CHAPTER 3: RESEARCH METHODOLOGY

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CHAPTER 3: RESEARCH METHODOLOGY

3.1 Need for the research

India’s export of engineering and technical consultancy services is a fraction of the exports of software & IT enabled services (3.8 per cent in FY 2008–09) In spite of the edge India enjoys due to its large engineering talent pool, lower manpower cost, English language and IT capability, it seems majority of engineering consultancy services firms are not marketing their services in the international arena and the sector is under-represented in India’s services export.

It is important to understand the factors that may deter some consultancy service firms from exporting whereas enables other firms to export their services, both from a research as well as a managerial perspective. The research seeks to examine major differences between exporters and non-exporters of a knowledge intensive professional service and hence understand the major impediments that must be overcome to encourage more Indian professional service firms to enter foreign markets.

There is in general, a paucity of research in the literature on different aspects of internationalization of professional service firms in the last decade or so. To the knowledge of this researcher, there is no research reported in the services exporting literature that brings out the differences between exporters and non-exporters of professional services, firstly in the Indian context, and secondly that takes into account
the influence of international business networks as well as the social networks / personal contacts of firm’s senior managers

3.2 Objectives of the research

1. The main objective of the research is to investigate the major differences between professional service exporters and non-exporters by studying the Indian engineering consultancy industry and seeking empirical support for various research hypotheses in this context.

2. As an outcome of the main objective, the research seeks to identify and understand major impediments that must be overcome to encourage more Indian professional services firms to enter foreign markets.

3. The second objective of the research is to study the principal motivations for exporting among the consultancy services exporters and to determine whether these export motivations are mainly proactive or reactive in nature. This will have important managerial implications.

4. The third objective of the research is to study and rank the various external support systems that may help the consultancy export firms to market their services in the international arena, again with important policy and managerial implications.
3.3 Research questions

Specific research questions that follow from the broad research objectives have been developed after an extensive review of the literature. The important research questions that this research will enquire and seek empirical support for are:

1. Does the emphasis placed by firms on establishing and developing international business relations differentiate between exporters and non-exporters?
2. Do social networks and personal contacts of senior managers assist the firms to seek and exploit international business opportunities?
3. Does firm size and age differentiate between exporters and non-exporters?
4. Does management attitude towards exporting differentiate between exporters and non-exporters?
5. Does the managerial perception of barriers to exporting differentiate between exporters and non-exporters?
6. Does the managerial perception of competitive intensity and rate of change in the domestic environment differentiate between exporters and non-exporters?
7. Are the export motivations more proactive than reactive in nature?
8. Are the export motivations more market seeking than client following in nature?
3.4 Research Hypotheses

3.4.1 Emphasis on Establishing and Developing International Business Relations

A large amount of international activity is associated with networking because it involves building relationships with foreign intermediaries, customers, alliance partners, suppliers, government officials and so on. According to the network model of internationalization (Johanson and Mattsson 1987, 1993), firms internationalize through the establishment of business relationships in country networks that are new to the firm (international extension), through the development of relationships in those networks (penetration) and through connecting networks in different countries (international integration). Firms exploit their established network positions to gain entry into foreign markets.

The model assumes that firms are dependent on the resources controlled by others and accesses them through their position in the network. Establishing a position is time and resource consuming but determines future opportunities and constraints. Hence, Johansson and Mattson (1988) describe the position of a firm in the network as a market asset. The network perspective views the market as a network of exchange relations between producers, suppliers, customers and competitors. These relations may serve very different intentions (Johanson and Mattsson 1987). They may reduce the cost of production or transaction, contribute to the development of new knowledge and competencies, lead to at least partial control over an actor, serve as bridges to unrelated third actors, or help to mobilize partners against a third party.
The role of information and knowledge is important in the internationalization process. Use of business networks (Johanson and Vahlne, 1990) improves understanding of new markets and how to overcome the institutional and cultural barriers in order to conduct business there. If a firm is not involved in a network then it has little knowledge about actors, relations, structures and processes in it. Since a firm's main channel for learning about its network is through its partners, it has to interact with them to gain this knowledge (Andersson, 1997). Business networks provide access to various sources of information, thus offering more opportunities to learn than relying on knowledge from within the firm. According to Yli-Renko, Autio and Tontti (2000, p 19) "the higher the level of a firm's external social capital, the higher is the amount and quality of market knowledge available to it."

In their study of New Zealand based engineering consulting firms, Coviello and Martin (1999) conclude that internationalization is heavily influenced by the firm's network of formal and informal relationships involving clients, competitors, colleagues, government, friends and so on. In their study of high-technology firms, Coviello and Munro (1995) state "foreign market selection and entry initiatives emanate from opportunities created through network contacts, rather than solely from the strategic decisions of managers in the firm. These contacts may be formal (i.e. business-related) or informal (family, friends, etc.)."

