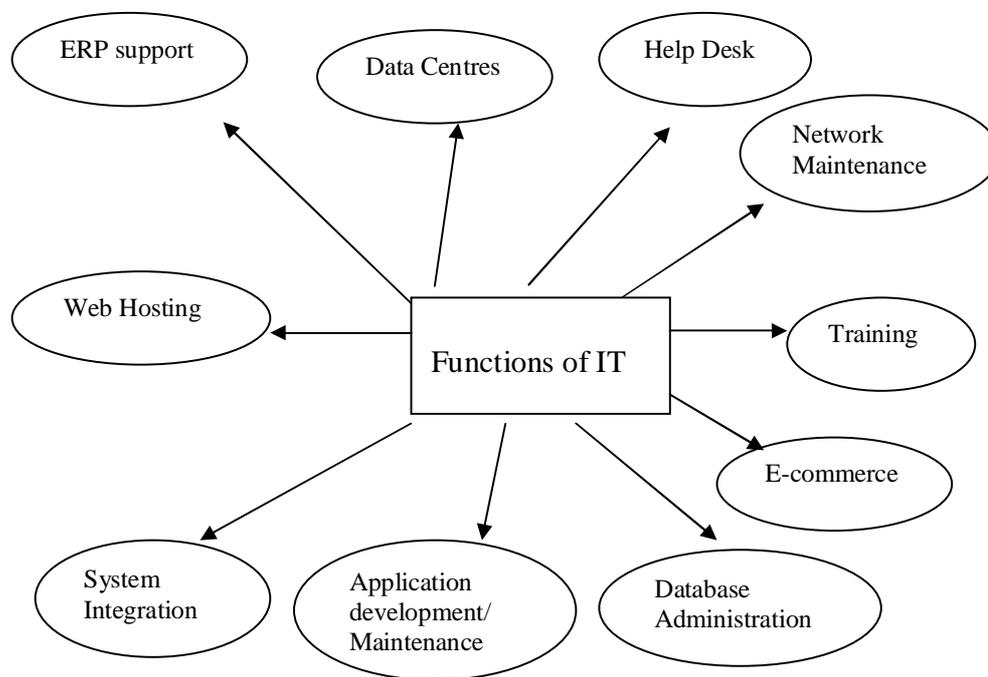


Fig 2. The major functions of IT.

**E-Commerce/E-Business:** E-commerce is another growing area within IS outsourcing (Gonzalez et al, 2005). Electronic commerce is the buying and selling of goods and services, and the transfer of funds, through digital communications. (Dictionary.com). It also includes all inter-company and intra-company functions such as marketing, finance, manufacturing, selling, and negotiation. E-business is critically dependent on rapidly evolving technology (Bhattacharya et al, 2003). Setting up a web site for online sales can be expensive (Forrester Research, 1999). While many companies want to keep the creation of their web presence in-house, they do not want to invest in the infrastructure and accounting nightmares that go with e-commerce. Unable to afford such resources on a full time basis, companies are increasingly turning to external service providers to host their web sites (Murray and Kotabe, 1999). Outsourcing

practice in the area of e-commerce is predicted to substantially increase (Kakabadse and Kakabadse, 2005).

**Database Administration:** Database administration is defined as a data resource management function that includes responsibility for developing and maintaining the organization's data dictionary, designing and monitoring the performance of databases, and enforcing standards for database use and security. Backup recovery maintenance, tuning and online reporting are some other functions. Database continues to grow in size and complexity. Implementing a successful database management strategy tops the list of concerns for IT executives today (dba DIRECT, 2002). Companies face a whirlwind of modern database administration challenges. Many of the today's most dynamic organizations have solved the problems by outsourcing database support functions to a remote database administration. Outsourcing database support functions to a qualified remote DBA enables organizations to significantly reduce database support costs, boost system availability, and focus internal resources toward growing core competencies (dba DIRECT, 2002).

**Applications Development/Maintenance:** Applications maintenance is defined as the performance of those activities required to keep a software system operational and responsive after it has been accepted and placed into production (Judenberg, 1994). If the main business function of the company is not software creation, then applications development might be a perfect outsourcing choice. Writing complex programs to be used internally can be a time-consuming and costly investment in hardware, software, and manpower. Even the maintenance of the existing programs might be better left to a company specializing in these areas because applications maintenance outsourcing offers an effective solution to these problems (Judenberg, 1994). An organization selected for outsourcing software maintenance for an applications system or group of systems assumes responsibility not only for implementing corrections and enhancements, but also for managing the process (Judenberg, 1994). The applications may include accounting, financial, management, pay roll systems, information management programs etc.

**Systems Integration:** Systems integration is the glue that connects independent systems. It makes diverse components work together. Outsourced systems integration involves the development of a fully integrated system from design through implementation (Narender and Parzinger, 1997).

**Web Hosting:** Web hosting is the process of storing a website on a web server to it accessible on the Internet. A company's website is critical to its business (Jones, 2001). An ISP or a specialist hosting company usually provides this service. It requires a permanent Internet connection and web server. While data centers provide the infrastructure and communications to send web-based message out to the world, they do not actually create that message. Web hosting provides Internet users with online systems for storing information, images, video, or any content accessible via the web. Small and medium-sized enterprises unable to afford such resources on full time basis are increasingly turning to external service providers to host their websites (Murray and Kotabe, 1999). Many companies have found that outsourcing their web presence is the best way to manage the ever changing and complex challenges that Internet technology and trends present. Unless a company has the potential to face these problems, outsourcing can be right choice. Outsourcing promises to reduce the expense

and eliminate many of the headaches associated with running an active and successful website (Jones, 2001).

**ERP Support:** It is defined as any software systems designed to support and automate the business processes of medium and large businesses (Dictionary.com, 2005). This may include manufacturing, distribution, personnel, project management, payroll, and financials. ERP systems are accounting-oriented information systems for identifying and planning the enterprise-wide resources needed to take, make, distribute, and account for customer orders. The demand for ERP consulting and implementation and support services has undergone considerable change. Outsourcing ERP maintenance helps organizations realize the true potential of their investments in the systems (Mascot Systems, 2005). Outsourcing ERP maintenance provides peace of mind as it is entrusted in the hands of specialists who have invested in a comprehensive security, back up, disaster recovery and advanced technology (Mascot Systems, 2005).

## 5. OUTSOURCING

This chapter explains the concept of outsourcing and its categories. This chapter also contains the main motives why many companies prefer to outsource.

### 5.1 DEFINITION

The following shows the definitions from the literature,

- ❑ Outsourcing is the practice of subcontracting manufacturing work to outside and especially foreign or nonunion companies (Merriam Webster Dictionary, 1996)
- ❑ Outsourcing refers to the concept of hiring outside professional services to meet the in-house needs of an organization or an agency (Gupta and Gupta, 1992).
- ❑ Outsourcing means to purchase a business function outside one's own organization. (Rochester and Rochester, 1995).
- ❑ An outside company's provision of the products and services associated with a major function or activity of the user organization (Bryce and Useem, 1998)
- ❑ Outsourcing means to turn over to an external vendor the control of an in-house activity, or an activity for which an immediate ability exists of performing it internally (Wasner, 1999).
- ❑ Outsourcing means the practice of handling over the planning, management and operation of certain functions to an independent third party (Neale, 1995)

To define outsourcing in the right way one has to take into consideration a variety of factors. By considering the above definitions this thesis defines outsourcing as,

“Outsourcing is the process of transferring/shifting/delegating a service/function/process to a third/party/ASP/external service provider that would otherwise be an in/house service/function/process”

Outsourcing is a strategy by which an organization contracts out major functions to efficient service providers who after some time become valued business partner. The tasks to be done are identified and performed by the employees hired by the service providers. Hiring and retaining highly trained professionals is often cited as an additional incentive to outsource (Marie, 2001). Outsourcing has become a big business and its effective management is critical to the future success of an organization (Kakabadse and Kakabadse, 2002). Outsourcing is not just limited to private sectors but public services as well. In particular, governments in UK, USA, Canada, Australia and New Zealand started outsourcing in order to demonstrate continuous improvements in services (Kakabadse and Kakabadse, 2005). According to McKinsey & Co outsourcing will continue to rise at an estimated annual rate of 65 percent within the next few years and will reach \$147 billion by 2008 (Tafti, 2005). Outsourcing has become an approach that can lead to greater competitiveness (Embleton and Wright, 1998). Outsourcing allows a company to focus on critical functions, minimize investment and reduce administrative burdens that can include regulatory compliance (Downey, 1995). Outsourcing offers companies the opportunity to grow in market presence without a corresponding expansion in organizational size (Leavy, 2004). So, many companies are showing their interest towards outsourcing.

## 5.2 MOTIVATION FOR OUTSOURCING

Table 1 provides the information about the main motives behind outsourcing from the literature.

**To reduce costs.** In today's business world, a firm must minimize its cost of doing business in order to compete successfully in the market (Chen and Lin, 1998). Many companies are outsourcing to countries that has lower labour costs. These companies are taking advantage of attractive tax incentives offered by other countries to establish global operations (Khalid, 2003; Tafti, 2005). Outsourcing also reduces the need to invest capital funds for IT functions (Sparrow, 2003). It is commonly believed that an outsider can provide the same level of service at a lower cost than the internal IT department (Bhattacharya et al, 2003).

**To focus on core competencies.** Some IT operations consume a lot of resources and management attention. By outsourcing these operations, the organizations can better focus on their core competencies (Sparrow, 2003). Core competencies are the activities that are considered organizations strength and provide an organization with its competitive advantage (Khalid, 2003; Tafti, 2005). If some specific areas (other than core activities) have been monopolizing management attention, managers see outsourcing as the choice to focus on its core competencies (Embleton and Wright, 1998). IT is viewed as important but not of core importance to the business and is better managed by outsourcing vendors who are better equipped than internal staff to keep pace with new technologies, skills, and processes (Antonucci and Tucker, 1998). Focussing on the core competencies has the advantage of specialization of their core activities.

