2. Chapter 2

2.1 Literature review

This section delves into the literature review across the various themes identified in the Preamble section and identifies gaps in extant literature. It further goes on to provide the overall study design including the research question and research objectives.

2.1.1 Globalization and India

Globalization is a complex mega phenomenon integrating world economy without precedence with multiple effects, where the progress of technology is a driving force transforming the functioning of borderless and virtual / cyber space economic systems by being noticeable in foreign trade, international investment and international finance thus making it hard to define [Stefanović 2008]. Castells [1999] has examined, in his paper presented at the United Nations Research Institute for Social Development conference, “the profile of this new world, centred around multinational corporations, global financial markets and a highly concentrated system of technological research and development. He stresses the extreme flexibility of the system, which allows it to link up everything that is valuable according to dominant values and interests, while disconnecting everything that is not valuable, or becomes devalued. This simultaneous capacity to include and exclude people, territories and activities is based upon a capacity to network.

A network is simply a set of interconnected nodes. It may have a hierarchy, but it has no centre. Relationships between nodes are asymmetrical, but they are all necessary for the functioning of the network for the circulation of money, information, technology, images, goods, services, or people throughout the network. The most critical distinction in this organizational logic is not stability, but inclusion or exclusion.” Even today, we are far away from an ideal globalized world and at just a fraction of it, closer to ten percent, implying that the future of globalization is still extremely delicate [Ghemawat 2007]. Hence we are also far away from the Type 1 civilization. Accordingly globalization is a “highly complex, contradictory, and thus ambiguous set of
institutions and social relations, as well as one involving flows of goods, services, ideas, technologies, cultural forms, and people” [Kellner 2002]. These developments on one hand have given rise to the cross border flow of data or information as an integral part of globalization which is facilitated by technology for its instantaneous movement across the world and for its indefinite storage, and on the other hand data protection has been an impediment to the free flow of data across borders nurturing concerns regarding possible growth of data security breaches and privacy risks [OECD 2006; Kong 2010].

Globalization is not deterministic and can be understood as the economic, social, technical, cultural and political interdependency of nations [Drezner 2001]. Since information or data is an integral part of globalization, the same holds true for it in a cross border situation. One type of economic globalization is international trade [Chase-Dunn et al. 2000], the sum of exports and imports of goods and services, which has existed for centuries.

From the year 2005 till 2011, world merchandise trade has grown by 3.7 per cent annually while GDP has risen by 2.3 per cent. [WTO 2012] Since the second half of the twentieth century, world exports for total merchandise have grown as shown in Table 1.

Table 1: World exports for total merchandise

<table>
<thead>
<tr>
<th>Year</th>
<th>US$ Billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>62</td>
</tr>
<tr>
<td>1975</td>
<td>877</td>
</tr>
<tr>
<td>2000</td>
<td>6,459</td>
</tr>
<tr>
<td>2012</td>
<td>18,401</td>
</tr>
</tbody>
</table>

[Source: Online article 344 – WTO]

In the global economy, the fastest growing sector is services accounting for almost two thirds of all economic activity in G20, 20% of global trade, one third of global employment, 35% of GDP in lowest income countries to over 70% of GDP in OECD countries [Hoekman and Mattoo 2008;
Miroudot et al. 2012; Online article 345 – WTO]. The commercial services world exports have grown as shown in Table 2.

Table 2: World commercial services exports

<table>
<thead>
<tr>
<th>Year</th>
<th>US$ Billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>367.1</td>
</tr>
<tr>
<td>1990</td>
<td>788.7</td>
</tr>
<tr>
<td>2000</td>
<td>1,491</td>
</tr>
<tr>
<td>2012</td>
<td>4,349.9</td>
</tr>
</tbody>
</table>

[Source: Online article 344 – WTO]

Services being varied cover an extensive range of economic activities [Hoekman and Mattoo 2008]. It has been established that global offshore IT software and services sourcing contribution was USD 33.6 billion to the real GDP in the year 2003 for the United States and expected to increase by USD 124.2 billion in 2008 than it would have been had there been no offshore outsourcing of IT software and services [Global Insight 2004]. Just as United States in the west has benefitted by the international trade in offshore services, so has Australia in the east been a net beneficiary where a “strong growth in business services exports has resulted in an increase in the surplus for computer and information services and turned a deficit into a billion dollar surplus for other business services” [Woods 2007]. The average growth rate of business service exports for selected countries during the years 1995 to 2005 is shown in chart 2 indicating India to be among the top countries.
Chart 2: Average growth rate of business service exports for selected countries during 1995 – 2005

[Source: Hoekman and Mattoo 2008]

“The process of world economic integration has involved a broadening and deepening of the inter-relationships between international trade and foreign direct investment (FDI) flows” [Wignaraja 2003]. FDI into a country (60% was in service industries in the year 2004) is seen as a strategic conduit for foreign firms to compete in the global services market by helping increase the productivity at an enterprise level using technology diffusion for superior quality of services and reducing cost of services [Hoekman and Mattoo 2008]. The role played by FDI in globalization is also well established in terms of upgradation of technology, skills including managerial capabilities and employment generation. According to Organisation for Economic Co-operation and Development (OECD) the global FDI flows dropped by 14% in the year 2012 to USD 1.4 trillion as compared to 2011 [Bertrand and Kothe 2013].

With the speed of industrialization since the 1970s in East Asian countries and the economic developments since 1978 in China and 1990s in India, the Asian economic growth, including
getting substantial FDI inflows, had started and “China and India have been gradually pushing the relative world GDP trend in favor of Asia” shifting “the global center of economy from the North-Atlantic to the Asia-Pacific macro-region” [Laš and Jukka 2011].

India has made significant progress in its economic and social development over the last two decades and is poised to grow in the years to come. India is the third largest economy in the world when measured in terms of purchasing power parity. Based on the economic policies and growth rates, the economic history of India is commonly divided into four groups – independence to 1965, 1966 to 1980, 1981 to 1991, and post 1991 [Sibal 2012]. India was clubbed in the similar economic bracket of developing countries (with Brazil, Russia and China) expected to show substantial growth and India has been one of the world’s best-performing economies for a quarter of a century post 1991 when the economic policy reforms in India started so as to start embracing globalization. In the last decade from April 2000 to December 2010, the FDI inflows to India were Rupees 565,913 crores compared to the earlier decade from August 1991 till March 2000 where it was just Rupees 59,698 crores as shown in Table 3.

Table 3: Financial year-wise FDI inflows for India

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Financial Year (April - March)</th>
<th>Amount of FDI Inflows (in Rupees Crores)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1991-92 (August - March)</td>
<td>409</td>
</tr>
<tr>
<td>2</td>
<td>1992-93</td>
<td>1,094</td>
</tr>
<tr>
<td>3</td>
<td>1993-94</td>
<td>2,018</td>
</tr>
<tr>
<td>4</td>
<td>1994-95</td>
<td>4,312</td>
</tr>
<tr>
<td>5</td>
<td>1995-96</td>
<td>6,916</td>
</tr>
<tr>
<td>6</td>
<td>1996-97</td>
<td>9,654</td>
</tr>
<tr>
<td>7</td>
<td>1997-98</td>
<td>13,548</td>
</tr>
<tr>
<td>8</td>
<td>1998-99</td>
<td>12,343</td>
</tr>
<tr>
<td>9</td>
<td>1999-00</td>
<td>9,404</td>
</tr>
<tr>
<td>10</td>
<td>2000-01</td>
<td>10,733</td>
</tr>
<tr>
<td>11</td>
<td>2001-02</td>
<td>18,654</td>
</tr>
<tr>
<td>12</td>
<td>2002-03</td>
<td>12,871</td>
</tr>
<tr>
<td>13</td>
<td>2003-04</td>
<td>10,064</td>
</tr>
<tr>
<td>14</td>
<td>2004-05</td>
<td>14,653</td>
</tr>
<tr>
<td>15</td>
<td>2005-06</td>
<td>24,584</td>
</tr>
<tr>
<td>16</td>
<td>2006-07</td>
<td>56,390</td>
</tr>
<tr>
<td>17</td>
<td>2007-08</td>
<td>98,642</td>
</tr>
<tr>
<td>18</td>
<td>2008-09</td>
<td>123,025</td>
</tr>
<tr>
<td>19</td>
<td>2009-10</td>
<td>123,120</td>
</tr>
<tr>
<td>20</td>
<td>2010-11 (up to Dec 2010)</td>
<td>73,177</td>
</tr>
<tr>
<td></td>
<td><strong>Cumulative Total</strong></td>
<td><strong>625,611</strong></td>
</tr>
</tbody>
</table>

[Source: Dept of Industrial Policy & Promotion 2010 - 11]
The economic policy reforms in services in India and inward FDI in services to India have an affirmative link as can be seen in the chart 3:

Chart 3: Impact of services policy reforms in India on FDI

![Chart 3: Impact of services policy reforms in India on FDI](image)

[Source: Hoekman and Mattoo 2008]

The Indian Information Technology (IT) industry has grown in export revenues in a decade from a mere USD 2 billion in 1998 to USD 47 billion in 2009, and employed over two million people [Online article 343 – Nasscom 2009]. India is the centre stage of total outsourcing market with about 51% share and the Indian IT industry accounts for 25% of India’s exports and 10.5% of services revenues [NASSCOM 2010]. In just one decade India has transformed and reinvented the outsourcing industry several times over, staying ahead of all trends [Jorek et al. 2009]. It has been established in prior research that there exists linkage between the growth of the Indian IT industry and the economic development of India [Bajpai and Shastri 1998; Arora and Athreye 2002; Kambhampati 2002; D’Costa 2003]. According to the IBM Institute for Business Value, [2011] India’s fortes in ICT and business services, account for over 40 percent of India's inward investment along with an increase in jobs created of about 35 percent from these inward investment compared to 2009 levels in a complex business environment where organizations try to stay competitive and relevant by creating globally optimized footprints driven by globalization of economies, enterprises, societies and governments.
2.12 Offshore outsourcing

Blinder [2006] terms offshore outsourcing as the third wave of Industrial Revolution after the first wave where the workers moved from farm to factory, the second wave where workers moved from manufacturing to services and now in the third wave to the information age bringing with it enormous and complex challenges for enterprises, governments and society.