Visits to foreign markets, negotiations, and learning about foreign cultures provide experience and courage to initiate foreign business activities or relations that result in direct orders from foreign companies (Forsman et al, 2002, p 4). It has been observed that foreign market opportunities are discovered in trade fairs where face-to-
face encounters by individuals initiate the start of international business activities (Ellis 2000, p. 448) and provide information on the market and its competition (Chetty and Campbell-Hunt, 2000) Evers and Knight (2008) elucidate that trade shows go well beyond being a marketing and information platform and make an important contribution to establishment and enhancement of a network infrastructure for enabling such firms to grow and expand internationally.

In a cross-national study of internationalizing firms Loane and Bell (2006) suggest 'international growth takes place through the extension of the firm's network through investment in network positions and the development of network relationships. Network development or building appears to have much more strategic intent than heretofore observed and this issue urgently requires further investigation.' They conclude 'firms should recognize that network development must be an ongoing core activity that is firmly embedded in the firm's overall internationalization strategy.'

It is expected that consultancy service firms that export their services will show a proactive intent for developing international business networks. In other words consultancy service exporters will tend to place greater emphasis (i.e. make greater effort and commit higher resources) on establishing and developing international business relationships as compared to the non-exporting firms.

**Research Hypothesis 1:** Emphasis placed on establishing and developing international business relations will differentiate between consultancy service exporters and non-exporters.
Research Hypothesis 1A: Emphasis placed on establishing and developing international business relations will be reflected under two dimensions, first effort made by the firm and the other in commitment of resources.

3.4.2 Social networks and personal relationships

An important aspect is the role of social networks and personal relationships of the senior managers contributing to the internationalization process of the firm. Scholl (2006) acknowledges the role of personal relationships in the internationalization of firms. According to Scholl (2006, p. 22), social networks and personal relationships contribute to the process of internationalization in terms of access to privileged resources such as information on business opportunities and potential partners. In the search for new international business partners, decision-makers seek to avoid high search costs, due to uncertainties and complexity, and try to minimize these costs by relying on their personal network, which also seems to be ‘the line of least resistance’ (Ellis, 2000, p. 462).

Peng and Luo (2000) assert that managers within the focal firm translate their micro personal links with managers in other firms into improved macro organizational performance, in this case international growth. Loane and Bell (2006) suggest “firms internalize new network connections by acquiring additional management team members who had particular network resources required by the firm.” Usually, senior managers have prior work experience in multinational corporations and leverage their personal contacts and experience to facilitate the firm’s entry into international markets (Axinn, 1988, Ellis, 2000). Covello and Munro (1995) contend that foreign
market selection and entry initiatives emanate from opportunities created through network contacts, rather than solely from the strategic decisions of managers in the firm. These contacts may be formal (i.e., business-related) or informal (family, friends, etc.).

In his study of management consulting firms, Gluckler (2006) demonstrates that social networks are the most frequent cause of international market entry. Gluckler (2004) refers to three types of relational (foreign market) entry contexts for consulting firms: the first being client following, second being business referrals by current or former employees, and the third type through the so-called piggybacking. In this case, consulting firms enter a market on the back of strategic partners and collaborators. Hence, it is expected that when a firm gets a foreign consulting assignment, it is more likely as a result of referral by foreign business associates, individuals known to senior managers, past clients or employees.

**Research Hypthesis 2**  It is likely that when a firm gets a foreign consulting assignment, it is as a result of referral by foreign business associates, individuals known to senior managers, past clients or employees.

### 3.4.3 Firm specific characteristics

Previous research indicates that the probability of international activity increases with firm size (Aaby and Slater, 1989, Erramilli and Rao, 1993, Katsikeas, 1994). Resource theory is used to explain the relationship between firm’s size and its internationalization (Aaby and Slater, 1989, Bonaccorsi, 1992).
Aaby and Slater (1989) argue that international expansion requires a great deal of resource commitment by the expanding firm. They indicate that the larger a firm becomes, the greater its ability to effectively engage in export activity, and that larger firms appear to be better suited to absorb the risks associated with internationalization. O'Farrell et al. (1998) found that, as the resources (i.e., financial and human) of a service firm increased, its ability to absorb the risks associated with internationalization increased. Thus, human capital reduces a firm's risk of failure through the increased probability of employing those with skills necessary to internationalize.

In a study of engineering consulting firms in the United States, Winsted and Patterson (1998) had found that service firm characteristics like size are associated with their propensity to export and that exporting firms in general were larger than the non-exporting firms. In their study Javalgi, Griffith, and White (2003) found that firm size plays a critical role in influencing managerial attitude towards international activity.

Another firm characteristic - firm age (number of years in business) - may have a bearing on export propensity of consulting service firms. Several studies have detected that older firms are more likely to export their goods or services abroad (Ali and Swiercz, 1991, Westhead, 1995, Burgel et al., 2001). According to Samee and Walters (1991) larger and older firms tend to have specialized managerial resources as well as make more effective use of economies of scale.
Stage model theory of internationalization (Johanson and Vahlne 1977, 1990) suggests that older firms are likely to be more effective exporters i.e. older the firm more successful it will be in the internationalization process. An examination of the accounting and management consulting industries supports this contention. Firms that have been in business long enough to become well established domestically and who have many employees also tend to operate internationally (White, Griffith and Ryans 1998). Thus, it is expected that both firm characteristics (firm size and age) may differentiate between exporters and non-exporters of consulting services.