**To improve quality and service.** An organization may find that it has an IT function that has inadequate performance. Outsourcing can improve even more quality and service to that organization (Embleton and Wright, 1998). Outsourcing suppliers can offer a track record of achievements in other organizations and can help improve the image of IT services by their general reputation (Sparrow, 2003).

**To access external expertise.** The core business of IT service providers is to offer IT services most effectively and more efficiently. Organizations that show interest in outsourcing can tap into this expertise by outsourcing their IT departments (Sparrow, 2005). Rapid technological advances may leave an organizations IT department lacking in current technical expertise and equipment (Bhattacharya et al, 2003). Outsourcing can solve this problem. Gaining access to external expertise is a specific expectation that clients firms have in outsourcing operation (Quelin and Duhamel, 2003). Specialist skills, tools, technology and independent advice can be gained from outsourcing firm (Embleton and Wright, 1998; Barthelemy, 2001).

Table 1. Motives for outsourcing.

MOTIVES	LITERATURE
To reduce costs	Lacity and Hirscheim (1993), Judenberg (1994), McFarlan and Nolan (1995), Downey (1995), Chaudhury et al (1995), Lee (1996), Hurley and Schaumann (1997), Embleton and Wright (1998), Chen and Lin (1998), Antonucci and Tucker (1998), Wasner (1999), Shepherd (1999), Lankford and Parsa (1999), Frost (2000), Elmuti and Kathawala (2000), Marie (2001), Zhu et al (2001), Kakabadse and Kakabadse (2002,2005), Barthelemy (2003), Bhattacharya et al (2003), Young and Hood (2003), Khan et al (2003), Quelin and Duhamel (2003), Downing et al (2003), Brooks (2004), Shi et al (2004), Sloper (2004), Deborah (2004), Adeleye et al (2004), Thomas (2004), Zatolyuk and Allgood (2004), Laura and Ray (2004), Bahli and Rivard (2004), Wonseok (2005), Lam and Han (2005), Kweku et al (2005), Hoecht and Trott (2005), Tafti (2005)
To focus on core competencies	Willcocks et al (1995 b), Rochester and Rochester (1995), Frost (2000), Grant (2002), Downey (1995), Saunders et al (1997), Hurley and Schaumann (1997), Embleton and Wright (1998), Antonucci and Tucker (1998), Shepherd (1999), Frost (2000), Kakabadse and Kakabadse (2002,2005), Khan et al (2003), Sparrow (2003), Bhattacharya et al (2003), Laura and Ray (2004), Bahli and Rivard (2004), Adeleye et al (2004), Tafti (2005)
To improve quality and service	Judenberg (1994), McFarlan and Nolan (1995), Narender and Parzinger (1997), Embleton and Wright (1998), Wasner (1999), Frost (2000), Elmuti and Kathawala (2000), Downing et al (2003), Park and Kim (2005), Bahli and Rivard (2004), Kliem (2004), Adeleye et al (2004), Sloper (2004), Tomas and Victor (2005), Kakabadse and Kakabadse (2005)
To access external expertise	Gupta and Gupta (1992), Downey (1995), Hurley and Schaumann (1997), Embleton and Wright (1998), Antonucci and Tucker (1998), Lankford and Parsa (1999), Shepherd (1999), Frost (2000), Elmuti and Kathawala (2000), Zhu et al (2001), Quelin and Duhamel (2003), Young and Hood (2003), Bhattacharya et al (2003), Zatolyuk and Allgood (2004), Bahli and Rivard (2004)
Shared Risk	Antonucci and Tucker (1998), Frost (2000), Kakabadse and Kakabadse (2005)
Inability of In-house Personnel	Narender and Parzinger (1997), Hurley and Schaumann(1997), Embleton and Wright (1998), Barthelemy (2001), Bhattacharya et al (2003), Tafti (2005), Smith et al (1998), Sloper (2004)
To regain control over internal department	Alexander and Young (1996 a), Lacity and Hirscheim (1993), Quelin and Duhamel (2003)

**Shared risks.** Most partnership assignments involve shared risk (Kakabadse and Kakabadse, 2005). This implies that if any risks occur in the process of outsourcing, both the customer and the supplier share the risk. For example, reputation is one such element that makes customers and the supplier's work for the success of the outsourcing deal. If any of them shows reluctance, it directly affects the reputation of the organizations, may be the customer or the supplier. So, outsourcing entails a long-term relationship between supplier and beneficiary with a high degree of risk sharing (Embleton and Wright, 1998).

**Inability of in-house personal.** Outsourcing can provide access to talent that are not available in-house (Embleton and Wright, 1998). Many companies outsource, as they can't provide themselves with the up to date technology. There may be inefficiencies with the working employees for which companies chose to outsource their IT operations outside.

**To regain control over internal department.** Outsourcing information technology operations of a company can allow to regain control over their internal department. Regaining control of IT departments can be an important driver for inciting the corporate hierarchy (Quelin and Duhamel, 2003).

### 5.3 IT OUTSOURCING

The following are the definitions of IT outsourcing in general, provided from the literature,

- IT outsourcing means handing over to third-party management, for required result, some or all of an organization's IT, information systems (IS) and related services (Willcocks et al, 1995 b).
- The transfer of property or decision rights in varying degrees over the IT infrastructure by a user organization to an external organization (Loh and Venkatraman, 1992).
- IT outsourcing is the practice of turning over all or part of an organizations IT to an outside vendor (Barthelemy, 2003).

Global IT outsourcing is defined as,

- The sharing or transferring of responsibility for some or all IS services to a third-party vendor who operates from a foreign country (Narender and Parzinger, 1997).
- Global outsourcing involves assignment of tasks related to developing and/or maintaining applications to one or more providers overseas (Tafti, 2005).

These all definitions convey the same meaning but they differ in conducting the outsourcing process i.e. local or global. This thesis defines global IT outsourcing as,

“Turning over a firms IT function(s) to external service provider(s) located in other countries”

IT outsourcing is the fastest growing sector in the outsourcing arena. It is estimated to grow by leap and bounds in the years to come. IT based activities and services will continue to be a major focus of outsourcing due to ever more rapid advances in technology (Kakabadse and Kakabadse, 2005). Over 50% of companies are expected to use IT outsourcing in 2006 (King, 2004). Even the US government offices are aggressively outsourcing their IT activities. It is expected that government spending on outsourced IT functions to increase by an annual compound rate of 8.3 % from \$11.7 billion in 2004 to 17.4 billion in 2009 (Soat, 2004).

The above data shows how fast growing sector is IT outsourcing and how IT based services and activities will continues to be a major focus of outsourcing due to ever more rapid advances in technology (Kakabadse and Kakabadse, 2005).

Global outsourcing strategies were believed to help improve performance, increase access to international markets and leading-edge technologies (Elmuti and Kathawala, 2000). Global IT outsourcing has grown due to two reasons,

1. The tendency of firms to locate their production processes in places where production factors are cheaper (Khan et al, 2003; Gonzalez et al, 2005).
2. The growing acceptance of the Internet as a means of communication has undoubtedly exerted an influence on the rise of outsourcing (Khaild, 2003; Khan et al, 2003; Thomas, 2004; Gonzalez et al, 2005).

The major reasons for the growth of global IT outsourcing is because unlike material goods, digital information can be transported cheaply and easily (Nicholson and Sahay, 2001). Work can be undertaken in any part of the world (Embleton and Wright, 1998). Firms use outsourcing suppliers from different parts of the world through focused production facilities that give them a decisive edge in pricing, logistics and time to market (Khan et al, 2003).

## 6. RISKS

### 6.1 DEFINITION

There is no human activity that does not involve risk. While it can have several benefits, IT outsourcing does entail some risks (Aubert et al, 1999). These risk factors can be even more significant when it comes to IT outsourcing (Tafti, 2005).

The following are the definitions found in the literature,

- ✓ Risk is the probability of loss or injury (Boehm, 1991).
- ✓ Outsourcing risks are negative consequences confronting the outsourcing company following outsourcing operations (Aubert et al, 1999; Quelin and Duhamel, 2003).
- ✓ Risk is a possibility of an unsatisfactory outcome (Bhattacharya et al, 2003).
- ✓ Risk is a negative outcome that has a known or estimated probability of occurrence based on experience or some theory (Willcocks and Lacity, 1999).

From the definitions, this thesis will define risk in the following way,

“Risk is a probable negative outcome caused due to the negative consequences”

There is enormous pressure on major corporations to establish competitive positions in a global market place (Elmuti and Kathawala, 2000). These corporations turn to outsourcing suppliers for cost reduction and high quality. In this process of achieving cost benefits and high quality many risks lie that are overlooked by many companies. Risk is peculiar to each organization as well as to the means of outsourcing selected for those organizations functions. These risks need to be properly assessed and managed. The next section presents the various risks that are involved in the global IT outsourcing process.

### 6.2 TYPES OF RISKS

This section outlines the risks that are identified in the literature (Table 2).

**Dependence on Service Provider.** Organizations can increasingly become heavily dependent on their IT service providers. The supplier may become financially unstable or even go bankrupt (Sparrow, 2003). High dependence on suppliers is a biggest risk in contract (Willcocks and Lacity, 1999).

**Service Providers inefficiency.** Service levels may fall to unacceptable levels as a result of internal problems within the service provider (Sparrow, 2003). Some times because of the poor quality of the service provider all outsourced operations has to be brought back in-house (Aubert et al, 1998). If the supplier’s skills are not advanced, service will certainly decline and the cost reduction potential will be lessened (Bahli and Rivard, 2004).