“Firms are outsourcing and offshoring in order to lower costs, acquire higher quality inputs, and generally improve their competitiveness” [OECD 2010]. Figure 1 provides a summary of the sourcing strategies or sourcing business models that enterprises follow to improve their competitiveness, quality and costs in terms of location and production of intermediate services or goods.

Figure 1: Sourcing strategies

![Sourcing Strategies Diagram](source: Miroudot et al. 2009)

“The greater the variety and quality of services and the larger the reduction in (real) prices associated with greater specialization in services (outsourcing), the greater the impact on
productivity (welfare) of firms (households) that buy services” [Hoekman and Mattoo 2008] thus having an impact on the sourcing strategies for enterprises.

Specialization in services, a key contributing factor for inclusive economic growth and development, arises due to the growth of intermediate services [Hoekman and Mattoo 2008]. With the increased global demand for sourcing of intermediate services, important trends can be observed on the world map as shown in figure 2. The map, representing imports of intermediate services above USD 5 billion, indicates that North America imports more intermediate services from Europe as compared to Asia and Europe imports more intermediate services from North America as compared to Asia which are depicted proportionally to the value of flows by arrows which represent inter-regional imports and circles representing intra-regional imports. [Miroudot et al. 2009]

Figure 2: Intra and inter-regional imports of intermediate services (Billion USD, 2005)

[Source: Miroudot et al. 2009]
Jelassi and Modwel [2006] have provided advantages for each of the five main stakeholders (namely shareholder, consumer, retained employee of the country outsourcing the work, hired employee of the offshore outsourcing country, and government of the offshore outsourcing country) involved in IT offshore outsourcing and have described offshoring as “a ‘trade phenomenon’ arising when non-tradable services become tradable across frontiers owing to enabling information technology” [Jelassi and Modwel 2006]. Rapid advances in ICT have transformed the way services are traded and have provided tremendous boost to cross border trade in services. This globalization of services sector has given rise to offshoring—the cross border sourcing of ICT enabled business support services. In the trade of services based on the General Agreement on Trade in Services, four modes (cross-border supply or mode 1, consumption abroad or mode 2, commercial presence or mode 3, and presence of natural persons or mode 4) to trade services internationally have been identified based on the location of the service provider and customer of the traded service and IT services fall in mode 1 and/or mode 4 [United Nations Publication 2002; Hoekman and Mattoo 2008]. Offshore outsourcing of software (part of information technology services) is defined as “when the supplier of software development is from another country than the firm that decides to outsource information systems” [Rajkumar and Mani 2001]. A vast body of knowledge exists with respect to outsourcing covering various aspects such as benefits and implications of outsourcing, economic theories, management of key risks during outsourcing, client perspective, relationship perspective, provider perspective, process view, social impact of outsourcing to security frameworks for outsourcing [Rajkumar and Mani 2001; Agarwal et al. 2005; Aris et al. 2008; Benvenuto and Brand 2005; Fink 1994; Gonzalez et al. 2006a, 2006b, 2009; Ilie and Parikh 2004; Jorek et al. 2009; Khan et al. 2003; Lacity et al. 1996; Raisinghani et al. 2008; Saitta and Fjermestad 2005; Tafti 2005; Knapp et al. 2007]. Offshore outsourcing of software services is one of the leading strategies followed by majority of business enterprises from developed countries to achieve a competitive lead and achieve efficiency gains while reducing their costs and skills shortage. It is documented in past research that information systems outsourcing is a strategic management practice which is currently going through an unstoppable growth period [Gonzalez et al. 2009; Klepper and Jones 1998] and India is the largest exporter of ICT services in the world [OECD 2012]. The factors in favor of India have been described in literature as the advantage of being an early mover and having almost two decades of experience in this area,
having a large pool of English speaking educated skilled resources, familiarity with global customers, support from the government, low culture risk as it has a high ability to understand Western culture and subsume the same in its own culture [Davis 2005]. Milberg and Schöller [2008] note that it would be unthinkable to offshore without low-cost information technology “and information technology would not be as low cost if not for the effective extension of global supply chains into low-wage countries.” This means that the developed and developing nations are dependent on each other. Outsourcing software services is one of the dominant strategies followed by a majority of business enterprises in the developed nations to achieve a competitive edge. Successful outsourcing is ultimately dependent on business maturity and trust between the two parties [Fink 1994]. Trust leads companies from merely being committed to a contract to becoming long-term strategic partners. The services trade - offshore outsourcing of software by customers to their software service providers – as part of the global supply chain requires a strong commitment and close relationship among trading partners in order to attain lowest cost and maximizing service [Stank et al. 2001]. Security is an important pillar of trust and trust is an important factor in initial and continuing outsourcing [Luor et al. 2008].

The search for a software service provider cannot be based exclusively on cost savings by the outsourcer; other considerations such as quality, security and proximity of the provider must also be taken into consideration [Gonzalez et al. 2006a]. Alongside increase in offshore outsourcing of IT services and operations, a growing number of companies are encountering negative experiences and unpredicted results and the major risks being mentioned by companies that participate in offshore outsourcing are operational and strategic risks; legal contracts; cultural, security, and financial issues [Raisinghani et al. 2008].

Security is a major concern in global outsourcing as protection and control of data pose a problem [Raisinghani et al. 2008] and thus could act as an international trade barrier for services or increase the cost of international trade in services. Trust and information security assurance level has been seen as an essential parameter when selecting an outsourcing partner because companies perceive trust issues and relatively a higher security risk in working with an offshore provider as compared with local partners in their state [Aris et al. 2008; Tafti 2005; Khan et al. 2003]. Organizations in North America and Europe cite information assets protection as the top issue and data security is most often (90%) cited as an “important” or “very important” issue,
followed by application security (86%), and business continuity / disaster recovery (84%) while with respect to Application security, 64% respondents stated that management viewed application security as a significant area of risk [Penn 2008]. Sensing a protectionist approach towards professional services trade by countries and a growing concern around security among the various stakeholders, NASSCOM has proactively embarked on establishing India as a trusted global hub for professional services. It has identified (a) Infrastructure, (b) Corporate governance, (c) Risk management and security, and (d) Global branding as its key components towards establishing India as a trusted hub for Information Technology and Information Technology enabled services [Online article 342 – Nasscom].

Alongside the benefits of software service offshore outsourcing there have been questions raised with respect to service quality, information security violations offshore and loss of control [Kaka and Sinha 2005; Lewin et al. 2005; Duke University 2005] when viewed from the customer perspective. Yalaho [2007] has in a comparative study of Finland and India found Intellectual Property Right violations, security and trust issues as one of the inhibitors and obstacles of offshore outsourcing. Data protection has emerged as a sensitive and touchy regulatory issue of late in outsourcing, especially in context of the European Union and United States jurisdiction entities and for vendor companies in countries like India, enterprises security has now become mainstream [Agarwal et al. 2005]. Vendors are adopting a more proactive approach towards embracing security measures. Information services including software services depend on the provider firm with the aim of achieving effectiveness, efficiency, adequacy, integrity, validity, authorization and privacy. Therefore, negotiation must take place within the framework of the outsourcing contract for the purpose of establishing policies and procedures to ensure the mentioned security service aims [Gonzalez et al. 2009]. Tafti [2005] has provided a framework for IT outsourcing risk assessment and identified privacy and security as one of the seven outsourcing risk categories with the following three risk factors in this category - corporate policy, audit and control, host government laws and regulations. Successful service providers have demonstrated better quality of security services and unsuccessful providers on the contrary were unable to mitigate the escalated risks in security services [Aris et al. 2008]. As a result, though offshore outsourcing offers new business opportunities for IT suppliers, much of the outsourced work continues to be low risk and low value because there is a logical positive relationship between risk and value of jobs outsourced [Khan et al. 2003]. IT managers
simultaneously consider transaction cost economics, agency theory and knowledge-based theory to arrive at outsourcing decisions [Tiwana and Bush 2007]. The central theme of transaction cost economics theory is that transactions which incur a high cost for a client including the coordination cost or the governance cost would be kept within an organization’s boundary and those transactions where costs are lower are most likely to be outsourced, since distance between the customer and service provider countries also produces additional governance costs. [Tiwana and Bush 2007; Gooris and Peeters 2013].