**Research Hypothesis 3: Larger and older engineering consultancy service firms are more likely to be involved in consultancy service exports.**

3.4.4 Managerial attitudes toward exporting

Previous research shows managerial attitudes and perceptions toward exporting affect the exporting decision. In her study of manufacturing firms, Axinn (1988) finds managers' attitudes toward operating internationally to be the single most significant indicator of firm's export performance. In an earlier study, Kedia and Chhokar (1986) also found that managerial attitudes towards exporting strongly correlate with the international performance of the firm.

In a study of engineering consulting firms in the United States, Winstead and Patterson (1998) had found that managerial attitudinal factors discriminate between service exporters and non-exporters. White *et al.* (1999) had found that managerial attitude towards the international marketplace was a key discriminating variable.
differentiating exporting from non-exporting service firms. They suggest that, given lower capital requirement in the service industry, managerial attitude may play a stronger role in internationalization. Similarly, in their study Javalgi et al. (2003) found that service firm's management attitude positively relate to its international activity.

Hence, it is expected that perceptions of senior management of consultancy services firms towards exporting will differentiate between exporters and non-exporters. It is also expected that consultancy service non-exporters will view exporting as more costly, with higher risks and as less profitable. Due to the difficulties in exporting which are magnified by the unique characteristics of services discussed earlier in the literature review section, risk concerns are expected to be paramount in service exporting decisions.

**Research Hypothesis 4:** Managerial perceptions toward exporting will differentiate between consultancy services exporters and non-exporters.

**Research Hypothesis 4A:** Consultancy service non-exporters will view exporting as more costly, with higher risks, and as less profitable.

**Research Hypothesis 4B:** As an attitudinal determinant, risk perceptions will exhibit the largest variation between exporters and non-exporters of consultancy services.
Another important area examined in the exporting literature is perceived barriers to exporting. Ramaswami and Yang (1990) point out that there are four sources of export barriers that affect a firm's export performance: export knowledge, internal resource constraints, procedural barriers and exogenous variables.

'Export knowledge' barriers refer to lack of information and knowledge about foreign markets and difficulties in identifying opportunities in foreign markets. Aharoni (1966) became one of the pioneers of export barrier analysis when he established that the lack of knowledge about foreign markets constitutes a barrier to increased commitment to international activity within a company. Pavord and Bogart (1975) and Bilkey and Tesar (1977) found that firms starting export activity face difficulties in identifying opportunities in foreign markets.

Second, 'internal resource constraints' refer to the need for a firm to possess a series of resources (like finance, manpower etc.) in order for it to be able to initiate export activity. This type of barrier is relevant, as it has been highlighted as one of the main reasons why many firms, particularly small or medium-sized ones, prefer to cling on to a domestically orientated strategy (e.g. Bilkey, 1978). In particular, the following aspects have been underlined as internal resource barriers: lack of financial resources, regarding the difficulty of obtaining the necessary funds required to initiate or finance export operations (e.g. Bauerschmidt et al., 1985; Bilkey, 1978; Keng and Jiuan, 1989); the need to use honouring letters of credit (Rabino, 1980; Barker and Kaynak, 1992); lack of personnel to devote time to export activities (Rabino, 1980),
and lack of production capacity (Bauerschmidt et al., 1985). Furthermore, a company requires a series of external support resources such as banks prepared to foster firms' international activities (Yang, 1988) or local trading firms that enable indirect export operations of manufacturers (Root, 1994).

'Procedural barriers' refer to the obstacles pertaining to the export activity itself (e.g., documentation, non-tariff barriers, etc.). According to Ramaswami and Yang (1990), procedural barriers can be subdivided into two types: (a) controllable, those which can be easily solved given the right experience (e.g., documentation), and (b) not controllable, requiring case-by-case decisions, independent of the routine which has been acquired through experience (e.g., non-tariff barriers). Among procedural barriers can be highlighted the following aspects of export activity: red tape and documentation, import tariffs, non-tariff barriers, such as the establishment of various quality control and safety standards, transportation and distribution difficulties, and so on.

Finally, 'exogenous barriers' have their origins in the uncertainty of international markets, largely due to the activities of other players in the market—such as competitors, foreign governments, supply and demand—meaning that this type of variables transcend the control of the exporting company (Yang, 1988). Factors such as the powerful competition faced in foreign markets, political instability in foreign markets, risk of variation in exchange rates, etc., are included.

In his study 'Restrictions on Trade in Professional Services', Nguyen-Hong (2000) found that foreign barriers to establishment and ongoing operations are
significant and positive determinants of the price-cost margins of engineering service firms. The results suggest that restrictions on foreign supply of engineering services tend to protect domestic firms from competition and directly raise business costs of foreign firms. These costs stem from qualification requirements, compulsory membership of professional bodies, and to a lesser extent from restrictions on incorporation.