RISK FACTOR	LITERATURE
Hidden Costs	Lacity and Hirscheim (1993), Earl (1996), Narender and Parzinger (1997), Embleton and Wright (1998), Elmuti and Kathawala (2000), Barthelemy and Geyer (2001), Khan et al (2003), Sparrow (2003), Khalfan (2004), Ferla, 2004, Gonzalez et al (2005), Tafti (2005)
Dependence on Service Provider	Downey (1995), Alexander and Young (1996 b), Hurley and Schaumann (1997), Kliem (1999), Willcocks and Lacity (1999), Quelin and Duhamel (2003), Gonzalez et al (2005)
Service Providers inefficiency	Earl (1996), Quelin and Duhamel (2003), Hoecht and Trott (2005), Kweku et al (2005)
Security of Data and Confidentiality	Fink (1994), Sherwood (1997), Wasner (1999), Khalfan (2004), Hoecht and Trott (2005), Pemble (2004), Ferla (2004), Davis (2005), Gonzalez et al (2005)
Demotivation of Employees	Gupta and Gupta (1992), Richard (1992), Downey (1995), Alexander and Young (1996), Rochestar and Rochester (1995), Hurley and Schaumann (1997), Embleton and Wright (1998), Wasner (1999), Kliem (1999), Elmuti and Kathawala (2000), Gonzalez et al (2005), Tafti (2005)
Cultural differences	Hurley and Schaumann(1997), Narender and Parzinger (1997), Chen and Lin (1998), Gupta and Raval (1999), Elmuti and Kathawala (2000), Nicholson and Sahay (2001), Sloper (2004), Kliem (2004), Zatoryuk and Allgood (2004), Ferla (2004), Schniederjans and Zuckweiler (2004)
Government laws	Smith et al (1996), Rajkumar and Mani (2001), Schniederjans and Zuckweiler (2004)
Long term Contract	McFarlan and Nolan (1995), Strassman (1995), Willcocks and Lacity (1999), Khalfan (2004), Park and Kim (2005), Tafti (2005)
Political instability	Chen and Lin (1998),Khalid (2003), Khan et al (2003), Sparrow (2003), Thomas (2004), Schniederjans and Zuckweiler (2004)
Total outsourcing	Willcocks and Lacity (1999), Gonzalez et al (2005), Tafti (2005)

Table 2. Risks factors in outsourcing

**Hidden Costs.** Barthelemy (2001) points out the hidden costs to be of vendor search and contracting, transitioning to the vendor, costs related to provider management, transition costs after outsourcing. For example hidden costs arise from the need for US based manager to visit the overseas sites from time to time to assure that the work being performed meets the standards of the American firm (Murray, 2005). There will be many hidden costs that are not identified before the start of the outsourcing process.

**Security of data and confidentiality.** The outsourcing relationship is a very intimate one in which the supplier has access to information and other assets that the organization would normally regard as confidential (Sparrow, 2003). Outsourcing an IT security function may cause breaches of confidentiality and breach of a company's obligations under data protection law (Fenn et al, 2002).

**Demotivation of IT Employees.** A major concern for any organization considering outsourcing has to be the impact of staff in the IT department (Sparrow, 2003). Severe cuts in staff can damage the morale of existing employees (Embleton and Wright, 1998). The customer firms will face the risk of possible opposition of the IT staff, who see outsourcing as a threat to their working positions (Gonzalez et al, 2005; Tafti, 2005).

**Cultural differences.** Cultural issues can make or break an offshore project (Gupta and Raval, 1999). The differing organisational realities can stem from fundamental difference in opinions (Nicholson and Sahay, 2001). For example Indians are more complaint, traditionally skilled and less aggressive when compared to the westerners (Nicholson and Sahay, 2001). There may be difference in opinions about the process of outsourcing as this process is globalised.

**Government laws.** Government laws are very important to global IT outsourcing. If the government and its laws are not investor friendly then outsourcing process becomes a disaster because governments affect resource availability by restricting or facilities the import and export of equipment, software, or data, restricting the use of equipment, and restricting emigration and immigration (Smith et al, 1996).

**Long term Contract.** The time span of many IT outsourcing contracts is long term (Tafti, 2005). But research found that short term contracts are more successful (Willcocks and Lacity , 1999; Tafti, 2005). This is because of ever changing technology and vendor complacency (Tafti, 2005).

**Political instability.** Political issues are also of concern to the global IT outsourcing process. Countries that are politically unstable add risk to global IT outsourcing. Political instability in certain regions around the world has a negative effect on the effort to build a long-term relationship between the customer and the supplier (Khalid, 2003).

**Total IT Outsourcing.** Total IT outsourcing refers to the situations where a company outsources all its IT functions to a single external service provider. Total outsourcing deals have been burdened with problems that range from failed promises by vendors to complaints of a loss of alignment between business strategy and IT (Tafti, 2005). Some authors (Gonzalez et al, 2005) feel that total outsourcing turn to dependence on the supplier. So total outsourcing is less likely to success (Barthelemy and and Geyer, 2005; Tafti, 2005).

## **7. RELATED WORK.**

Researchers have examined the determinants of IT outsourcing risks from different theoretical and empirical orientations. Aubert et al (1998) uses transaction cost and agency theory as a primary theoretical basis and proposes a framework for categorizing risks factors identified in the literature. Bahli and Rivard (2004) validated the measures of risk factors in a case study using insights from transaction theory that suggests three major sources of risk, the transaction, the client and the supplier. The above two study's offered only descriptive insights in assessing risk factors that are involved in IT outsourcing but no attention has been paid for describing and understanding the risk factors in the global IT outsourcing area. Kliem (2004) provides a framework for risks associated with outsourced projects and process that can be used to develop a matrix of risks and controls appropriate for the projects objectives. Tafti (2005) provides a general framework and a checklist of the major risks factors related to global IT outsourcing. These studies have adopted an overview position with little real understanding of the culture and the practices of global IT outsourcing and the risks related to it. Measures have been given but not on a broader approach.

In summary these studies focus primarily on the risks but don't elaborate on the measures for risk assessment. In addition to the previous studies, the present study focuses on the measures to avoid such risks in global outsourcing. In this study, attention is paid to main motives and risks, and accordingly measures were also given. This study doesn't deviate much from the above studies but care is taken to understand and identify the potential risks of IT outsourcing from the literature. This study can be placed inline with the above-related works mentioned.

## **8. ANALYSIS**

Many companies in pursuit of competitive advantage have increased their reliance on external service provider for information services (Kakabadse and Kakabadse, 2005). This doesn't mean that they should overlook the risks that are present in this process. The benefits associated with outsourcing will not be achieved unless risks are managed throughout life cycle of the outsourcing process (Kliem, 2004). For managing the process, needs an adequate framework to analyze the risks and measures for that risk. This thesis has categorized the various risks into four basic categories, which show the potential to handle the risks in the entire process of global IT outsourcing. The fig. 3 shows the basic categories. From the four categories, the first three have been adopted from Kliem (2004) (i.e. financial, technical and managerial) and a geographical risk is the newly developed one in this thesis. Measures have been provided for each category to assess the risks that fall into it.

Fig. 3. Four Types of Risks

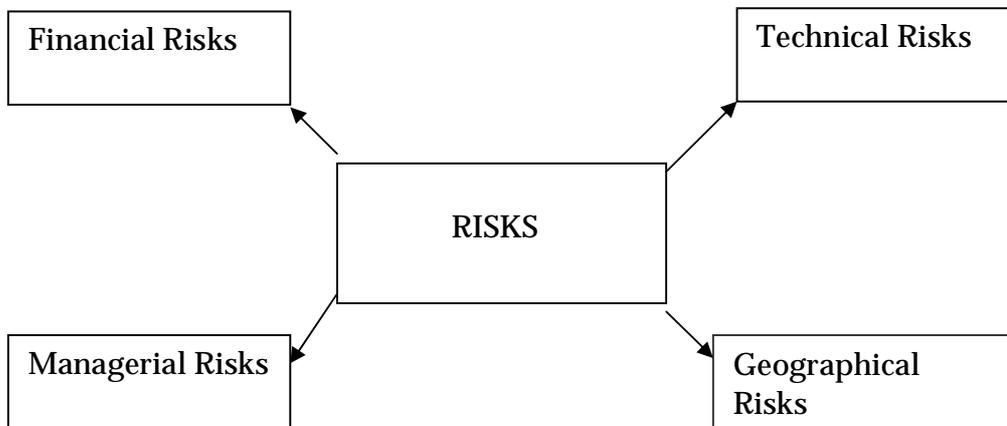


Table 3. Shows the categorization of the risks. Risks often can be sorted into basic categories but many of the individual risks are not mutually exclusive; they overlap like Venn diagram (Kliem, 2004). They are categorized based on the area they are near to. For example, it's true that managerial and financial risks looks like they overlap. For this reason financial risks are divided as the risks that are of more money or cost related.

Risk Category	Risks	Literature
Financial Risks	Hidden Costs	Kliem (2004)
Technical Risks	Service Providers Inefficiency, Security of Data and Confidentiality,	Kliem (2004)
Managerial Risks	Dependence on Service Provider, Long term contracts, Total Outsourcing, Demotivation of IT professional	Kliem (2004)
Geographical Risks	Cultural differences, governmental laws, Political instability	Newly Developed in this thesis

Table 3. Categorization of Risks

Many of the risks also vary in magnitude with some having greater impact than others during different phases of the life cycle of the outsourcing process (Kliem, 2004).

## 8.1 FINANCIAL RISKS.

Financial risks are the risks that deal with budget and cost (Kliem, 2004). They include the costs of negotiating, maintaining and concluding agreements (Kliem, 1999). Various costs are included from the start of the outsourcing process to its termination and even after that. These costs can't be determined at the start of the outsourcing process. The outsourcing companies fail to assess the hidden costs that are buried in an outsourcing arrangement (Tafti, 2005). These costs can be even more than performing an operation in-house.