The inclusion of security within the components of governance, culture and infrastructure is essential for success of IT offshore outsourcing thereby achieving IT competencies and advantage of competitiveness [Saitta and Fjermestad 2005]. India has been recognized for challenging the conventional wisdom of economic development through industrialization and has proved that services, such as IT offshore outsourcing, can be an explosive driver for economic development as these services can be traded, transported and scaled across borders in a globalized world using ICT effectively [Ghani and Kharas 2010].

By studying India as a case, it is seen that the software services sector has made a substantial impact on the overall economic growth of the country with just 1% of the population engaged and exporting competitively priced services in this specialized high productivity services exports [Mishra et al. 2011]. How has offshore outsourcing helped the economically developed countries?

For the United States in the year 2003, offshore outsourcing has been responsible for enhancing economic activity, advancing business and consumer spending by providing increased productivity, lower inflation, and cost savings estimated to be 40%, lower interest rates and created 90,000 net new jobs [Global Insight 2004]. Australia also has had a remarkable “increase in a number of occupations exposed to offshoring activities” [Woods 2007].

While it is evident how offshore outsourcing of services to India has helped India sustain its growth, it would be appropriate to mention that these services growth have played a strategic role in India’s competitiveness and export diversification (as shown in chart 4) on the global stage as there is a positive correlation with GDP growth per capita, employment generation including indirect job creation (for every single ICT related profession 4 extra career opportunities are created in the economy and participation of new workers, female labor force) and poverty reduction [Mashayekhi 2013; Ghani and Kharas 2010]
2.13 Competitiveness

Three different perspectives for competitiveness for developing countries have been outlined: the macroeconomic perspective at the country level; the business strategy perspective at the enterprise and country level; and the technology and innovation perspective driving competitive advantage as proposed by Schumpeter as creative destruction [Wignaraja 2003]. All the three perspectives need to play a collaborating role for each other in order to execute strategies for national competitiveness as there are multiple factors that need to be considered and measured to be globally competitive.
Many researchers have worked and produced a body of knowledge on the challenge of achieving and maintaining sustainable competitive advantage. Some examples from this body of literature are that for a competitive advantage to become sustainable it should be able to resist erosion by competitive behavior [Porter 1985], the need for durability of resources and capabilities creating the advantage [Colgate 1998] and contribution to economic activity [Bharadwaj and Varadarajan 1993]. Hoffman [2000] argues that “it is the external focus – the focus on competitors – that allows a firm to recognize and/or create unique resources. This uniqueness is what gives a firm the advantage. The advantage (or superiority) is sustained (or prolonged) as long as the unique strategy provides added value to customers, and as long as competitors cannot find a way to duplicate it”. Research also shows that availability of cheap labor force will not help towards sustainable competitive advantage and there is a need to produce and harness intellectual assets [Bajpai and Radjou 1999]. The quality of governance would play an important part for business organizations in future to organize collective action or bringing about an order and intentionality so as to maintain uniqueness, to produce and harness intellectual assets, to contributing to economic activity and to ensure durability. The durability of resources and capabilities would need to continuously mature and evolve so as to keep up with customer perceptions on strategic business value add. Mayer [1996] and Hoffman [2000] mention that both trust and commitment result in providing a sustainable competitive advantage.

Nitin Nohria, appointed 10th dean of Harvard Business School while delivering the JRD Tata Memorial Lecture on “India and the Globalization of Business” in Mumbai on July 29, 2010 [Online articles 335] said “I believe the 21st century will be the Global Century in business, and one in which many countries and regions will become worthy rivals in the global economy. No one country or region will enjoy a clear or undisputed advantage; instead, there will be multiple players who will compete on a world stage and in the process raise the level of prosperity all across the globe.” Nohria further went on to say that, “I believe the 21st century will be a Global Century because there will be many formidable global competitors. That India will be a significant player in this Global Century is almost assured, but how competitive it will be on a sustained basis over the course of the century should not be taken for granted.” So the main question here for India and its business enterprises to think about is how to be globally competitive on a sustained basis. What Nohria has mentioned regarding not taking India for
granted is also supported by the data from Global Competitiveness Index, which shows some downfall for India.

The World Economic Forum [2012-13] has described competitiveness “as the set of institutions, policies, and factors that determine the level of productivity of a country”. It benchmarks countries based on the Global Competitiveness Index which is a measure of microeconomic and macroeconomic foundations across twelve pillars covering institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication, innovation. As per the World Economic Forums Global Competitiveness Index 2012–2013, India ranks at 59 out of 144 countries. It had a rank of 56 out of 142 in the year 2011 – 2012, 51 out of 139 in the year 2010 – 2011 and a rank of 49 out of 133 in the year 2009 – 2010 [Schwab 2012-13].

In the Tenth United Nations Conference on Trade and Development in 2000 the Secretary-General in his address stated, “A developed country is one that allows all its citizens to enjoy a free and healthy life in a safe environment. And a genuinely developing country is one in which civil society is able to insist, not only on material wellbeing, but on improving standards of human rights and environmental protection as well. Is globalisation an enemy of development, in this broad sense? Surely not” [Online articles 336 – Unescap].

While globalization is hard to define, there have been attempts to measure it. The KOF Index of Globalization seems to be the most comprehensive measure with no single index being able to measure all aspects of globalization (other indexes are A.T. Kearney Foreign Policy Globalization index, CSGR Globalization Index, Maastricht Globalization Index, New Globalization Index and Globalization Index) [Buang et al. 2012]. The KOF Index of Globalization (chart 5 and 6) measures the economic, social and political dimensions of globalization. The economic dimension measures actual trade and investment volume as well as the extent to which the country applies trade and capital movement restrictions to protect its own economy. The social dimension reflects the extent of dissemination of information and ideas, whereas the political dimension shows the degree of political cooperation between countries. India ranks 116 out of 156 on the KOF Index of Globalization for the year 2011 (a ranking of 122, 150 and 22 on economic, social and political dimensions respectively) [Dreher 2006].
Chart 5: KOF Index of Globalization - Worldwide

[Source: Online articles 337 – KOF October 27, 2011]

Chart 6: KOF Index of Globalization – India

[Source: Online articles 338 – October 27, 2011]
Based on the A.T. Kearney Foreign Policy Globalization composite index of globalization, Uslaner [2003] has statistically established the overall connection between globalization and trust. In the context of economic globalization and increase of universal prosperity, one of the key goals of a nation and society is wealth expansion which can be achieved only by adopting a culture where reliability and trustworthiness are valued and the same is extended to other nations and societies with which it has trade and industry links [Tisdell 2008]. Globalization does not erode trust but encourages trust by increasing competition, uncertainty and risk thereby improving performance [Casadesus-Masanell and Khanna 2003]. Thus trust leads to better cooperation and there is a strong association between the trust levels in a society and how open its markets are, which in turn helps trusting nations to prosper in the digital or knowledge based economy as they are at the pole position of globalization [Uslaner 2003].

2.14 Trust

Knowledge of trust in terms of how it is created, maintained, lost and recovered should be the main concern for the future of science as the future of the human race may depend on it [Crease 2004]. For over 50 years cross-disciplinary researchers in the field of management, psychology, philosophy, economics and technology have written and studied about Trust [Eiser and White 2005; Reina and Reina 2007; Urban 2003; Paliszkiewicz 1997; Anuwichanont and Mechiinda 2009; Lee et al. 2008; Barbalet 2009; Castelfranchi and Falcone 2000]. Trust is the basis of human existence, is used intuitively and helps in making context dependent assessments [Touré 2011]. Trust is necessary as it is a method to decrease the complexity in modern society while allowing people to deal with the uncertainty and complexity of life [Luhmann 1988, 1979a; Giddens 1990].

Trust is at the core of social order and economic prosperity as it is the basis for economic transactions and inter-human communication [Tonkiss 2009; Reina and Reina 2007; RISEPTIS 2009; Rosenbaum 2004]. The prosperity of the digital economy is dependent on the advances in ICT that have increased the velocity of globalization while bringing about new opportunities and issues to be addressed. The social construct of trust in terms of how it can be promoted,
amplified and managed, is now required in the digital economy which essentially depends on complex partnerships between individuals, organisations and nations working in a collaborative manner [Rosenbaum 2004]. In the digital or knowledge based economy where inter organisational relationships are vital, trust is an essential constituent [Seppänen et al. 2007].