In their study of engineering consulting firms in the United States, Winsted and Patterson (1998) have examined number of variables as perceived barriers to services exporting and point out that the perceived level of these barriers serve as determinants of whether a service firm will export or not. They report that most of the barriers to exporting were perceived to be significantly greater obstacles by the non-exporters than by exporters. They also point out that foreign market knowledge and resource limitations are perceived to be the most significant barriers to exporting for such professional service firms.

It is expected that perception of barriers to exporting will differentiate between exporters and non-exporters of consultancy services. Furthermore, it is expected that the non-exporting consultancy service firms will perceive these barriers to be significantly higher than consultancy service exporting firms. It is also expected that non-exporters will view foreign market knowledge and resource limitations as the most important barriers to exporting.

**Research Hypothesis 5:** Perceived levels of barriers to exporting will differentiate between consultancy service exporters and non-exporters.
Research Hypothesis 5A: Non-exporters will perceive all the barriers to exporting to be significantly higher than exporters of consultancy services.

Research Hypothesis 5B: Non-exporters of consultancy service will in particular view foreign market knowledge to be the most significant barriers to exporting.

Psychic distance is defined as “the sum of factors preventing the flow of information from and to the market” (Johanson and Vahlne 1977, p 24), as for example, differences in language, education, business practice, culture or industrial development (Gertler 1997). Given the uncertainty of operating in a market with cultural, legal and business institutions very different from the home country, early international activity will head for more similar, often neighbouring markets. Hence, stage theory conceives an expansion of international activities from countries with a high level of psychic proximity to those with more psychic distance (Bell 1995; Buckley and Casson 1998).

Empirical studies on different business service sectors question this argument (Sharma and Johanson 1987; Bell 1995; Coviello and Martin 1999; Gluckler 2004). They show that actual geographical patterns of expansion do not necessarily follow a gradient of psychic distance. Instead, their evidence suggests that those markets promising highest growth or sales potential are often targeted first.

In the case of technical, engineering and management consulting firms the argument of psychic distance may prove to be ambivalent. On one hand, Sharma and Johanson (1987) argue that the market selection of business service firms is independent from the problem of psychic distance because the necessary investments
are lower and less market specific when compared with manufacturing. While manufacturing firms have pronounced sunk costs through the installation of machinery and production facilities, a consulting firm may start operation with some rented office space. The limited specific investments lower the risk of a local market operation and thus also permit international operation in more remote markets with higher psychic distance.

On the other hand, the marketing and provision of management services requires fundamental knowledge of local business culture, local and sectoral market conditions and management methods (Wood 2002). Therefore, market specific adaptation is far more decisive for consulting firms than for standardized manufacturing products. "Offering an advanced management service in another country requires perfect knowledge of the client and environment, in order for this service to be unique and its success or failure will be influenced considerably by the success or failure of the process of cultural adaptation carried out" (Rubalcaba 1999, p 290).

Hence, it is expected that 'Psychic distance' or differences in language, culture, business practices, legal institutions, industrial development etc. between Indian and export market will be an important barrier to exporting for both exporters as well as non-exporters.

**Research Hypothesis 5C**: Psychic distance will be an important barrier to exporting for consultancy service firms.
3.4.6 Domestic Environmental factors

High competitive intensity and rapid change in the domestic environment are the important factors found in the exporting literature to have an impact on exporting of manufactured goods. High competitive intensity and rapid change in the domestic environment typically serve as an incentive for foreign expansion.

Alt and Camp (1994) have suggested that when the domestic industry outlook of firms is not attractive, decision makers tend to favour foreign markets that allow them to reduce their resource commitments at home. Westhead (1994) examined decision maker’s perceptions of the domestic market environment and compared two classificatory groups: exporters and non-exporters. He reported significant differences across a number of environmental variables and concluded that non-exporters perceived their environments as more munificent and resource rich, which implies that they were content to remain bound to the domestic market.

Other findings suggest that domestic market orientation is a major obstacle to a firm’s export involvement and commitment. Moreover, a negative relationship has been reported between the attractiveness of the domestic market and export growth (Madsen, 1989). Patterson and Cicic (1995) in their study found domestic competition as a significant motivator for exporting. In their study of engineering consulting firms in the United States, Winstead and Patterson (1998) report that domestic competitive intensity is perceived as significantly higher by the exporting firms. They also point out a high degree of disparity found in the perceptions of competitive intensity within a single industry.
In a conceptual study, Morgan (1999) suggests that (i) competitive intensity, (ii) technological turbulence and (iii) product-market turbulence may influence the export strategy development of a firm. The rate of change of environmental variables induces turbulence which can be a significant source of environmental uncertainty (Hartman et al., 1995). The cycle of technological innovation/obsolescence is shorter and faster, fuelled by the pace of growth in knowledge and its proliferation (Achrol, 1991, p. 81). Organizations that operate in more turbulent markets are likely to have to modify their products and services continually in order to satisfactorily cater to customers' changing preferences (Jaworski and Kohli, 1993, p. 57).

Hence, it is expected that perceptions regarding competitive intensity and rate of change in the domestic environment will differentiate between consultancy service exporters and non-exporters. Also, it is expected that those exporting consultancy service firms will perceive a high competitive intensity and rate of change in the domestic environment.