An adequate plan should be drawn at the initial stage when the company thinks to start outsourcing its IT operations to another country. The plan should adequately include all costs associated with the current method of conducting business and all costs that are anticipated once outsourcing is deployed overseas (Zhu et al, 2001). After proper assessment and thinking, a company should go for outsourcing its IT operations overseas.

Expenses start from the initial idea to start to outsource. Costs start from searching an external service provider. Many companies underestimate the expense to identify and evaluate suitable IT vendors, select a finalist, and negotiate and draft the contract (Barthelemy, 2001). An extensive amount of time, money and human resources are needed for searching an external provider (Tafti, 2005). Many activities are to be done for searching an external provider who can provide and satisfy the needs of customer firms IT operations. These activities include costs that are unforeseen. Processes to select suppliers negotiate contracts and implement the actual transfer of operations to the suppliers can be costly to implement as these process is a global one. Traveling expenses can't be ignored as the process takes place globally.

Managing the relationship with the vendor can also be expensive. According to Barthelemy (2001), managing the effort covers three areas, they are, monitoring to see that IT vendors fulfill their contractual obligations, bargaining with IT vendor and negotiating any needed contract changes. So to reduce such extra costs of managing the whole effort, there is a need of proper relationship between the client and the supplier. Mutual trust should be build between both the firms. Proper relationship with the supplier can be useful to the client. Frequent visits of client managers with the supplier managers can bring good relationship.

Sometimes it may become essential to terminate a contract due to the inefficiencies of the service provider. If such situations occur then it involves various others additional costs like again searching for a new vendor, writing a new contract and so on. Aubert et al (2003), finds a case where an insurance company whose supplier provided service of such a poor quality that all the outsourced operations had to be brought back-in-house. In such cases the motive for cost reduction is affected. Companies should realize the difficulty and costly it is to end an IT outsourcing contract (Barthelemy, 2001). So clients should be very aware of the consequences of redirecting the entire process.

Currency exchange fluctuations can also be a risk in global IT outsourcing (Kliem, 2004). The value of currency changes very frequently due to changes in market conditions. This can cause a customer firm to save or spend more money for the outsourcing. The more variability in a country's currency exchange rates, the greater the risk of not realizing the cost or profit expected (Schniederjans and Zuckweiler, 2004)

Barthelemy (2001) suggests the following points to reduce the hidden costs that come in the way of the IT outsourcing process,

- Choose activities that are safe to outsource
- Spend some time researching vendors
- Contract or hire people with outsourcing expert
- Draft tight contracts
- Cultivate the vendor relationship
- Keep key IT people in-house

And we add one more point to it i.e.,

- Never underestimate the costs. This is because all the points refer to costs in one way or the other.

Literature says that cost of outsourcing varies with the kind of activity outsourced (Barthelemy, 2001). High costs are significant but can be limited by proper design of the contract. Research shows that lack of clarity and understanding of the costs related to many aspects of outsourcing service delivery is the reason for major problems for cost increases (Willcocks et al, 1999). A poorly written contract or a chronically bad relationship between customer and the supplier increases the risks that may involve high costs (CICA, 2003). Enough care should be taken during the draft of the contract as it serves as the base for the entire outsourcing process.

The plan should adequately include all costs associated with the current method of conducting business and all costs that are anticipated once outsourcing is deployed (Zhu et al, 2001).

## **8.2 TECHNICAL RISKS.**

Technical Risks are risks that deal with tools, techniques and standards (Kliem, 2004). The customer needs to be very attentive regarding the tools, techniques and standards that are to be provided by the supplier. The main concerns will be security of data and its confidentiality as the risks associated with privacy and security issues may prove to be enormous at the outset of decisions regarding global IT outsourcing (Tafti, 2005).

According to Blackley and Leach (1996), data confidentiality includes,

- Confidentiality of data on network
- Confidentiality of addresses and other information about the user population

Information security is an integral part of all outsourcing activities and its important for the outsourcing company to not to compromise at any time about the security of the service provided. For this, the client should select the supplier who has resources needed to handle security of data and maintaining its confidentiality i.e. the customer firm should verify that the supplier has adequate physical security to meet the clients company needs (Marie, 2001). This can be done by evaluating the supplier performance on the twin dimensions of technical and functional quality proposed by Lankford and Parsa (1999). The technical quality includes maintaining the required response time, minimizing system down time, providing error-free service and utilizing leading edge technology. Functional quality is the quality of customer service. Extensive research should be made to identify the potential supplier who can fulfill the needs of the organization. The selection list can include an assessment of the supplier's

qualifications according to the Capability Maturity Model (CMM) (Khalid, 2003). The Carnegie Mellon Software Engineering Institute defines the CMM as “a model for judging the maturity of the software processes of an organization and for identifying the key practices that are required to increase the maturity of these processes” (Laura and Ray, 2004). The standard of outsourced IT security provided by the supplier should be normally higher than the in-house one.

The client needs to make clear to the supplier, what its security concerns are, what it will ask the supplier to supply and what level of information security will be provided by the vendor in relation to the outsourced activities (Lee, 1996; Blackley and Leach, 1996). Since the outsourcing vendor in many cases will have access to the outsourcing customers data that may be commercially sensitive. So it is of crucial importance to ensure confidentiality is respected by making express provisions to that effect in the agreement (Lee, 1996).

The customer firm should make the supplier adopt and implement a policy for protecting the privacy of its organization. It's better to have a well defined network security policy with the customer firm prior to commencing the negotiations of the outsourcing deal. The specific security measures and responsibilities to be carried out by the supplier should be specified and a quotation obtained. It's true that the service provider's information security administrators and systems programmers specializing in information security can be a valuable asset to the client organization (Marie, 2001). Even then there should be a strong management controls from the supplier side to control its own staff from misusing the client's information. In addition to comprehensive and explicitly documented corporate policy on protecting individual privacy and data security, the existence of practical and relevant laws and regulations can substantially reduce the risks of privacy and security infringement (Tafti, 2005).

Quality of the services must be monitored because of the supplier's incentive to save money (Embleton and Wright, 1998). So enough care should be taken when talking about how the service is to be measured and monitored. There may be chances of the inefficiency of the provider by not upgrading technology up to date. The client should check the quality of the service provided by the supplier. The client should select a supplier who has an adequate disaster recovery plan (Marie, 2001).

Information systems are considered to be the lifeblood of organizations and need to be appropriately secured and controlled (Fink, 1994). If the customer is a public sector organization, they usually put greater emphasis on issues like security, rather than on-going cost reduction or service enhancement (Sloper, 2004). IT security is a specialist competency that many firms believe is best left to the experts (Fenn et al, 2002). Some times it is virtually impossible to identify at any given time, every threat to a particular systems (Fenn et al, 2002). But utmost care should be taken to avoid some, as most of the problems associated with IT security can be managed contractually (Fenn et al, 2002). So sufficient time should be spent and care has to be given in building a SLA (Service Level Agreement) and service contract that cover all above the relevant issues explicitly, unequivocally and unambiguously. In general, the SLA is a contract between two parties that specifies performance and quality metrics of an infrastructure/ application service offering and the consequences of what happen when those metrics are not met (Bhattacharya et al, 2003).

### **8.3 MANAGERIAL RISKS.**

Managerial risks are risks that deal with decision-making, managing and leading people (Kliem, 2004). IT outsourcing is a managerial decision that entails various risks and problems (Gonzalez et al, 2005). Management attention should be more and more important for IT outsourcing as the decisions are made to outsource their IT services to overseas external service providers (Beulen and Ribbers, 2002). Some authors consider global outsourcing as a management strategy by which an organization delegates major, non-core functions to specialized and efficient service providers (Elmuti and Kathawala, 2000).

The outsourcing company must have a clear view as to exactly what part (s) of the IT function they need to outsource. Organizations run large risks when they are not clear about the overall business rationale for going down the IT outsourcing route (Willcocks and Lacity, 1999). Each decision to outsource must be carefully reviewed from a risk and benefit perspective. This can be done by formulating an appropriate outsourcing strategy that requires thorough analysis of a company's technological environment and how a project involving new technology fits into overall business goals (Joseph, 1997).

A wise decision about outsourcing IT depends on having a solid understanding of some fundamental factors, including,

- An explicit multicriteria understanding of what constitutes a core competency (King, 1994).
- What services can be successfully outsourced (Foxman, 1994)
- Total outsourcing or selective outsourcing, because total outsourcing dependence on the supplier (Gonzalez et al, 2005) and total outsourcing is less likely to success (Barthelemy and Geyer, 2005; Tafti, 2005)
- What characteristics determine the suitability of global outsourcing (Smith et al, 1996)
- Last but not least, alternatives to outsourcing (King, 1994).

It has to be remembered that poorly managed companies will lose by making poor decisions about outsourcing. Well-managed companies will continue to pull ahead (Richard, 1992).

Once the IT outsourcing decision is made, selecting a provider is the next task. Outsourcing presents quality challenges in the areas of supplier selection (William and Devinney, 1997; Khalid, 2003). Poor selections of supplier have been one source of relative lack of success in IT outsourcing deals (Willcocks and Lacity, 1999) and conversely one of the keys to successful outsourcing is selecting the efficient supplier (Embleton and Wright, 1998) because there will be additional costs when planning to change to other provider. Vendor reputation is probably one of the most important considerations in outsourcing (Gupta and Gupta, 1992). It is worthwhile to spend time and the money to choose the correct supplier the first time (Embleton and Wright, 1998). The on-site visit can prove to be a better idea to check the potential of the supplier than just looking at the good paper work of the supplier (Embleton and Wright, 1998) or the less expensive ways to look for a potential supplier is to do an analysis of the vendor's reputation. The record of the suppliers past behavior can be used as guide to its future behavior (Chaudhury et al, 1995). A supplier who is inherently trustworthy develops a reputation for being trustworthy (Barthelemy, 2003).