Researchers from various disciplines have studied and defined trust and some of the definitions are as follows:

<table>
<thead>
<tr>
<th>Author/s</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golembiewski and McConkie [1975]</td>
<td>“Trust implies some degree of uncertainty as to outcome. Trust implies hopefulness or optimism as to outcome”.</td>
</tr>
<tr>
<td>Luhmann [1979b]</td>
<td>“We as humans would not even be able to face the complexities of the world without resorting to trust, because it is with trust that we are able to reason sensibly about the possibilities of everyday life”.</td>
</tr>
<tr>
<td>Nooteboom [2002]</td>
<td>“Someone has trust in something, in some respect and under some conditions”.</td>
</tr>
<tr>
<td>Barney and Hansen [1994]</td>
<td>“Trust is the mutual confidence that one's vulnerability will not be exploited in an exchange”.</td>
</tr>
<tr>
<td>Hosmer [1995]</td>
<td>“Trust is the reliance by one person, group, or firm upon a voluntarily accepted duty on the part of another person, group, or firm to recognize and protect the rights and interests of all others engaged in a joint endeavor or economic exchange. Trust is the expectation of ethically justifiable behavior that is, morally correct decisions and actions based upon ethical principles of analysis”.</td>
</tr>
<tr>
<td>Lorenz [1999]</td>
<td>“Trust can be defined as the judgment one makes on the basis of one's past interactions with others that they will seek to act in ways that favor one's interests, rather than harm them, in circumstances that remain to be defined. Trusting judgments inevitably remain tentative, rather than certain, since they are based on a limited knowledge of others rather than certainty. ”</td>
</tr>
</tbody>
</table>
“than a precise calculation of their interests”.

### Mayer et al. [1995]

“Trust is the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor”.

### Rousseau et al. [1998]

“Trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another”.

### Currah and Judge [1995]

“Trust is an individual’s behavioral reliance on another person under a condition of risk”.

Wang and Emurian [2005] in their paper state that “because trust is a complex and abstract concept, it is difficult to define trust and to identify the elements that construct it”. However, four characteristics of trust are generally observed and accepted which are trustor and trustee relationship, vulnerability due to the uncertainty and risk which exist, produced actions or risk taking activities, and subjective matter as it depends on people and circumstances [Wang and Emurian 2005].

Some of the different determinants of trust that have been mentioned in literature are: Culture compatibility, Competence, Reputation, Communication, Performance, Integrity, Interdependence, Security, Privacy, Contracts, Commitment, Conflict resolution, Flexibility, Opportunistic behavior, Interpersonal, Mutual trust, Consistency, Loyalty, Openness, Fairness, Promise fulfillment, Investments, Personal visits, Project performance, Personal relationships and Quality [Nguyen et al. 2006; Luor et al. 2008; Goles and Chin 2005; Ferrin et al. 2003].

Trust is the foundation of building, measure of quality and maintaining long term relationships [Reina and Reina 2007; Rousseau et al. 1998; Singh and Sirdeshmukh 2000; Hurley 2006] and combines a variety of objects. Trust is multi-dimensional and complex [Nooteboom 1999; Michell Paul et al. 1998; Morgan and Hunt 1994]. Trust can also be understood as the willingness to take risk, larger the risk means larger is the trust or trust generates risk to overcome uncertainty [Currah and Epstein 2003; Barbalet 2009; Michell Paul et al. 1998; Crease 2004; Pavlou 2003].
Two recent works, those of Barbalet [2009] and Khodyakov [2007], in literature that seem to have studied extant trust literature have articulated trust by addressing: the issue of inter-organisational trust (economic aspects) and organisational trust (combining inter organisational and inter-personal trust); trust as a process in service industry where dealing with risks is a critical issue; and the role of trust in improving asymmetric partnership (since the expertise, resources and knowledge differ among the partners).

As per Barbalet [2009], “trust is understood in terms of a) acceptance of dependency in b) the absence of information about the other’s reliability in order to c) create an outcome otherwise unavailable. The first of these is the cost of trust; the second, the situation of uncertainty it faces and may overcome; the third, its purchase”.

According to Khodyakov [2007], “trust is a process of constant imaginative anticipation of the reliability of the other party’s actions based on (1) the reputation of the partner and the actor, (2) the evaluation of current circumstances of action, (3) assumptions about the partner’s actions, and (4) the belief in the honesty and morality of the other side”.

As established in literature, trust is based on perceptions and reduced to three key dimensions namely

- perception of competence,
- perception of goodwill and
- perception of behaviour,

based on factor analysis of the correlation of the various trust perception factors [Peters et al. 1997; Mayer et al. 1995; Blomqvist and Stahle 2000]. Based on theoretical approaches the dimensions of trust can also be viewed as

- economic,
- sociological and psychological

with the various trust perception factors falling under these three dimensions [Seppänen et al. 2007].
“Trust is a governance mechanism as it is based on a combination of behavioral and competence trust primarily concerning people with whom one interacts and goodwill or "system" trust in organizational structure, culture and external conditions of the firm's survival” [Nootenboom 1999].

2.15 Governance

Governance, including market-enhancing and growth-enhancing, is one of the critical factor which helps to explain the performance of developing countries [Khan 2006] and corporate governance influences corporate performance and competitiveness [Mayer 1996]. As per Mordini [2004] “Governance is the effort of human communities to try to control, direct, shape, or regulate certain kinds of activities. The governance approach implies that conventional boundaries between politics, policies and administration become less significant than the question of how the whole ensemble works (or fails to work)”. Prakash and Hart [1999] in the context of globalization, provide a more generalized definition of governance as “organizing collective action”. Rosenau [1992] defines governance as “order plus intentionality”. Due to the increasing nature of complexity in societies brought about by industrialization and modernization, governance is no longer limited to governments but permeates to formal and less formal or informal social institutions too, for example formal business enterprises or corporates as well as virtual organizations in cyberspace which are less formal [Prakash and Hart 1999]. Researchers have found that the characteristics of sectors differ and hence nature of sectoral governance structure systematically relates to sectoral characteristics [Lake 1999]. The IT Governance Institute [Online articles 339] has provided definition for various governances as: “Governance is the framework, principles, structure, processes and practices to set direction and monitor compliance and performance aligned with the overall purpose and objectives. It defines accountability, responsibility and decision making (among other elements). Enterprise governance is a governance view focusing on the overall enterprise; the highest-level view of governance, all others must align to it. Corporate Governance is a governance view focusing on corporate legal and regulatory requirements. A major aspect of corporate governance deals with fiduciary and compliance duties”. The IT Governance Institute has further provided a
A consolidated definition of governance as “a governance system is all the means and mechanisms that will enable multiple stakeholders at various levels of an entity for specific purposes to have an organized say in setting direction and monitoring compliance and performance so as to create for them acceptable value, while taking acceptable risk levels and using limited resources responsibly. In the definition, the enablers of governance are “framework, principles, structure, processes and practices”; the activities are “set direction and monitor compliance and performance”” [Online articles 339].

According to these definitions, it is clear that governance rests at the leadership level. It is defined as the set of responsibilities and practices exercised by the Board of Directors and executive management. There are various governance, and at the top level is enterprise governance - which is about providing strategic direction to the organization, ensuring that objectives are achieved, making sure that risks are managed properly, and ensuring that organizational resources are utilized properly.

Due to Information Technology, as per Porter and Millar [1985], a transformation is taking place across products, processes, companies, suppliers, customers, industries and competition. Information Technology (IT) was treated as a support service and there is a need for companies to understand how IT can create a substantial and sustainable competitive advantage [Porter and Millar 1985]. Today pervasive use of technology has resulted in businesses being critically dependent on Information Technology and more so in a digital or knowledge based economy. Information Technology is managing the multitude of transactions, information and knowledge that are supporting businesses, sustaining their economic activities and helping them grow. Lodahl and Redditt [2009] point out that “most companies still manage IT to minimize its cost rather than to maximize its contribution” and in their work (comprising of overall data of 930 organizational units and more than 10,000 respondents) they found that the IT “contribution measure accounts for half the variance (R²=0.52) in company profit margins normalized by industry”. This reinforces the significant role of IT Governance as part of corporate governance while creating a compelling case and need for IT Governance. The same is brought out in much detail with respect to the difficulty and criticality of this crucial operational area to be a part of corporate governance [Trautman and Altenbaumer-Price 2011].
A review of literature shows that IT Governance has varied definitions in the numerous articles and books thereby suggesting a lack of consensus on the definition. There, however, seems to be a common theme in the definitions, that of linking IT with the business objectives. Some of the definitions (table 4) are:

Table 4: IT Governance definitions

<table>
<thead>
<tr>
<th>Author/s</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Governance Institute [2003]</td>
<td>IT governance is the responsibility of the board of directors and executive management. It is an integral part of enterprise governance and consists of the leadership and organisational structures and processes that ensure that the organisation’s IT sustains and extends the organisation’s strategies and objectives.</td>
</tr>
<tr>
<td>The Ministry of International Trade and Industry, 1999</td>
<td>The organisational capacity to control the formulation and implementation of IT strategy and guide to proper direction for the purpose of achieving competitive advantages for the corporation.</td>
</tr>
<tr>
<td>Van Grembergen [2002]</td>
<td>IT Governance is the organisational capacity exercised by the Board, executive management and IT management to control the formulation and implementation of IT strategy and in this way ensure the fusion of business and IT. The three crucial IT governance questions are concerned with effectiveness, efficiency and control of IT.</td>
</tr>
<tr>
<td>Robinson [2009]</td>
<td>Rendering prudent decisions that ensure the IT strategic direction is clearly defined, tactical plans in support of the IT strategy are prioritized and effectively executed, and outcomes are adequately measured to meet prescribed business goals.</td>
</tr>
<tr>
<td>A.T. Kearney [2008]</td>
<td>IT Governance is defined as the controls, processes, and operating organizations that ensure technology enables the business strategy at an effective cost.</td>
</tr>
</tbody>
</table>
It is also clear from these definitions that IT Governance is about controls and measurements. This primarily translates to a business process - achieving a certain goal through a set of activities, rules and constraints under some conditions. A process can be continuously improved and hence measured for effectiveness, efficiency, internal controls and compliance. This is well depicted in figure 3 by A.T. Kearney [2008].