**Research Hypothesis 6:** Perceptions regarding competitive intensity and rate of change in the domestic environment will differentiate between consultancy service exporters and non-exporters.

**Research Hypothesis 6A:** Exporting consultancy service firms will perceive a higher competitive intensity and rate of change in the domestic environment.
3.4.7 **Export Motivations**

An important stream of research concentrates on investigating whether or not firms take the initiative to seek, identify and exploit export market opportunities. In this regard, a distinction has been pursued between *proactive and reactive export stimuli* (Johnston and Czinkota, 1982, Leondou, 1988, Katsikeas, 1996). Study of export stimuli can explain to a large extent why some firms are involved and succeed in exporting, as opposed to others that do not export at all and remain inactive.

**Proactive export stimuli** are those associated with the firm’s aggressive behaviour and deliberate search for export opportunities (pull factors). The review of the export motivation empirical literature reveals a wide range of factors that can play an important role in stimulating export activity. These factors pertain to attractive profit and growth opportunities overseas, managerial commitment, export promotion programmes, export incentives, existence of transferable competitive advantage/price advantage and so on.

**Reactive export stimuli** are those connected with the firm’s reaction to changing conditions and reflect a passive attitude in looking for foreign market opportunities (push factors). Major factors of this type may be adverse domestic market conditions, opportunity to increase the number of country markets and reduce the market-related risk, globalization of existing clients, favourable currency movements and so on.

In a study of factors stimulating current exporting activities of European manufacturing firms, Czinkota and Johnston (1981), suggest that both proactive and
reactive factors stimulate these firm’s decisions to continue and maintain exporting. According to Johnston and Czinkota (1982) ‘firms export decision making may be driven by both proactive and reactive elements simultaneously’ Empirical evidence indicates that regular exporters develop better capability not only to look for attractive foreign market opportunities, but also to respond effectively to a wider range of signals that can stimulate export activity, as contrasted with firms that are non-exporters or involved in sporadic exporting.

In an investigation of differences in ongoing export motivators between two distinct group of exporters namely regular and sporadic, Katsikeas (1996) reports that out of five export stimulus items held in relatively high regard by respondents three were proactive in nature and other two were reactive in nature Therefore, it is possible that the factors stimulating the export decision of regular exporters may be of a more proactive and less reactive in nature.

It is expected that export motivation / stimuli elements for consultancy service exporters will consist of both proactive and reactive elements. It is also likely that the export stimuli elements for consultancy service exporters may be more proactive in nature than reactive.

**Research Hypothesis 7:** Export motivation elements for consultancy services exports will consist of both proactive and reactive elements.

**Research Hypothesis 7A:** Export motivation elements for consultancy services exports will consist of more proactive elements rather than reactive elements.
The services exporting literature also distinguishes motivations for exporting as **client following** where firms internationalize by following clients who have internationalized, building upon domestically developed cooperation or **market seeking** where firms choose to internationalize in search of new markets by services firms (Erramilli and Rao, 1990, Majkgård and Sharma, 1998). The most cited motivation in the service literature is ‘client following’ described by Vandermerwe and Chadwick (1989, pg 79) ‘As producers go global, their service suppliers must follow’ Even today ‘client-following’ is a major motivation for internationalization (Bryson, 2001, Roberts, 1999) Client-following is the ultimate demand driven motivation for increased foreign operations

Strategies built upon such demand-driven motivations can be described as reactive, while strategies based on supply-driven motivations can be described as proactive (e.g. Bagchi-Sen & Kuechler, 2000). Today more and more professional service firms proactively seek new international markets. Proactive market seeking strategies for internationalization of professional service firms seem to outperform demand-driven ones in the long run (Roberts, 1999). Roberts (1999) furthermore indicates that as firms are becoming more international in scope, the supply driven forces are getting relatively more important. Hence, it is expected

**Research Hypothesis 7B**: Market seeking motivations for exporting are more likely to be stronger than client following export motivations.
3.5 Summary of Research Hypotheses

**Research Hypothesis 1:** Emphasis placed on establishing and developing international business relations will differentiate between consultancy service exporters and non-exporters.

**Research Hypothesis 1A:** Emphasis placed on establishing and developing international business relations will be reflected under two dimensions, first effort made by the firm and the other in commitment of resources.

**Research Hypothesis 2:** It is likely that when a firm gets a foreign consulting assignment, it is as a result of referral by foreign business associates, individuals known to senior managers, past clients or employees.

**Research Hypothesis 3:** Larger and older engineering consultancy service firms are more likely to be involved in consultancy service exports.

**Research Hypothesis 4:** Managerial perceptions toward exporting will differentiate between consultancy services exporters and non-exporters.

**Research Hypothesis 4A:** Consultancy service non-exporters will view exporting as more costly, with higher risks, and as less profitable.

**Research Hypothesis 4B:** As an attitudinal determinant, risk perceptions will exhibit the largest variation between exporters and non-exporters of consultancy services.