It's a better idea to limit outsourcing operations to one country only as it provides easy access.

After the selection of the supplier, contracts play an important part of the analysis of outsourcing decisions (Kweku et al, 2005). Successful outsourcing process starts with a good contract (Zhu et al, 2001). Main reasons emerging for negative outcomes in IT outsourcing deals has been incomplete contracting (Willcocks and Lacity, 1999). Contractual quality can have huge impact on the outcome of the IT outsourcing efforts as it helps protect the client from the potential opportunism of the supplier (Barthelemy, 2003). Customer firms often lack experience in the signature of outsourcing contracts (Gonzalez et al, 2005). According to Barthelemy (2003), a good contract must have Preciseness, Completeness and Balance. A precised, completed and balanced Service Level Agreement (SLA) should be written between the client and the supplier. The quality of the service level agreements directly affects the quality of the relationship between the client company and supplier (Marie, 2001)

While good contract is vital, it is not sufficient to ensure success (Barthelemy, 2003); good management of the relationship with the supplier is also needed. Effective management of the outsourcing relationships is an organizational imperative (Lankford and Parsa, 1999). A successful IT outsourcing relationship can help the outsourcing customer to achieve major benefits (Lee, 1996). Outsourcing is along term relationship that requires a good co-ordination between the customer and the supplier. Management attention is much needed as outsourcing arrangements are considered to be technologically and organizationally complex, and present a variety of challenges to manage effectively (Nicholson and Sahay, 2001). Achieving high quality of relationship is difficult but once attained, continuous attention and nurturing to maintain sound levels of interaction between the customer and the supplier is necessary (Kakabadse and Kakabadse, 2005).

So the job of management is not complete once the outsourcing contract is signed. It has to ensure that the internal processes run smoothly. The human aspect of outsourcing can't be overlooked. If the function outsourced is new one that didn't involve any of the sections of the staff then it may not have any effect on the organization. But due to outsourcing of IT services, severe cuts in staff can damage the morale of existing workers (Embleton and Wright, 1998). Reduction in employee morale may send wrong signals to the talented employees and other staff to seek jobs elsewhere. The uncertainty situation creates anxiety and a feeling of insecurity that may lead to a decrease in employee productivity during the period prior to the contract or even after the contract has been signed (Richard, 1992; Gupta and Gupta, 1992; Gonzalez et al, 2005). Some survey's (Kakabadse and Kakabadse, 2005) reports that outsourcing minimally impacts the security of employment of staff. But most employees do not understand what outsourcing means; they view the process as synonymous with losing their jobs (Embleton and Wright, 1998). Among 531 companies surveyed by the Wyatt Company in 1993, more than half reported decreased morale (Embleton and Wright, 1998). These statements show that how the morale of the staff should be considered a risk and should be addresses properly. For avoiding these consequences, outsourcing must be made part of an overall corporate strategy and management must ensure that all employees are aware of the overall situation (Embleton and Wright, 1998). It has to be considered that the loyalty of the employees is one of the most valuable one for the success of the organization.

Despite the political turmoil caused by the jobs lost to global outsourcing, economic theory and much experienced evidence suggest that outsourcing benefits everyone in the long run (King, 2004). Rather than fearing a loss of power and control when functions or processes are outsourced, management should feel confident enough to use outsourcing as a platform for achieving key business objectives (Frost, 2000). The decision to outsource can lead to competitive advantages for business (Lankford and Parsa, 1999). Managers with utmost knowledge of the outsourcing process should turn outsourcing into a win-win game for the organization and its employees (Richard, 1992). The diversity of risks should lead managers to adapt to different risk management strategies depending on the context (Aubert et al, 2001). For this Kliem's (1999), risk management actions can be used, that include,

- Risk Identification, is identifying risk that confront a system or project
- Risk Analysis, is analyzing data collected about risks
- Risk Control, identifying and verifying the existence of measures to lessen or prevent the impact of a risk.

#### **8.4 GEOGRAPHICAL RISKS.**

Geographical risks deal with government laws, political stability and cultural differences. Offshore projects often face geographical spread (Kliem, 2004). As other countries are involved in outsourcing process, it involves geographical risks that are to be faced by the outsourcing process.

The governments play an important role in the process of global IT outsourcing as this is spread geographically different areas. Governments affect resource availability by restricting or facilitating the import and export of equipment, software, or data, restricting the use of equipment, and restricting emigration and immigration (Smith et al, 1996). It may not be the case on all the countries since the actions of the governments differ in different countries and sometimes depend on bilateral arrangements; the environmental perspective could take on unique forms depending on the pairs of countries involved in a project. Government may also take specific measures to encourage the development of the software industry, such as providing financial incentives and lifting foreign exchange restrictions (Smith et al, 1996). For example, Indian governments implement laws that are investor friendly. The Indian government is developing the required infrastructure for IT outsourcing and providing tax and financial incentives for large-scale export of software (Rajkumar and Mani, 2001). Labor laws can affect the process of outsourcing (Smith et al, 1996). So there is a need to check the labor laws. The governments are responsible for taking measures to check the labor laws.

The supplier country's political stability can have an impact on the outsourcing process. Political instability in certain regions around the world has a negative effect on the effort to build a long-term relationship between the customer and the supplier (Khalid, 2003). Countries that are politically unstable add risk to global IT outsourcing. For example, local governments within Mexico have been known to quickly change rules and laws to protect their people from environmental concerns (Schniederjans and Zuckweiler, 2004). Providing a stable political environment for foreign investment is very important to keep foreign investments and contracts continually flowed into a developing country (Chen and Lin, 1998). Political instability poses a potential threat in

several offshore locations, although to date the global outsourcing market doesn't appear to have been significantly affected by recent world events (Sparrow, 2003). The co-ordination between the two countries should also be considered. For example if the outsourcing agreement is between US and China, China deemed to be the greatest risk for different reason, because of its long-standing economic espionage programme against western countries especially the US (Hunter, 2003).

Global IT outsourcing usually involves the transfer of customer firm's employees to the supplier. A country's unique cultural dimensions play a crucial role in the outsourcing arrangement (Narender and Parzinger, 1997). The importance of the sensitive cultural interface between the company and the outsourcers cannot be underestimated (Chen and Lin, 1998). Cultural differences can present problems in outsourcing business. Cultural issues are important, anticipating and overcoming cultural differences and wherever necessary achieving cultural change, are vital to outsourcing (Sloper, 2004). Differences in culture can lead to miscommunication, not just through words but also ideas (Kliem, 2004). Discordance between team and corporate cultures or between national, business and legal cultures can undermine confidence, performance and brand image (Sloper, 2004). For example, in many Asian countries, the multiplicity of languages and dialects used make the exchange of ideas and implementation of changes to original system specifications a tedious job (Narender and Parzinger, 1997). Cultural differences like number of holidays, festival bonus, can also have impact on the outsourcing process (Schniederjans and Zuckweiler, 2004). Narender and Parzinger (1997) also found that country's unique cultural dimensions, laws and regulations, supporting infrastructure and economic issues such as strikes and work stoppages were among the biggest obstacles to global outsourcing success.

Because of geography, cultural differences and communication difficulties getting a diverse team to work together can prove quite challenging (Kliem, 2004). Without in-depth knowledge, the customers in a given culture may draw false conclusions about its supplier's beliefs and behavior (Gallivan and Srite, 2005). Efficient and effective communication is essential in global outsourcing. Language, accent and cultural background play a considerable role in customer interaction (Pemble, 2004). So it's better to provide employees of the customer firms with skills that will enable them to adopt other cultures and work with foreign managers may be very important to ensure the success of global IT outsourcing (Elmuti and Kathawala, 2000).

There are many countries offering global IT outsourcing services. But India is considered world leader in the field of global outsourcing (Chen and Lin, 1998; Heeks et al, 2001; Khalid, 2003; Zatoryuk and Allgood, 2004; Laura and Ray, 2004; Gonzalez et al, 2005). A Nasscom (a premier organization that represents and sets the tone for public policy for the Indian software industry) study reported that over one in four global giants currently outsource their software requirements to Indian companies. This may be due to the benefits offered by the country as shown in Table 4.

India's closest competitor China is not far behind. It can be seen as future destination of outsourcing. Ireland is also establishing itself as a market leader with recognized outsourcing industries (Zatoryuk and Allgood, 2004). Russia is also establishing its presence in global outsourcing. Russia also has significant number of IT talent due to the mathematical programming they receive (Khalid, 2003). Countries like Vietnam, Philippines and Fiji have all recently made huge investments into attracting foreign companies (Ferla, 2004).

<b>BENEFIT</b>	<b>LITERATURE</b>
Availability of cheap and efficient workforce	Embleton and Wright (1998) Rajkumar and Mani (2001), Tafti (2005), Nicholson and Sahay (2001), Ferla (2004)
Computer savvy and English speaking workforce	Tafti (2005), Nicholson and Sahay (2001), Rajkumar and Mani (2001), Khan et al, (2003), Sparrow (2003), Ferla (2004)
Quality certified software firms	Nicholson and Sahay (2001), Sparrow (2003), Khan et al (2003), Nair and Prasad (2004).
Relatively stable government	Rajkumar and Mani (2001)
Investor Friendly government	Khan et al (2003)

Table.4. Benefits offered by India for outsourcing.