Figure 3: IT governance ensures business-technology alignment

As automation and thereby information continues to increase in organizations so that they can remain competitive, continue creating value and thereby economic wealth in the global economy, increasingly information is handled, processed, transported or stored in IT systems. This makes information a pervasive critical asset for an organization and its survival, thereby making a case for its safeguard and protection. Over the past few years, many organizations have suffered severe losses, failures and extinction due to the inadequate security, privacy and
governance of this critical asset. It is for this reason that corporate, IT and security governance need to be aligned.

As per the National Cyber Security Partnership Governance Task Force Report [2004], “Although information security is not solely a technical issue, it is often treated that way. If businesses, educational institutions, and non-profit organizations are to make significant progress securing their information assets, executives must make information security an integral part of core business operations. There is no better way to accomplish this goal than to highlight it as part of the existing internal controls and policies that constitute corporate governance”. COBIT, for example, is an IT governance framework, helps in auditing the deployment of IT resources and the production processes. It focuses on operational IT systems. Von Solms [2001] makes a clear case for information security to be an integral part of corporate governance. The need for cybersecurity, disaster recovery and business continuity planning is also discussed in detail by Trautman and Altenbaumer-Price [2011] from a corporate governance perspective. Adopting an implicit or explicit risk management based approach to security acts as a catalyst to move security from a technical domain to a business domain [Caralli and Wilson 2004]. Further “information security governance can be defined as the process of establishing and maintaining a framework and supporting management structure and processes to provide assurance that information security strategies are aligned with and support business objectives, are consistent with applicable laws and regulations through adherence to policies and internal controls, and provide assignment of responsibility, all in an effort to manage risk” [Bowen et al. 2006].

The Trusted Information Sharing Network report has aptly mentioned that “there is an increasing realisation domestically and abroad that an organisation cannot effectively achieve its corporate and IT governance objectives without a strong and effective security governance framework” [Commonwealth of Australia 2006]. The relationship between the three governances is depicted in the figure 4. This figure clearly bringing out the fact that corporate, IT and security governance need to be aligned and that security is not only a technology issue and hence not contained within IT governance.
Information Security Governance [2003], mentions that “information security is concerned with all information processes, physical and electronic, regardless of whether they involve people and technology or relationships with trading partners, customers and third parties. Information security is concerned with the comprehensive aspects of information and overall protection at all points within the life cycle of information used in the organization”. To ensure that there is business alignment, information security needs to take inputs from business strategy so as to understand the business processes and regulatory requirements, do a risk and impact analysis and come up with a strategy depicting the current state of information security and desired state so as to bring about the alignment. The conceptual framework for this is depicted in figure 5.
Nooteboom [1999] mentions that control by contracting is one of the classes of instruments for governance of relations and that trust helps towards transaction cost reduction. Contractual trust puts in place the manner for engagement [Reina and Reina 2007] including financial penalties for a trustee betraying a trustor [Emsley and Kidon]. Sen et al. [2005] have provided a trust based contracting framework and argue that contractees in a supply chain who bid for tasks where they consistently meet the contractual obligations and deadlines, rather than being opportunistic and bidding for all tasks, are preferred contractees allowing them to be more profitable, mutually beneficial to their contractor and creating stable partnerships.

The Corporate Governance Code for Romania [Gregory 2002], clearly mentions that the essential information to be put at the board’s disposal should include complaints regarding

[Source: IT Governance Institute 2003]
reliability of products manufactured or quality of services performed, amongst other items as part of the Board information flow, materials and presentations.

2.16 Quality as a part of Corporate Governance

Quality is a measure of excellence, a journey towards maturity and is positively linked to customer or end user satisfaction [Madu and Madu 2002; Crosby 1979; Parasuraman et al. 1985; Lee et al. 2000]. An effective strategic technique which is used to achieve competitive lead by business enterprises is quality [Omachonu 2004] and for expanding the offshore outsourcing industry trade bodies indicate quality as a differentiator to the customers [Kshetri 2007]. In any relationship between a service provider and customer, quality persists to be an essential aspect as established by Lin et al. [2005] in their research. Reliable and consistent quality is the most important dimension in terms of perceived value for customers trust and satisfaction [Anuwichanont and Mechinda 2009].

Quality is essential for the economic health of an organization and hence is a part of the corporate governance of business enterprises. One of the key roles of Corporate Governance is to manage risks, including quality risks, for all the stakeholders in an appropriate manner. Managing quality risks should be the standard way for the enterprise to do its business else it could have an impact on either the producer or the customer or the stakeholders [Bertin 2005]. The probability of the quality defect type determines who would be impacted and Bertin [2005] points out that there are three quality defect types evident. This can be clearly understood through Chart 7 [Bertin 2005] in terms of how operational performance of an organization can impact customers, markets, producers and the shareholders.
Chart 7: Quality Risks

<table>
<thead>
<tr>
<th>Quality Risk</th>
<th>Delivers Promise to Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Service delivered is competitive.</td>
<td>Type I Defect:</td>
</tr>
<tr>
<td>MANAGED RISK</td>
<td>Fails to Deliver Design.</td>
</tr>
<tr>
<td></td>
<td>Producer's Risk</td>
</tr>
<tr>
<td></td>
<td>Type II Defect:</td>
</tr>
<tr>
<td></td>
<td>Design Fails Need.</td>
</tr>
<tr>
<td>FALSE</td>
<td>Consumer's Risk</td>
</tr>
<tr>
<td></td>
<td>Type III Defect:</td>
</tr>
<tr>
<td>Know What Customer Really Needs</td>
<td>Service Delivered is not</td>
</tr>
<tr>
<td></td>
<td>competitive.</td>
</tr>
<tr>
<td></td>
<td>Shareholder Risk</td>
</tr>
</tbody>
</table>

Alpha (α) Quality Risk = Probability of Type I Defect  
Beta (β) Quality Risk = Probability of Type II Defect  
Gamma (γ) Quality Risk = Probability of Type III Defect

[Source: Adapted from [Bertin 2005]]

Causal relationship between trust, long term relationship and role of quality has been established through structural equation analysis by Wong et al. [1999].

Thus quality starts with the requirements phase and can be classified according to Kano’s model [Vargo et al. 2007; Berger et al. 1993] as:

- basic, expected or must-be;
- discriminator, revealed, linear satisfier or one-dimensional;
- and attractive, energizer or exciting.

Basic, expected or must-be requirements are those requirements that are not clearly stated by the customer – but are expected to be present in the product or service by default. Discriminator, revealed, linear satisfier or one-dimensional requirements are the ones that are explicitly demanded or clearly stated by the customer. Attractive, energizer or exciting requirements are again unstated requirements, which are difficult to discover and which are normally beyond customer's expectations. But if satisfied, they are the ones that will produce more than
proportional satisfaction. Their absence doesn't make them disappointed but their presence makes them elated. This is depicted in chart 8.

Chart 8: Kano’s Model of Customer Satisfaction

[Source: Vargo et al. 2007; Berger et al. 1993]

Woody [2005] mentions that security is a quality area, a shared responsibility across the organization, is an emergent property and does not have absolute requirements. A failure to recognise poor system / security quality is an organizational risk leading to organizational liability [Woody 2005]. With increasing benefits of ICT the traditional business is fast moving into the cyber world. “As a result of increasing interconnectivity, information systems and networks are now exposed to a growing number and a wider variety of threats and vulnerabilities. This raises new issues for security” [OECD 2002]. The Organization for Economic Co-operation and Development (OECD) [2007] also mentions that “by practicing sound security principles, organizations will contribute towards building trust in the use of technologies that facilitate online transactions”.