**Research Hypothesis 5:** Perceived levels of barriers to exporting will differentiate between consultancy service exporters and non-exporters.
Research Hypothesis 5A: Non-exporters will perceive all the barriers to exporting to be significantly higher than exporters of consultancy services.

Research Hypothesis 5B: Non-exporters of consultancy service will in particular view foreign market knowledge to be the most significant barriers to exporting.

Research Hypothesis 5C: Psychic distance will be an important barrier to exporting for consultancy service firms.

Research Hypothesis 6: Perceptions regarding competitive intensity and rate of change in the domestic environment will differentiate between consultancy service exporters and non-exporters.

Research Hypothesis 6A: Exporting consultancy service firms will perceive a higher competitive intensity and rate of change in the domestic environment.

Research Hypothesis 7: Export motivation elements for consultancy services exports will consist of both proactive and reactive elements.

Research Hypothesis 7A: Export motivation elements for consultancy services exports will consist of more proactive elements rather than reactive elements.

Research Hypothesis 7B: Market seeking motivations for exporting are more likely to be stronger than client following export motivations.
3.6 Research Design

3.6.1 Sampling Scheme

The hypotheses developed are examined by studying engineering consulting firms in India. A structured survey questionnaire was mailed to the CEO/senior executive of engineering consulting firms in India with more than ten professional employees listed in the members directory of Consulting Engineers Association of India (CEAI), an apex body of consulting engineers in India (www.ceaindia.org) and Consultancy Development Centre, a non-profit registered society, supported by Department of Scientific & Industrial research (DSIR) and Ministry of Science and Technology, Government of India (www.cdc.org.in).

A total of 350 questionnaires were mailed during June - July 2009. This was followed up by telephonic reminder calls and personal visits mainly for respondents in NCR and Mumbai/Pune. 172 responses were received within cutoff date of 10th October 2009, out of which 167 were complete and usable. As an incentive to reply, respondents were promised a copy of the research brief. Also, complete confidentiality of the information’s provided in the survey questionnaire was assured to all respondents. Responses were received from all throughout India: National Capital Region (Delhi, Gurgaon, NOIDA) 63, Mumbai & Pune 50, Chennai, Kolkata & Bangalore 33 and others 21 (see Figure 3.1 for a description of the survey sample).

Others include Hyderabad, Ahmedabad, Vadodra, Kanpur, Lucknow and Jaipur.
Figure 3.1: Survey Sample Description

<table>
<thead>
<tr>
<th>Region</th>
<th>Respondents</th>
<th>Exporters</th>
<th>Non-exporters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delhi/NCR</td>
<td>63</td>
<td>22</td>
<td>41</td>
</tr>
<tr>
<td>Mumbai &amp; Pune</td>
<td>50</td>
<td>17</td>
<td>33</td>
</tr>
<tr>
<td>Chennai, Kolkata &amp; Bangalore</td>
<td>33</td>
<td>9</td>
<td>24</td>
</tr>
<tr>
<td>Others</td>
<td>21</td>
<td>6</td>
<td>15</td>
</tr>
</tbody>
</table>
According to Consultancy Development Centre (2006), largest concentration of consultancy firms is in the four metropolitan cities, with Delhi and Mumbai together accounting for around 52 per cent of the firms. In the sample around 67 per cent of the consultancy services firms are from Delhi – NCR region and Mumbai – Pune region. Thus, the research sample is not far off from simulating the actual dispersion of engineering consultancy firms in India. It is expected most of the small firms (i.e. with less than ten professional employees) are local or regional in their orientation and are not expected to be involved in exports. Hence, only consultancy service firms with more than ten professional employees have been considered in the research.

It is important to keep in mind that the size of the engineering consulting industry in India is much smaller as compared to western countries. Majority of the firms are small in size as only around 30 per cent of the firms employ more than 10 technical professionals and only 17 per cent of the firms employ more than 25 technical professionals (Consultancy Development Center, 2006).

The member’s directory of Consulting Engineers Association of India and Consultancy Development Centre provide around 350 engineering and industrial consultancy firms with more than 10 professional employees. Hence, population for the research is 350. It was decided to go for 100 per cent sampling since the size of population is not very large.

The estimated population for the research is around 350 and number of respondents i.e., sample for the research is 167. Bartlett et al (2001) describe
procedures for determining sample size using Cochran’s (1977) formulas. Sample size estimation is made below using the procedures described by Bartlett et al. (2001).

\[
\begin{align*}
\frac{(t)^2 \times (s)^2}{(d)^2} &= \frac{(1.96)^2 \times (0.83)^2}{(5 \times 0.03)^2} = 118
\end{align*}
\]

Where

\( t = 1.96 \) for selected alpha level of 0.05 (0.025 in each tail)

\( s = \) estimate of standard deviation in the population = 5 / 6 = 0.83

5 point scale / 6 (number of SDs that includes approximately 98% of the possible values in the range).