Quality certification plays an important role within the outsourcing industry (Zatolyuk and Allgood, 2004). A 2000 worldwide survey found that 25 of the 36 major firms that have reached a level-5 maturity level of the software Capability Maturity Model (CMM) were located in India (Khan et al, 2003; Laura and Ray, 2004). It does not mean that every country should outsource their IT operations only to India, as there is a possibility of becoming too dependent on a single country like India. To reduce the risks of dependence for global IT services on a single country like India, managers should find other options to globally diversify their global activities. So the client companies should choose the country by keeping in mind all these factors that may highly influence the global IT outsourcing process.

## 8.5 CONCLUDING ANALYSIS

Table 5. Risks and measures

RISK	MEASURES
R1. Financial Risk	M1. Adequate Plan M2. Managing the relationship with the supplier M3. Try to reduce hidden costs M4. Strong building of SLA
R2. Technical Risk	M5. Attentive regarding the tools, techniques and standards provided by supplier M6. No compromise about security and confidentiality of data M7. Make clear to supplier about level of information security M8. Implementation of policies M9. Monitoring of quality
R3. Managerial Risk	M10. Solid understanding of fundamental factors M11. Wise decisions M12. Selecting a proper supplier M4. Strong building of SLA M2. Managing good relationship with supplier M13. Human aspect cant be overlooked M14. Turn outsourcing into a win-win game
R4. Geographical Risk	M15. Know the governments policies M16. Select a politically stable country M17. Cultural differences can present problems M18. Select quality certified suppliers

The risk categories and specific measures within each category are summarized in Table 5. Risk column consists of the risk categories and the measures column consists of the measures for that particular risk category. This study has adopted an in-depth analysis of the global IT outsourcing process. It has expanded the research conducted in this area of global IT outsourcing by compiling measures that are available from various studies conducted in the area of outsourcing. This particular study had focussed primarily on the main motives and risks, which formed the basis for the analysis chapter. By literature analysis elaborating on the measures for risk assessment has been done which was lacking in the related works. This research tries to expand the body of the literature and examine the role of managers in global IT outsourcing. How the role of the managers is affected by various risks has been highlighted. The study has contributed the risks related to geographical by grouping them from various studies into a single category. The study helps the managers by providing a comprehensive overview of available measures for assessing risks in global IT outsourcing. The study narrows the risks by categorizing them, which can be handled easily by managers.

## **9. RESULTS**

The study gives a comprehensive overview of the available measures. This study contributes step by step risk measures of the global IT outsourcing that takes place. Literature has been thoroughly analyzed to compile the available measures in the area of outsourcing. It has expanded the research conducted in this area of global IT outsourcing by compiling measures that are available from various studies conducted in the area of outsourcing. Major functions of the global IT outsourcing have been given an overview to make a novice reader know what actual IT functions are outsourced. The main emphasis is on motives and risks which form a sound basis for categorization of the risks for which measures were provided. By literature analysis elaborating on the measures for risk assessment has been done which was lacking in the related works.

The four risks financial, technical, managerial and geographical have been identified which can contain the major risks identified from literature. The study categorizes the major risks into these four risks and gives measures accordingly. In doing so, it becomes easy to check for a risk that falls into a category.

In financial risk measures, how hidden costs can affect the global IT process has been highlighted. All the risks that are related to costs of global IT outsourcing has been grouped. Proper handling measures have been provided. The measures for costs risks when starting the outsourcing process to its termination has been given. The result is a need for proper adequate plan. The measures need to be properly managed so that the outsourcing process is successful.

Today risks in global IT outsourcing can include about the standards of techniques that are used. The results suggest that data and confidentiality need to be properly managed in order to overcome the problems or risks of the outsourcing process. This study once again stresses the need for the information systems security which ought to be appropriately secured and controlled. This study suggests that success lies in proper assessment in selecting the supplier who maintains the standards up to date.

From the results for managerial risks, it can be said that it is an essential part of the global IT outsourcing process. The entire process lies in decisions made by the management. Thorough analysis is made to find out the risks that fall under this category of risks. The main threat from employees is highlighted which had to be taken into consideration when planning to outsource IT functions outside. Potential measures have been given to overcome such risks from the literature.

Geographical risks are special only to IT functions which are outsourced to other countries. Analysis has been on countries which are offering and also the future destinations for global IT outsourcing. The risks that are considered much relevant to global IT outsourcing have been identified. The results suggest for a thorough knowledge of the geography of the countries to which IT operations are to be transferred.

The main results point for a strong building of the contract called SLA (Service Level Agreement). If proper risk assessment and risk measures of the risks identified from literature are developed, it can be easy to build such types of contracts and this study provides such potential statements to be included in building such contracts.

This research tries to expand the body of the literature and examine the role of managers in global IT outsourcing. How the role of the managers is affected by various risks has been highlighted. This study gives an overview of the risk measures to a manager of a customer firm which plans to outsource its IT operation globally. Risks have been narrowed by categorization process. By narrowing risks, it becomes easy for the managers to look for the particular risks measures to be taken instead of going through the whole process of checking the measures. The four basic categorizations are elaborated more when compared to other studies in this area. Through literature analysis of the literature made easy for narrowing these risks.

The study gives more information about the global IT outsourcing to managers who are not well acquainted with the process. The study covers from the basic definitions to providing a comprehensive overview of available measures. It tries to cover all aspects of the IT outsourcing process in a somewhat elaborated way when compared to other studies. Thus this study can be handy to managers.

## **10. CONCLUSIONS AND FUTURE RESEARCH**

The potential of global IT outsourcing is enormous. The key to successful outsourcing is the proper risk assessment. A search of outsourcing and global IT outsourcing as keywords in the databases Science Direct, IEEE/IEE and Emerald yielded around 650 references since 1990. Only few i.e. 180 have been reviewed. So this study is limited by its sample.

Despite the limitations, the study contributes to developing an understanding of global IT outsourcing by identifying major motives, major functions and major risks. The results of the study suggest that by understanding and managing the major risk factors identified in the literature, managers can view global outsourcing as a useful tool to enhance their competitive positions in an increasingly global market place. This study supports the concept of outsourcing but with a careful understanding of the risks involved in it. Most of the things in a global IT outsourcing process points to a strong building of the SLA, which is considered to be an essential part of the global outsourcing of Information technology.

Risks and their impact can vary from country to country. As the world changes, there may be other geographical risk factors in the global IT outsourcing area. These factors need to be explored in more depth to identify those that must be managed to ensure the highest level of success of a global IT outsourcing project. A broader approach may provide client firms with important points from which to identify the new risks and challenges of global IT outsourcing. Future research efforts should expand the body of the literature and critically examine the role of managers in global IT outsourcing. A thorough risk assessment of the risk factors in the area of global IT outsourcing can be a useful tool for avoiding major risks as global outsourcing became a ubiquitous organizational phenomenon.

## REFERENCES.

- Adeleye Bunmi Cynthia, Fenio Annansingh and Miguel Baptista Nunes (2004). Risk management practices in IS outsourcing: an investigation into commercial banks in Nigeria. *International Journal of Information Management*, Volume 24, Issue 2, April 2004, Pages 167-180.
- Alexander Marcus and David Young (1996 a). Outsourcing: Where's the value? *Long Range Planning*, Volume 29, Issue 5, October 1996, Pages 728-730.
- Alexander Marcus and David Young (1996 b). Strategic outsourcing. *Long Range Planning*, Volume 29, Issue 1, February 1996, Pages 116-119.
- Andrzejak, A.; Graupner, S.; Kotov, V.; Trinks, H. (2002). Self-organizing control in planetary-scale computing. *Cluster Computing and the Grid 2nd IEEE/ACM International Symposium CCGRID2002*. Page(s):332 – 337.
- Antonucci, Yvonne Lederer; Tucker III, James J (1998). IT outsourcing: Current trends, benefits, and risks. *Information Strategy: The Executive's Journal*. Volume: 14 Issue: 2 Pages: 16-27.
- Aubert B, Party M, Rivard S (2003). A tale of two outsourcing contracts. A agency-theoretical perspective. *Wirtschaftsinformatik*. Volume 45 (2). Pp 181-190.
- Aubert, B. A., Dussault, S., Patry, M., Rivard, S (1999). Managing the risk of IT outsourcing. System Sciences, 1999. HICSS-32. In *Proceedings of the 32nd Annual Hawaii International Conference on Volume Track7*, 5-8 Jan, Page(s): 10.
- Aubert, B.A., Patry, M., Rivard, S., Smith, H (2001). IT outsourcing risk management at British Petroleum. System Sciences, 2001. In *Proceedings of the 34th Annual Hawaii International Conference on 3-6 Jan*. Page(s): 10.
- Aubert, B.A.; Patry, M.; Rivard, S (1998). Assessing the risk of IT outsourcing. System Sciences. In *Proceedings of the Thirty-First Hawaii International Conference on Volume 6*, 6-9 Jan, Page(s): 685 – 692.
- Augustson.Magdalena (1998). *IT outsourcing Relationships, A Transaction cost Analysis of Two cases*. Dissertation. Dept of Management and Economics, Linkoping University. Thesis no.667, LiU-TEK-LIC-1998:02.
- Bahli Bouchaib and Rivard Suzanne (2004). Validating measures of information technology outsourcing risk factors. *Omega*, Volume 33, Issue 2, April 2005, Pages 175-187.
- Bannon Michael J. (1996). Information technology: basic principles. *Current Paediatrics*, Volume 6, Issue 1, March 1996, Pages 38-41.
- Barthelemy Jérôme (2001). The hidden costs of IT outsourcing. *Sloan Management Review*, Vol.42 No.3, pp.60-69.
- Barthelemy Jerome (2003). The Hard and Soft Sides of IT Outsourcing Management. *European Management Journal*, Volume 21, Issue 5, October 2003, Pages 539-548.
- Barthelemy Jérôme and Dominique Geyer (2001). IT outsourcing: : Evidence from France and Germany.*European Management Journal*, Volume 19, Issue 2, April 2001, Pages195-202.
- Barthelemy Jérôme and Dominique Geyer (2005). An empirical investigation of IT outsourcing versus quasi-outsourcing in France and Germany. *Information & Management*, Volume 42, Issue 4, May 2005, Pages 533-542.