Competitive advantage is one of the benefits of offshore IT outsourcing but then trust and security are cited as the risks [Khan et al. 2003]. Security and risk are closely related to trust [Pavlou 2003]. Integrity which includes trust is a major source of dissatisfaction in service quality [Johnston 1995]. It is estimated that the security and reliability faults causing breakdowns
and repairs in software, cost the economy US$ 59.5 Billion annually [Mead et al. 2005]. The return on investment ranges from 12 to 21 percent when security engineering practices and requirements are introduced early in the software development cycle by organizations [Mead et al. 2005].

The Code of Practice BS7799 for Information Security, accepted by the ISO in the ISO/IEC 27000 family and also aligned with ISO 9000 (quality management), focuses on the management of information security by defining it as the preservation of confidentiality, integrity, and availability of information [ISO / IEC 27001 2009; Saint-Germain 2005]. This Code of Practice considers security to be a part of quality as it is based on the continuous improvement “plan-do-check-act” cycle which is used for quality (ISO 9000) and is also known as the Deming cycle or PDCA.

Firesmith has shown how quality can be decomposed into its relevant component factors (attributes or characteristics) and subfactors (parts) [Firesmith 2003] while clearly depicting how safety, security and survivability are a part of defensibility, which is a part of dependability, which is in turn a quality factor. This is depicted in figure 6 and figure 7 further provides the subfactors for security.

Figure 6: Security is a quality factor

[Source: Firesmith 2003]
One of the vital selection parameter for selecting an offshore outsourcing service provider is information security assurance levels, their effectiveness, efficiency, adequacy at the service provider side and information security is essential for initial and continued outsourcing trust [Gonzalez et al. 2006a; Luor et al. 2008; Penn 2008; Raisinghani et al. 2008; Tafti 2005].

Kahn et al. [2002] have identified security as a dimension of information quality and they further characterize it as dependable information for service quality. The roots of information quality have been traced to Total Quality Management (TQM), through which the requirements and expectations of the customer and the objectives of the business enterprises are fulfilled in an efficient and cost-effective way [Levis et al. 2007].
There is a rich literature available for TQM and various quality specialists such as Deming, Taguchi, Juran, Feigenbaum, Crosby, Shingo, Taylor and Ishikawa have contributed to its theory and concepts over the years [Ghobadian et al. 2007; Gupta et al. 2005; Narasimhan and Kannan 2011]. It is well established in literature that TQM, comprising of both technical (hard) and social (soft) dimensions, improves competitiveness of business enterprises. There are various documented approaches in literature for implementing, awarding and benchmarking the overall TQM practices of an organisation to achieve Business Excellence. Malcolm Baldrige National Quality Award (MBNQA) and European Foundation for Quality Management (EFQM) are the dominant approach examples in literature which have been established as TQM frameworks across industry categories [Bou-Llusar et al. 2009; Ford and Evans 2000; Meyer and Collier 2001; Fotopoulos and Psomas 2009]. There are seven key strategic components of TQM, based on the Malcolm Baldrige National Quality Award [Baldrige National Quality Program 2008, 2011-12; Samson and Terziovski 1999] as depicted in figure 8:

- leadership;
- strategic planning;
- customer and market focus;
- human resource / workforce focus;
- process management;
- measurement, analysis and knowledge management; and
- results.
The MBNQA determinants have been empirically tested by Curkovic et al. [2000] using structural equation modeling and found to match the definitions of TQM. Researchers have also provided survey instruments that they have used in their research and contribution to TQM [Samson and Terzirovski 1999; Black and Porter 1996; Cook and Verma 2002].

In a service encounter where the trade of outsourcing software services between customers and the service providers providing software services takes place, the service providers strive to be competitive and a market leader by delivering superior customer value by focusing on three value disciplines (wherein they meet industry standards in two of them and excel in the third) which are operational excellence, product/service leadership and customer intimacy [Treacy and Wiersema 1993]. This service encounter, where the customer interacts with the service providers front layer employees, is the key in determining customer satisfaction, building customer trust, building service providers brand identity and increasing customer loyalty. To deliver scalable
services which are emphasised by reliability and efficiency while being produced and delivered at competitive / lowest cost is a specific strategic approach for achieving operational excellence [Treacy and Wiersema 1993]. To achieve operational excellence organisations need to focus on their internal processes and controls. The focus thus is on governance / TQM and service quality. The outsourcing success of a service provider is dependent on service quality, which is supplying high quality and value added information systems services in the best interest of the customers, and partnership elements like trust [Grover et al. 1996]. Over the years, extensive and rich literature has been available in the area of service quality. Services are difficult to evaluate as compared to goods/products since they tend to be intangible, the customer is involved in their creation, they are processes and also dependent on the behaviour of the service provider [Grover et al. 1996]. The most widely accepted and cited service quality model in literature is the GAP model from Parasuraman et al. [Urban 2009]. Service quality, with respect to this model, is widely defined in published literature as the gap between the service expectation by customers from a service provider and actual service perceived to be delivered to the customer by the service provider.

As long as the customer gap, which is the gap between the perceived service by the customer and expected service by the customer, is within tolerance limits which are defined by the customer, it is an acceptable service quality. The customer gap, figure 9, is the summation of the four gaps namely knowledge gap, service design gap, service performance gap and communication gap [Parasuraman et al. 1985]. It is important to understand these service gaps in detail with respect to security, as these gaps reside at the software service provider's side. This understanding is also necessary since the agency theory, where the customer delegates the work to the service provider, highlights two issues namely difficulty of client in verifying appropriate behavior of the service provider and that the customer and service provider may prefer different actions because of the different risk preferences that each of them have[Tiwana and Bush 2007].
Based on literature various quality dimensions have been identified. One way to categorize them is in terms of product specific dimensions, service specific dimensions and those which are applicable to both product and service. This is depicted in figure 10.
The service quality conceptual framework from Parasuraman et al. [Parasuraman et al. 1985; Samat et al. 2006; Seth et al. 2005; Asubonteng et al. 1996] identifies five dimensions that customers consider in their assessment of service quality:

- reliability,
- responsiveness,
- assurance,
- empathy and
- tangibles.

A 22 item instrument, popular in literature as SERVQUAL tool is available, which helps to assess the service quality gap between customers’ perceptions and expectations and found to be appropriate for measuring information systems service quality [Parasuraman et al. 1988, 1991; Samat et al. 2006; Seth et al. 2005; Asubonteng et al. 1996; Watson et al. 1998]. The service quality model can be used to study the gap between customer driven expectations and perceptions which are formed based on service providers services and behaviour.

To understand the interrelationship between (service) quality and trust, Kashyap [2004] has proposed an empirical equation as follows:

\[
\text{Quality} = \alpha_1 \times \text{Direct Trust} + \alpha_2 \times \text{Indirect Trust} + \beta_1 \times \text{Consistency} + \beta_2 \times \text{Completeness} + \beta_3 \times \text{Quality Of Service}
\]

The equation is a representation of the multi dimensional measure into a single measure by assigning weights to the different dimensions which are subjective as well as objective here.

It is important to understand that information systems service quality is an ongoing commitment requiring action at strategic, tactical, and operational levels thus linking it to corporate strategy [Watson et al. 1998].

The study by Akbar and Parvez [2009] establishes that between perceived service quality and customer loyalty, customer satisfaction is a vital mediator and that trust and customer satisfaction are significantly and positively related to customer loyalty. The study by Hallowell [1996] empirically establishes the relationship of customer satisfaction to customer loyalty and customer loyalty to profitability in a service organisation.
2.18 Performance

Profitability and growth of an organisation is driven by customer loyalty in service industry, where retaining just 5% more of the customers can almost double the profits and a 5% increase in customer loyalty in a software service industry can boost profits by 35% [Reichheld and Sasser 1990; Heskett and Schlesinger 1994]. Security breaches can cause a sustained loss in an organizations share price, thus impacting its performance [Gazzini and Holt 2011]. Lodahl and Redditt [2009] point out that “most companies still manage IT to minimize its cost rather than to maximize its contribution” and in their work they found that the Information Technology “contribution measure accounts for half the variance (R²=0.52) in company profit margins normalized by industry”. In literature, the relationship between quality management practices and organizational performance has been much researched. Understanding and delivering on customers’ expectations, is a dynamic business situation requiring continual quality improvement which in turn relates quality practice to improved financial performance (significant at p < 0.01) based on data collected from 977 business firms from across the globe [Adam et al. 1997]. This is further strengthened by providing empirical evidence that, firms after having received quality awards show better operating income-based measures [Hendricks and Singhal 1997]. Integrating quality initiatives with the 5P’s (Purposes, Principles, Processes, People, and Performance) Model helps in providing feedback and control for strategic decision making, based on the performance of an organization for its long term survivability and profitability [Pryor et al. 2010].

The performance of an organization denotes two aspects – (1) the operational efficiency such as quality improvement having measures such as customer satisfaction which is derived from the business process performance and (2) the improvement of the bottom line such as revenue increase or reducing costs or profitability which are measured based on financial parameters derived from overall organizational performance [Melville et al. 2004]. A firms performance, relating to effectiveness, is the action it takes to meet customer demands and quality, including service quality dimensions, has been the main driver for expansion in scope of performance
measurement, including operations performance - requiring multiple measures, both financial or monetary and non-financial or value [Yacuzzi 2005; Cook and Verma 2002; Zeithaml 2000].