\( d = \) acceptable margin of error for mean being estimated = 0.15

(Points on primary scale i.e. 5 * acceptable margin of error i.e. 0.03)

Therefore, for a population of 350, the required sample size is 118. Since this sample size exceeds 5% of the population, Cochran’s (1997) formula is used to calculate the final sample size.

\[
\begin{align*}
\frac{n_0}{(1 + \frac{n_0}{\text{Population}})} &= \frac{118}{(1 + 118/350)} = 88
\end{align*}
\]

The above procedure returns the appropriate sample size as 118 and a minimum sample size of 88. The actual number of respondents in this research i.e. sample size used is 167. This indicates sample size for this research and hence the results reported will have acceptable level of accuracy.
For a Population of size = 350, with Confidence Level = 95 per cent and Confidence Interval = 5.5 the Sample Size needed is 167, given that sampling is done randomly. Similarly, for a Population of size = 350, with Confidence Level = 95 per cent and Confidence Interval = 5.0 the Sample Size needed is 183.

For the data used in the research, Kaiser-Meyer-Olkin (KMO) statistic was used to measure sampling adequacy. The overall KMO statistic for each factor extracted during Principal Components Analysis is greater than 0.70. The Kaiser-Meyer-Olkin (KMO) statistic measures sampling adequacy and predicts if data are likely to factor well, based on correlation and partial correlation (Statnotes, 2009). There is a KMO statistic for each individual variable, and their sum is the KMO overall statistic. KMO varies from 0 to 1.0 and KMO overall should be 0.60 or higher to proceed with factor analysis. If it is not, indicator variables with the lowest individual KMO statistic values are dropped, until KMO overall rises above 0.60. The concept is that the partial correlations should not be very large if one is to expect distinct factors to emerge from factor analysis (Hutcheson and Sofroniou 1999, p 224).

### 3.6.2 Research Instrument

A structured survey questionnaire was used for the research data gathering. Most of the questions were asked using five-point Likert and Likert type rating scales or bipolar scales. A few questions like number of professional employees, number of years in business, number of overseas consultancy assignments carried out in last two years etc. were asked on a continuous scale (required a number response).
For purposes of this research, exporting is defined in the survey questionnaire as 'all those business activities involved when an organization markets its services outside its main domestic base of operation' for example (i) an offshore consulting assignment, (ii) a consulting assignment carried-out by firm’s overseas branch office or through a joint venture; (iii) working as a subcontractor for an organization carrying out a foreign assignment etc.

The questionnaire enquired about number of full time professionals employed, number of years in business, number of overseas consulting assignments in last two years, firm’s emphasis on establishing & developing international business relations, influence of social networks / personal relations on exports, perceptions towards exporting, barriers to exporting and domestic environment.

Factor and Reliability analyses were used to assure construct validity of the measures (see section 3.6.4) Feedback from a pilot survey (N=10), carried out prior to the main survey was used to redraw and / or modify the questions in the survey questionnaire During the pilot survey all measures were examined and verified for face validity by industry executives and academics experienced in international marketing.

3.6.3 Measurement of Constructs

To determine influence of firm characteristics on export propensity, respondents were asked to indicate their firm size (number of full time professionals employed by the
firm), firm age (number of years in business) and firm’s exporting behaviour (number of overseas consulting assignments in the last two years).

Firm’s emphasis on establishing and developing international business relationships was measured on a five-point rating scale varying from (1) ‘never’ to (5) ‘always’ by asking questions about firm’s effort and commitment of resources towards establishing and developing international business relationships. The number of items included (questions asked) under the heading is eight. The scale used was 1 = ‘never’, 2 = ‘occasionally’, 3 = ‘fairly many times’, 4 = ‘very often’ and 5 = ‘always’.

Ritter et al. (2002) have defined ‘Network Competence’ as the ability of a firm to develop and manage relations with key suppliers, customers and other organizations. Some of the above measurement constructs have been adapted and modified from a standardized questionnaire to measure firm’s Network Competence ‘NetComp Test scale items’, proposed and validated by Ritter et al. (2002).

To measure the influence of social network / personal contacts of senior managers on the internationalization of engineering consultancy firms, the exporting firms were asked to indicate on a five-point rating scale, ‘When your firm gets a foreign consulting assignment, how likely it is as a result of referral by foreign business associates, individuals known to senior managers, past clients or employees’. The scale ranged from 1 = ‘un-likely’ to 5 = ‘highly likely’.

To determine managerial attitudes toward exporting, respondents were asked to indicate on a five-point Likert scale, the extent to which they agree or disagree with various attitudinal statements. The scale ranges from 1 = ‘strongly
disagree’, to 5 = ‘strongly agree’. The number of items included under the heading is eight. Measuring managerial attitudes towards exporting typically comprise of constructs such as perceived attractiveness of exporting and perceptions of benefits, costs and risks associated with international marketing.

**Perceived barriers to exporting** were measured using five-point rating scales. Respondents were asked, “to what extent has each of the following factors hindered your organization from exporting your consultancy services” with scale 1 = ‘not hindered at all’, to 5 = ‘hindered to a great extent’. The number of items included under the heading was eighteen.