Beulen, E., Ribbers, P (2002). Managing complex IT outsourcing-partnerships. System Sciences, 2002. HICSS. *Proceedings of the 35th Annual Hawaii International Conference on 7-10 Jan. 2002* Page(s): 10 pp.

Bhattacharya. Somnath, Ravi S. Behara and David E. Gundersen (2003). Business risk perspectives on information systems outsourcing. *International Journal of Accounting Information Systems*, Volume 4, Issue 1, March 2003, Pages 75-93.

Blackley John A. and John Leach (1996). Security considerations in outsourcing IT services *Information Security Technical Report*, Volume 1, Issue 3, 1996, Pages 11-17.

Boehm B.W (1991). Software risk management: Principles and Practices. *IEEE Software* .Volume: 8 Issue: 1 Pages: 32-41.

Brooks, G (2004). What is outsourcing, *New Media Age*, P.4.

Canadian Institute of Chartered Accountants (CICA) [online]. Available from: <http://www.cica.ca/itac> [Accessed 15 April 2005].

Chan Christine W., Lin-Li Chen and Liqiang Geng (2000). Knowledge engineering for an intelligent case-based system for help desk operations. *Expert Systems with Applications*, Volume 18, Issue 2, February 2000, Pages 125-132.

Chaudhury, A.; Nam, Kichan (1995). Management of information systems outsourcing: A bidding perspective. *Journal of Management Information Systems Year: 1995* Volume: 12 Issue: 2 Pages: 131-160.

Chen. Q and Lin. B. (1998). Global outsourcing and its managerial implications, *Human Systems Management*, Vol. 17 No. 2, pp. 109-114.

Cook, M. F. (1999). Outsourcing human resource functions. *New York: American Management Association*.

David J. Bryce and Michael Useem (1998). The impact of corporate outsourcing on company value *European Management Journal*, Volume 16, Issue 6, December 1998, Pages 635-645.

Davis, D.(2005) A guide to outsourcing: ten legal pitfalls. *Engineering Management Journal* Volume: 6 Pages: 26-27.

dba DIRECT (2005), white paper. The Remote DBA solution to Modern Database Administration Challenges, January 2002. [Accessed 15 April 2005].

Deborah L. Swenson (2004). Entry costs and outsourcing decisions: evidence from the U.S. overseas assembly provision. *The North American Journal of Economics and Finance*, Volume 15, Issue 3, December 2004, Pages 267-286.

Downey, Jane Marie (1995). Risk of outsourcing - applying risk management techniques to staffing methods. *Facilities*, Volume 13 No. 9; 1995.

Downing, Charles E.; Field, Joy M.; Ritzman, Larry P (2003). The value of outsourcing: a field study. *Information Systems Management Year: 2003* Volume: 20 Issue: 1 Pages: 86-92.

Earl, M. (1996). The Risks of outsourcing IT. *Sloan Management review*. Spring, 26-32.

Eathington Liesel and Dave Swenson (2002). Information Technology Employment Growth in Iowa, 1992-2002, Department of Economics.Iowa state University.

- Elmuti, Dean; Kathawala, Yunus (2000). The effects of global outsourcing strategies on participants' attitudes and organizational effectiveness. *International Journal of Manpower*; Volume 21 No. 2.
- Embleton, Peter R; Wright, Phillip C (1998). A practical guide to successful outsourcing. *Empowerment in Organisations*; Volume 6, No. 3.
- Fenn Colette, Robert Shooter and Ken Allan (2002). IT security outsourcing: How safe is your IT security. *Computer Law & Security Report*, Volume 18, Issue 2, 31 March 2002, Pages 109-111.
- Ferla, Beverly La (2004). Offshore outsourcing: out of favour. *IEE Review*. Volume: 50 Issue: 3 Pages: 26-28.
- Fink. D. (1994). A security framework for information systems outsourcing. *Information Management and Computer Security*, 2(4), 3-8.
- Forrester Research. (1999). Outsourcing's future – Report. Cambridge, UK: Author.
- Foxman, Noah (1994). Succeeding in outsourcing. *Information Systems Management Year: 1994* Volume: 11 Issue: 1 Pages: 77-81.
- Frenzel Carroll W. (1996). *Management of information technology*. 2<sup>nd</sup> Edition. Boyd & Fraser publishing company, USA.
- Fritz Grupe, H (1997). Outsourcing the help desk function. *Information Systems Management Year: 1997* Volume: 14 Issue: 2 Pages: 15-23.
- Frost, Chris (2000). Outsourcing or increasing risks. *Balance Sheet*; Volume 8 No. 2.
- Gainey Thomas W., Brian S. Klaas (1998). The Outsourcing of Training and Development: Factors Impacting Client Satisfaction. *Journal of Management*, Volume 29, Issue 2, April 2003, Pages 207-229.
- Gallivan Michael and Mark Srite (2005). Information technology and culture: Identifying fragmentary and holistic perspectives of culture. *Information and Organization, In Press, Corrected Proof*, available online 7 April 2005.
- Gates, B with Collins Hemingway. *Business @ the speed of thought: Using a digital Nervous Systems* (New York: Time Warner Books, March 1999).
- Gonzalez, Reyes; Gasco, Jose; Llopis, Juan (2005). Information systems outsourcing risks: a study of large firms. *Industrial Management & Data Systems*; Volume 105 No. 1.
- Grant, R.M. (2002). *Contemporary strategy Analysis: Concepts, Techniques, Applications* (4<sup>th</sup> edn). Black Well Publishers, Oxford.
- Gupta, Uma G.; Gupta, Ashok (1992). Outsourcing the IS function. *Information Systems Management Year: 1992* Volume: 9 Issue: 3 Pages: 44-51.
- Gupta. U and Raval V. (1999). Critical success factors for anchoring offshore projects. *Information strategy*, 15 (2), 21-27.
- Heeks, Richard; Nicholson, Brian, Krishna, Sahay (2001). Synching or Sinking: Global Software Outsourcing Relationships. *IEEE Software*. Volume: 18 Issue: 2 Pages: 54-61.
- Hira Ron (2004). U.S. immigration regulations and India's information technology industry. *Technological Forecasting and Social Change*, Volume 71, Issue 8, October 2004, Pages 837-854.

Hoecht . A and P. Trott (2005). Innovation risks of strategic outsourcing. *Technovation*, In Press, Corrected Proof, Available online 23 March 2005.

Hunter Philip (2003). Security Issues with Offshore Outsourcing: Offshore coding booming, but is it safe? Answer is a qualified yes, but only if you do your homework. *Network Security*, Volume 2003, Issue 8, August 2003, Pages 5-6.

Hurley, M (2001). IT outsourcing-Managing the key asset. *Information Management and Computer Security*, 9(5), pp. 1-7.

Hurley, Margaret; Schaumann, Folker (1997). KPMG survey: the IT outsourcing decision. *Information Management and Computer Security*; Volume 5 No. 4.

Infotech (2002). Outsourcing your network managed services, key considerations for success. *An executive briefing paper*.

Jones Deri (2001). Web Hosting — The Security Risks . *Network Security*, Volume 2001, Issue 12, 1 December 2001, Pages 14-15.

Joseph Yesulatitits, A (1997). Outsourcing for new technology adoption. *Information Systems Management*. Year: 1997 Volume: 14 Issue: 2 Pages: 80-83.

Judenberg, Joseph(1994. )Applications maintenance outsourcing. *Information Systems Management* Year: 1994 Volume: 11 Issue: 4 Pages: 34-39.

Judy A. Siguaw and Cathy A. Enz (1999). Best practices in information technology. *The Cornell Hotel and Restaurant Administration Quarterly*, Volume 40, Issue 5, October 1999, Pages 58-64.

Jurison Jaak (1996). Toward more effective management of information technology. *The Journal of Strategic Information Systems*, Volume 5, Issue 4, December 1996, Pages 263-274.

Kakabadse Andrew and Kakabadse Nada (2002). Trends in Outsourcing: Contrasting USA and Europe. *European Management Journal*, Volume 20(2), April, Pages 189-198.

Kakabadse Andrew and Kakabadse Nada (2005). Outsourcing: Current and Future Trends. *Thunderbird International Business review*, Vol.47 (2), April, Pages 183-204.

Keefe J. O' (2001). Current Analysis, Market Assessment: Internet Services.

Khalfan Abdulwahed Mohammed (2004). Information security considerations in IS/IT outsourcing projects: a descriptive case study of two sectors. *International Journal of Information Management*, Volume 24 (1), February, Pages 29-42.

Khalid Soliman, (2003). A framework for global IS outsourcing by application service providers. *Business Process Management Journal*; Volume 9 No. 6.

Khan N.; Currie W.L.; Weerakkody V.; Desai B (2003). Evaluating offshore IT outsourcing in india: supplier and customer scenarios. *System Sciences*, 2003. *Proceedings of the 36th Annual Hawaii International Conference*. Pages: 239-248.

King, W. (2004). Outsourcing and the future of IT. *Information Systems Management*, Vol.21 No.4, pp.83-85.

King, William R (1994). Strategic outsourcing decisions. *Information Systems Management* Year: 1994 Volume: 11 Issue: 4 Pages: 58-62.

Kliem Ralph(2004). Managing the risks of offshore it development projects *Information Systems Management* Volume: 21 Issue: 3 Pages: 22-28.

Kliem Ralph. L (1999). Managing the Risks of Outsourcing Agreements. *Information Systems Management* Volume: 16 Issue: 3 Pages: 91-94.