A cross-sectional study by Samson and Terziovski [1999] showed that there is a significant relationship between Total Quality Management practice and organizational performance in terms of quality performance, operational and business performance indicators. A key determinant of an organizations success is superior service quality [Wirtz 1998; Zisis et al. 2009]. In the ever increasing competitive conditions for capturing global software outsourcing business and completely satisfying increasing customer demands, it is inevitable for software service providing organizations to amplify their superior service quality so as to highlight operational efficiencies. To achieve this amplification, the service provider organizations should take responsibility in helping customers perceive the advantage by enhancing their measurement knowledge [Golder et al. 2012]. Service provider organizations need to understand that, based on research of thirty organizations from five different markets, it should be their top priority to have completely satisfied customers which requires some investment and in return these customers turn out to be very loyal and the investment of the service provider is paid back many times over thus helping drive the long term financial performance of the service provider [Jones and Sasser 1995]. In a service industry context financial measures have some limitations and hence performance is enhanced by non-financial measures where decision makers look at causes instead of effects in service operations [Aranda 2003]. The empirical results for financial returns from quality indicate superior outcomes for a customer satisfaction approach which is marketing and leads to revenue expansion as compared to efficiency approach which is operations and leads to cost reduction or as compared to both which is revenue expansion and cost reduction at the same time [Rust et al. 2002].

Researchers have also provided questions, elements or attributes that they have used for their survey instruments in their research and contribution to organizations operational performance [Samson and Terziovski 1999; Cook and Verma 2002; Zisis 2009].

Trust is culturally embedded and it is seen that eastern cultures value the importance of trust in transactions as compared to western cultures [Siakas et al. 2006]. In an organization, building trust is everyone’s responsibility, which in turn positively impacts the culture of the organization and behavior to steer and enhance business performance and outcomes [Reina and Reina 2007;
Sako 2006]. Trust enhances business performance and outcomes in terms of superior profit margins, expansion of business, lower cost for customer acquisition or reduced transaction cost by aligning governance structures, increased future returns and the goodwill trust paves the way for collaboration and innovation by means of continuous improvement and learning [Sako 2006; Urban 2003]. While Paliszkiewicz’s [1997] research shows that superior organisation performance and higher levels of trust are related, it also states that “in order to achieve a better understanding of organizational performance, companies should attempt to link trust management processes with intermediate outcomes”. Quality is one of the intermediate outcomes and Sako [2006] has mentioned that “maintenance of consistently high quality, which is an important source of competitiveness, is easier in a high-trust production system than in a low-trust one”.

2.2 Rationale of Research

2.21 Gaps in literature

1) In their comprehensive model of the outsourcing process Ilie and Parikh [2004] have identified that current literature does not address some specific areas – security being one of them. They mention the need for undertaking further research questions in the following areas of their model with respect to security - vendor search and selection (how do a vendor’s security practices impact the selection of the vendor), operations / relationships (how can a vendor mitigate the risk of security breaks in outsourcing operations) and evaluation (on objective and perceptive measures on data security dimensions). They also mention that in literature most studies have investigated outsourcing from the client’s perspective; only few studies have looked at outsourcing from the vendor’s perspective.

2) Seppänen et al. [2007] in their work have stated that there are no articles on service industry in which risk is also a critical issue. There is a need for more coherent linkage between theoretical approach, the conceptualization and dimensions of trust to make inter-organisational trust more solid. Empirical studies do not fully leverage earlier research.
3) While Paliszkiewicz’s [1997] research shows that superior organisation performance and higher levels of trust are related, it also states that “in order to achieve a better understanding of organizational performance, companies should attempt to link trust management processes with intermediate outcomes”.

4) Busi and McIvor [2008] have suggested that it is crucial to develop a theory based approach which can be practically implemented even if it is a combination of the existing theories thereby contributing to the literature.

The research gaps that emerge from literature review can be summarized as follows:

Though the vast body of work by researchers provides models of the outsourcing process it appears that current literature seems to have paid little attention to some specific areas – data or information security being one of them.

The other gaps seem to be in terms of:

- investigating outsourcing issues from the vendor's perspective
- leveraging prior research to use in the area of trust and information security specifically for the service industry
- developing coherent linkage between theoretical approach, the conceptualization and dimensions of trust in the context of inter-organisational trust
- empirical work
- measurement work
- linking trust management processes with intermediate outcomes
- using a combination of the existing theories develop an approach which can be practically implemented
- implications for business leaders and managers.
2.22 Issues relevant for present research

These gaps raise some key questions that need to be addressed in the context of the Indian software services industry to ensure that they provide assurance and compliance against information or data security breaches including service failures in an outsourcing relationship:

- Which prior research can be leveraged in the area of information security, trust, governance, service quality and performance?
- How can a coherent linkage be established amongst prior research for use in the area of information security, trust, governance, service quality and performance?
- What empirical and measurement mechanism can be used?
- Can implications for business leaders and managers be derived and practically implemented based on empirical and measurement mechanisms?
- What can Indian software service industry do to create the necessary trust, mitigate the risks and continue to be profitable so as to maintain their undisputed leadership position in the offshore outsourcing business?

2.3 Study Design

2.31 Research question

For service organizations, example Indian software services organizations, quality of service is the essential determinant of client satisfaction and client satisfaction is the basis of continued trust in a service organization. Trust leads to corporate sustainability and growth. Security governance determines security service quality of a software services provider in an outsourcing context.
Hence based on the literature review and gaps identified, the problem statement or research question is: “Can governance of security services in an outsourcing company providing software services predict the quality of security services, and can quality of security services in turn predict overall corporate performance?”

2.32 Research objectives

The following objectives relating to the research question have been studied from the Indian software services perspective:

1. To examine information security practices followed in the Indian software services industry using a holistic, scalable, theory based, business oriented model for information security

2. To examine select dimensions of service quality to understand if it leads to any perceived service quality gap in the security services from the Indian software services providers’ perspective within the Indian software companies?

3. To identify how governance dimensions relate to security service quality dimensions within the Indian software companies?

4. To identify how perceived quality of security services relates to perceived overall organizational performance?

5. To draw conclusions for proposing trust governance framework that could help in sustained trust.
2.33 Issues addressed or how the existing gaps in research are addressed in this research

Based on the gaps identified in literature, this study tries to address them and specifically this study:

- is in the service industry area
- investigates outsourcing issues from the vendor's perspective impacting inter-organisational relationship
- addresses the issue of information security management, risk management and trust management
- leverages prior disjointed research in the areas of information security, trust, governance, service quality and performance and brings them together
- makes use of empirical work in terms of Partial Least Square modeling and using prior established research methods of measurement for governance, service quality and performance namely measures of construct for survey methodology based on Likert scale by modifying them and constructing some measures to reflect the context of information security and trust by ensuring the construct validity, testing of individual items and structural model testing
- links information security and trust management processes as part of governance with intermediate outcomes in service quality to arrive at better understanding of performance
- in addition, based on empirical outcomes arrives at implications for business leaders and managers; provides a coherent linkage between theoretical approach, the framework conceptualization and practical implementation by utilizing a combination of existing theories thereby contributing to the literature.

2.34 Study Scope

The scope of this study is limited to the Indian software services providers who are at Tier 1 level (companies having over 50,000 employees or associates and a revenue of over USD 1 billion) providing services to customers. This study is in the service industry area and
investigates outsourcing issues of information security which is the most important factor impacting trust, from the vendor's perspective.

2.35 Research Methodology

This study can be viewed as a three step process to address the research question as has been discussed in “Outline of the research” as a part of section 1.

Step 1: This part of the study is more of exploratory in nature and hence employs theory, methodological and data triangulation to enhance confidence in the conclusion arrived based on the primary and secondary data collection and its findings. The research objectives 1 and 2 are addressed as part of this step of the study. The approach comprised of:

(a) literature review to identify determinants of security for trusted software services

(b) identification of existing research models where these determinants could be used and which could help understand the service design and service performance from a security perspective in more depth and detail

(c) using triangulation to arrive at the conclusion.

This step primarily helps in identifying the information security practices followed by the Indian software services industry, and also pinpoints areas of weakness or gap in the select dimensions of service design and service performance of the service quality gaps model. This is covered in detail in Chapter 3 or Section 3.

Step 2: Based on the weakness or gap that have emerged from step 1, the second step provides an empirical analysis using Partial Least Square (PLS), a Structural Equation Modelling (SEM) technique which has been used for modeling. This step addresses the research objectives 3 and 4 where survey methodology has been used to gather the data to explore governance, service quality and performance from the Indian software service providers perspective. This step provides validation of the relationship between information security governance as part of corporate governance and information security service quality and that between information
security service quality and organization performance. It also provides a perspective towards understanding of the trust management processes as part of governance with intermediate outcomes in service quality so as to arrive at better understanding of performance. This is covered in detail in Chapter 4 or Section 4.

Step 3: Utilizing the survey instrument and data gathered in step 2 and the gaps identified in step 1, step 3 maps the security governance and security service quality items to individual trust items and to the key trust dimensions to address the research objective 5. This step triangulates the above steps in a qualitative and quantitative manner to conclude that trust leads to corporate sustainability and growth and can be depicted in the form of a maturity framework while answering the research question. This is covered in detail in Chapter 5 or Section 5.

2.36 Research Model

Since this study can be viewed as a three step process to address the research question, there are three research models that have been used to arrive at the final framework.

In step 1, the service quality gaps model and the business model for information security have been used. The various security determinants as identified in literature and in the business model for information security have been mapped to the service design and service performance in the service quality gaps model. The research model for the conceptual relationship between service quality gaps model and business model for information security is depicted in figure 13. More details are in Chapter 3 or Section 3.

In step 2, the model is based on the hypothesis that since information security is a part of governance and quality, it is also an integral part of Total Quality Management (TQM) and Service Quality which in turn has an impact on organization performance. Thus there is a link between information security governance and information security service quality and a link between information security service quality and organization performance. The research model for the conceptual framework between information security governance, information security
service quality and organization performance is shown in figure 18. More details are in Chapter 4 or Section 4.

In Step 3 the capability maturity model concept has been used for proposing the trust maturity framework for the Indian software services industry. More details are in Chapter 5 or Section 5.

2.37 Instrument Design

The survey instrument design approach for the three steps described above has been as follows:

Step 1: Since the threats to information (including customer information to which the service provider has access or which resides in the service providers ICT systems) keep evolving and it is necessary for organizations to manage this evolving risk by understanding the business impact of the threat, likelihood of the threat and efforts involved or the cost to mitigate the threats [Bojanc 2012]. As this step was exploratory in nature, focus group discussions were carried out to arrive at the questionnaire for the field survey. The instrument is attached in Appendix 1. The focus group identified the information security threats that their organizations faced and then rated them across three dimensions - business impact of the threat; likelihood of the threat; and efforts involved / cost to mitigate the threat, on a scale of 1 to 5 where: 5=Strongly Agree, 4=Agree, 3=Neither, 2=Disagree, 1=Strongly disagree (this scale is useful in research and practice [Zheng et al. 2002]) [Bahl et al. 2011]. Details are provided in Chapter 3 or Section 3.

Step 2: The survey instrument in this step builds upon the existing dimensions, frameworks and instruments for Governance, Service Quality and Performance by modifying them to reflect the context of information security. This approach also helps to ensure the control of measurement error. The survey instrument, attached in Appendix 4, comprised of 28 questions for security governance, 44 questions for security service quality (of which 22 questions for ideal and same 22 questions for actual) and 16 questions for organizational performance [Bahl and Wali 2013, coming 2014]. The 28 questions on security governance are distributed as follows: 4 questions for leadership, 4 questions for strategic planning, 5 questions for customer and market focus, 6 questions for human resource / workforce focus, 5 questions for process management and 4
questions for measurement, analysis and knowledge management. The distribution of the 22 questions for service quality is as follows: 4 questions for tangibles, 5 questions for reliability, 4 questions for responsiveness, 4 questions for assurance and 5 questions for empathy. The 16 questions for organization performance have been distributed as follows: 3 questions for monetary performance and 13 questions for value performance. The data was collected on a Likert scale, where 1 indicated minimum agreement and 7 indicated maximum agreement. Details are provided in Chapter 4 or Section 4.

Step 3: This step uses the survey instrument, used in the previous step for security governance and security service quality, as its basis for data. The survey instrument comprised of 28 questions for security governance and a total of 44 questions for security service quality of which 22 questions were for ideal service and a same set of 22 questions for actual service thus adding up to 44 questions. The data was collected on a Likert scale, where 1 indicated minimum agreement and 7 indicated maximum agreement. The data collected was mapped to a primary trust perception item, which in turn was mapped to one of the key trust dimensions. The values of 1 to 7 provided by respondents in the survey instruments were mapped to 0, 1 and 2 to depict poor, average and good trust respectively as collapsing data from a 7 point scale to a 3 point scale does not reduce the reliability nor the validity of the ensuing scores [Matell and Jacoby 1971; Jacoby and Matell 1971]. Details are provided in Chapter 5 or Section 5.

2.38 Data Collection and Research Sample

Data collection for this study has been a challenging task. Since the data pertains to risks around information security and their mitigation, organizations and respondents are hesitant to share the data with any third party. The reason for this hesitation is that it could have an impact on the reputation of the service provider organization in terms of adverse publicity and also the fear of incurring financial loss in case there is any leakage of this information by the third party.

It is for this reason that the survey respondents selected were security professionals in the Indian software service provider companies. The security professionals understand that no one can secure data alone and it is a shared responsibility, hence they are more open to sharing of
information. Since the selected survey respondents are security professionals from the Indian software service provider companies, the confidence over the responses is high. The survey instruments administered in this study captures the perception of the employees or associates at the Indian software service providers end.

For each of the above mentioned three steps the approach followed has been as follows:

Step 1: In this step a methodological and data triangulation approach was followed as described [Bahl et al. 2011]:

1) Carrying out two field surveys covering 14 organizations each time in an interval separated by almost ten months in the year 2009 and 2010 based on the focus group discussions described above to arrive at the questionnaire for the field survey.

2) To validate the field survey findings, the available secondary data was studied (3 different credible surveys were studied in detail all pertaining to India:

   • one survey covered 150 organizations of which 51 were IT / ITeS organizations [DSCI and KPMG 72];

   • the second survey covered 140 organizations of which 45 were IT / ITeS [CERT-In, PwC and FICCI 2007-2008];

   • and the third survey covered 35 organizations at Capability Maturity Model Level 4 and Level 5 within the Software / Outsourcing verticals [AMI-Partners 2010].

These surveys covered the years 2007-2008, 2009 and 2010.

3) To further validate the understanding from the field survey and secondary data, face to face interviews with nine prominent Chief Security Officers in the Indian IT industry were conducted.
Step 2: In step 2, field survey responses were received from 61 respondents belonging to 22 Companies which cover the following Indian cities - Bangalore, Chennai, Hyderabad, Delhi, Noida, Gurgaon, Lucknow, Bhubaneswar, Mumbai, Pune, giving an all India perspective where the outsourcing software services vendors are situated [Bahl and Wali 2013, coming 2014]. The data demographics is provided in Table 6.

Step 3: This step also used the same data as collected in step 2. There was no additional data that was collected in this step.

2.39 Model Testing and Construct Validity

The models for this study in each of the three steps have been tested and validated as follows:

Step 1: For step 1, the data collected was analyzed separately for secondary data and for the field work based data by mapping them on to the elements or on to the dynamic interconnections of the business model for information security. Each of the predictive threats was also mapped to the elements or to the dynamic interconnections of the business model for information security. For the face to face interviews thematic analysis was carried out and mapping was done to the elements or to the dynamic interconnections of the business model for information security. In order to arrive at the conclusion from the selected research models, in this step methodological and data triangulation [Creswell and Miller 2000; Gable 1994] has been used. This included using multiple methods of data collection and data analysis to enhance confidence in the resulting findings. Triangulation helps to reduce the overall bias in data and in enhancing the verification of findings and derived conclusions. In addition, since this being an exploratory step, the results so obtained were validated against the study carried out by Ponemon Institute [2013] as shown in chart 9 and the findings were found to be similar. More details are in Chapter 3 or Section 3.

Step 2: In step 2, Partial Least Square (PLS), a Structural Equation Modelling (SEM) technique has been used for modelling. The model testing and construct validity for this step was carried out as follows:
1) Testing the validity and reliability of individual question / item;

2) Testing the internal consistency and validity of the measurement model;

3) Testing the structural model to find out if there is a positive relationship collectively between elements of Security Governance and Security Service Quality, and between Security Service Quality and Performance;

4) Testing the structural model to find out if there is any impact between Security Governance and Security Service Quality, and between Security Service Quality and Performance; and

5) Testing the research model to find out if Security Governance can predict Security Service Quality and if Security Service Quality can predict performance in an outsourcing organization.

The individual items of the survey instrument were tested for convergent validity or unidimensionality and their loading values. For the overall model, composite reliability and convergent and discriminate validity tests were carried out. After this the coefficient of determination, effect size, path relationships and predictive relevance were calculated for the model. More details are in Chapter 4 or Section 4.

Step 3: In step 3, each of the individual items / questions administered in the survey instrument for information security governance and information security service quality to the survey respondents in step 2, has been mapped to a primary trust perception item, which in turn has been mapped to one of the key trust dimensions, using existing literature. To further validate the proposed trust maturity framework, focus group discussion was held and the outcome of the discussion was that the proposed framework will act to strengthen and build trust among customers for the service providers in all the key process areas identified. More details are in Chapter 5 or Section 5.