Kweku-Muata Osei-Bryson and Ojelanki K. Ngwenyama (2005). Managing risks in information systems outsourcing: An approach to analyzing outsourcing risks and structuring incentive contracts . *European Journal of Operational Research*, In Press, Corrected Proof, Available online 17 May 2005.

Lacity , M. and Hirscheim, R (1993). Information Systems outsourcing. Wiley, New York.

Lam Terry and Michael X. J. Han (2005). A study of outsourcing strategy: a case involving the hotel industry in Shanghai, *International Journal of Hospitality Management*, Volume 24, Issue 1, March 2005, Pages 41-56.

Lankford, William M; Parsa, Faramarz (1999). Outsourcing: a primer. *Management Decision*; Volume 37 No. 4.

Laura Pfannenstein, L.; Tsai, Ray J (2004). offshore outsourcing: current and future effects on american it industry. *Information Systems Management*. Volume: 21 Issue: 4 Pages: 72-81.

Leavy, Brian (2004). Outsourcing strategies: opportunities and risks. *Strategy and Leadership*; Volume 32 No. 6.

Lee, Matthew K.O. (1996). IT outsourcing contracts: practical issues for management. *Industrial Management and Data Systems*; Volume 96 No. 1.

Loh L., N.Venkatraman (1992). Diffusion of Information technology outsourcing: influence sources and the Kodak effect. *Information Systems Research*, 3(4)], 1992.pp.334-358.

Loudon T.V. (2000). Geoscience after IT: Part A. Defining information technology, its significance in geoscience, and the aims of this publication *Computers & Geosciences*, Volume 26, Issue 3, Supplement 1, 1 April 2000, Pages A1-A3.

March Salvatore T. and Gerald F. Smith (1995). Design and natural science research on information technology. *Decision Support Systems*, Volume 15, Issue 4, December 1995,Pages251-266.

Marie Alner, (2001). The Effects of Outsourcing on Information Security. *Information Systems Security* Year: 2001 Volume: 10 Issue: 2 Pages: 35-44.

Mascot Systems (2005). Outsourcing ERP support, a white paper by Mascot Systems ([www.mascotsystems.com](http://www.mascotsystems.com)). [Accessed 15 April 2005].

McFarlan, F. W. And Nolan, R. (1995). How to manage an IT outsourcing alliance. *Sloan Management Review*, winter, 9-22.

Murray Weidenbaum (2005). Outsourcing: Pros and cons. *Business Horizons*, Volume 48, Issue 4, July-August 2005, Pages 311-31.

Murray, J. Y., and Kotabe, M (1999). Sourcing strategies of US service companies: A modified transaction-cost analysis. *Strategic Management journal*, 20, 791-809.

Nair, K. G. K.; Prasad, P. N (2004). offshore outsourcing: a swot analysis of a state in india. *Information Systems Management* Year: 2004 Volume: 21 Issue: 3 Pages: 34-41.

- Narender Ramarapu; Parzinger, Monica J. Issues in foreign outsourcing. *Information Systems Management Year: 1997* Volume: 14 Issue: 2 Pages: 27-32.
- Neale P. (1995). The truth about of outsourcing. Brain and Ian Robertson, Gower, Aldershot and Brookfield, VT.
- Nicholson Brian and Sahay Sundeep (2001). Some political and cultural issues in the globalization of software development: case experience from Britain and India. *Information and Organization*, Volume 11, Issue 1, January 2001, Pages 25-43.
- Ozer Muammer (2000). Information Technology and New Product Development: Opportunities and Pitfalls. *Industrial Marketing Management*, Volume 29, Issue 5, September 2000, Pages 387-396.
- Park Joo-Yeon and Joon S. Kim (2005). The impact of IS sourcing type on service quality and maintenance efforts. *Information & Management*, Volume 42, Issue 2, January 2005, Pages 261-274.
- Pemble Matthew (2004). Transferring business and support functions: the information security risks of outsourcing and off shoring: (A beginner's guide to avoiding the abrogation of responsibility). *Computer Fraud & Security*, Volume 2004, Issue 12, December 2004, Pages 5-9.
- Peppers D, Rogers, M. (1993). The one to One Future: Building Relationships One customer at a time, *Currency Doubleday*, New York.
- Rajkumar, T. M.; Mani, R. V. S (2001). Offshore software development. *Information Systems Management*. Volume: 18 Issue: 2 Pages: 63-74.
- Richard Due, T. The real costs of outsourcing (1992). *Information Systems Management Year: 1992* Volume: 9 Issue: 1 Pages: 78-82.
- Rochester, J. H., Rochester, H., Jr (1995). Advantages and disadvantages of outsourcing. Professional Communication Conference, 1995. IPCC '95 Proceedings. 'Smooth sailing to the Future', *IEEE International* 27-29 Sept. 1995 Page(s): 77 – 82.
- Saunders C.S., Gebelt, M. and Hu, Q (1997). Achieving success in information systems outsourcing. *California management review* 39(2), 63-79.
- Schniederjan Marc J s; Kathryn M Zuckweiler (2004). A quantitative approach to the outsourcing-insourcing decision in an international context. *Management Decision*. Vol.42 No. 8, (pp. 974 – 986).
- Schubert Foo., Siu Cheung Hui., Peng Chor Leong and Shigong Liu (2000). An integrated help desk support for customer services over the World Wide Web — a case study. *Computers in Industry*, Volume 41, Issue 2, March 2000, Pages 129-145.
- Sharma, R., Bash, C., Chandrakant Patel., Beitelmal. M (2004). Experimental investigation of design and performance of data centers; Thermal and Thermo mechanical Phenomena in Electronic Systems, 2004. IThERM '04. *The Ninth Intersociety Conference* on 1-4 June 2004 Page(s): 579 - 585 Vol.1.
- Shepherd Alan (1999). Outsourcing IT in a changing world. *European Management Journal*, Volume 17(1), February, Pages 64-84.
- Sherwood John (1997). Managing security for outsourcing contracts. *Computers & Security*, Volume 16, issue 7, 1997, Pages 603-609.

Shi Zhengzhong, A.S. Kunnathur and T.S. Ragu-Nathan (2004). IS outsourcing management competence dimensions: instrument development and relationship exploration. Pages 901-919.

Sloper, A. (2004). Meeting the challenge of outsourcing. *Engineering Management Journal* Volume 14, Issue 3, June-July 2004 Page(s):34 – 37.

Smith Michael Alan, Sabyasachi Mitra and Sridhar Narasimhan (1996). Offshore outsourcing of software development and maintenance: A framework for issues. *Information & Management*, Volume 31, Issue 3, December 1996, Pages 165-175.

Smith MA, Mithra S, Narasimhan S (1998). Information Systems Outsourcing : a study of pre-event firm characteristics. *Journal of management information systems*. 15(2) : 61-93.

Soat, J. (2004). Offshore outsourcing, tax dollars, trouble, *Information Week*, No.1018, P.84.

Sparrow Elizabeth, 2003. *Successful IT outsourcing, from choosing a provider to managing the project*. Springer-Verlog, Great Britain.

Strassman . P. (1995). Outsourcing . A game for losers. *Computer world*, August 21, 1995.

Tafti Mohammed H.A. (2005). Risks factors associated with offshore IT outsourcing. *Industrial Management and data Systems*. Vol.105 No.5, (pp. 549 – 560).

Thomas Hemphill, A (2004). Global outsourcing: effective functional strategy or deficient corporate governance? . *Corporate Governance: International Journal of Business in Society*; Volume 4 No. 4.

Tomas F. Espino-Rodríguez and Victor Padrón-Robaina (2005). A resource-based view of outsourcing and its implications for organizational performance in the hotel sector. *Tourism Management*, Volume 26, Issue 5, October 2005, Pages 707-721.

Wasner Reine (1999). The process of outsourcing: strategic and operational realities. Linköping University, 1999.

Willcocks L., M. Lacity and G. Fitzgerald (1995 a). Information Technology outsourcing in Europe and the USA: Assessment issues. *International Journal of Information Management*, Volume 15, Issue 5, October 1995, Pages 333-351.

Willcocks Leslie., Guy Fitzgerald and David Feeny (1995 b). Outsourcing II: The strategic implications. *Long Range Planning*, Volume 28, Issue 5, October 1995, Pages 59-70.

Willcocks P. Leslie and Mary C. Lacity (1999). IT outsourcing in insurance services : risk, caretive contracting and business advantage. *Information Systems Journal* 9, 163 / 180.

Willcocks L. P. M. C. Lacity and T. Kern (1999). Risk mitigation in IT outsourcing strategy revisited: longitudinal case research at LISA. *The Journal of Strategic Information Systems*, Volume 8, Issue 3, September 1999, Pages 285-314.

William Perry; Devinney, Steve (1997). Achieving quality outsourcing. *Information Systems Management* Year: 1997 Volume: 14 Issue: 2 Pages: 23-27.

Wonseok Oh (2005). Why Do Some Firms Outsource IT More Aggressively Than Others? The Effects of Organizational Characteristics on IT Outsourcing Decisions. *System Sciences*, 2005. HICSS '05. *Proceedings of the 38th Annual Hawaii International Conference*. 2005. 259c-259c.

[www.dictionary.com](http://www.dictionary.com) [Accessed 14 April 2005]

Young Peter C.; John Hood (2003). Risk and the Outsourcing of Risk Management Services: The Case of Claims Management. *Public Budgeting & Finance*. Volume: 23 Issue: 3 Pages: 109-119.

Zatolyuk, Sergiy; Allgood, Bridget (2004). Evaluating a country for offshore outsourcing: software development providers in the ukraine. *Information Systems Management*. Volume: 21 Issue: 3 Pages: 28-34.

Zhu, Zhiwei; Hsu, Kathy; Lillie, Joseph (2001). Outsourcing - a strategic move: the process and the ingredients for success. *Management Decision*; Volume 39 No. 5.