Perceived barriers to exporting typically comprise of constructs like (a) lack of knowledge and expertise in researching and developing strategies to penetrate foreign markets, insufficient knowledge of marketing opportunities abroad, lack of contacts in foreign markets (Eshghi, 1992; Welch and Luostarinen, 1993); (b) resource limitations (financial, manpower etc.); (c) adjustments, costs and uncertainties associated with entering foreign markets; (d) prohibitive or restrictive foreign government regulations, travel and work-permit restrictions in foreign countries, regulations governing professional services; (e) intensity of foreign competition, lack of government support; (f) differences in language, culture, business practices, legal institutions, industrial development etc. “Psychic Distance” (Johanson and Vahlne, 1977) and so on.

Perceived conditions in the **domestic environment** were measured using questions about perceived competitive intensity and rate of change in the domestic market. Respondents were asked to indicate perceived levels on a five-point scale.
from 1 = 'high' to 5 = 'low' Measurement constructs include firm's perception of competitive intensity, rate of technological change, service obsolescence etc. Number of items included under the heading in the questionnaire is seven.

In order to measure the **principal motivations for exporting**, respondents who were exporting were asked to indicate the importance level of different possible motivators in their organization's decision to export on a five-point scale ranging from 1 = 'not important', 2 = 'somewhat important', 3 = 'moderately important', 4 = 'important' and 5 = 'highly important' The number of items included under the heading in the questionnaire is sixteen.

The respondents who were exporting were asked to indicate on a five point rating scale the **importance of certain external support activities / systems** that will help them to market their consultancy services in the international arena. The five point rating scale ranged from 1 = 'not important', 2 = 'somewhat important', 3 = 'moderately important', 4 = 'important' and 5 = 'highly important'. The number of items included under the heading in the questionnaire is sixteen.

All the above measuring constructs are primarily based on measures used previously in the services exporting literature.

- **Service firm size** is operationalized as number of professional employees (e.g. Javalgi *et al.*, 2003, Winsted and Patterson, 1998, White *et al.*, 1998).

- **Managerial Attitudes towards Exporting, Perception of Barriers to Exporting, Perceptions about Domestic Environment** were captured using multi-item five
point Likert or Likert type scales (e.g., Javalgi et al, 2003, Winsted and Patterson, 1998, White et al, 1998)

- To measure Emphasis on Establishing and Developing International Business Relations, some of the Network Competence scale items (Ritter et al, 2002) were adapted, suitably modified and measured by a multi-item five point rating scale.

- Motivations for export were measured using multi-item five point rating scale ranging from 1 = 'not important' to 5 = 'highly important' (e.g., Katsikeas, 1996)
Table 3.1: Summary of Measurement Constructs

<table>
<thead>
<tr>
<th>Variables</th>
<th>Particulars</th>
<th>Number of Items</th>
<th>Measuring scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Firm size</td>
<td>Number of full time professionals employed</td>
<td>1</td>
<td>Continuous</td>
</tr>
<tr>
<td>2  Firm age</td>
<td>Number of years in business</td>
<td>1</td>
<td>Continuous</td>
</tr>
<tr>
<td>3  Exporting behaviour</td>
<td>Number of overseas consulting assignments in the last two years</td>
<td>1</td>
<td>Continuous</td>
</tr>
<tr>
<td>4  Emphasis on establishing and developing international business relationships</td>
<td>Respondents are asked to indicate how often they carry out certain activities (spend time, effort &amp; resources)</td>
<td>8</td>
<td>Five point rating scale ranging from 1 = ‘never’ to 5 = ‘always’.</td>
</tr>
<tr>
<td>5  Social networks &amp; personal contacts of senior managers</td>
<td>Respondents are asked to indicate how likely it is for their firm to get a foreign assignment as a result of referrals by foreign partners, individuals known to senior managers, past clients or employees.</td>
<td>1</td>
<td>Five point rating scale ranging from 1 = ‘un-likely’ to 5 = ‘highly likely’.</td>
</tr>
<tr>
<td>6  Managerial attitudes towards exporting</td>
<td>Respondents are asked to indicate the extent to which they agree or disagree with various attitudinal statements</td>
<td>8</td>
<td>Five point Likert scale ranging from 1 = ‘strongly disagree’ to 5 = ‘strongly agree’.</td>
</tr>
</tbody>
</table>
Table 3.1: Summary of Measurement Constructs (continued)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Particulars</th>
<th>Number of Items</th>
<th>Measuring scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Perceived barriers to exporting</td>
<td>Respondents are asked to indicate to what extent various factors have hindered their firm to export</td>
<td>18</td>
<td>Five point rating scale ranging from 1 = 'not hindered at all' to 5 = 'hindered to a great extent'</td>
</tr>
<tr>
<td>8 Competition &amp; rate of change in the domestic environment</td>
<td>Respondents are asked to indicate perceived level of competition and change in the domestic environment</td>
<td>7</td>
<td>Five point rating scale ranging from 1 = 'low' to 5 = 'high'</td>
</tr>
<tr>
<td>9 Export motivations</td>
<td>Respondents are asked to indicate importance level of various possible motivators</td>
<td>16</td>
<td>Five point rating scale ranging from 1 = not important to 5 = highly important</td>
</tr>
<tr>
<td>10 External support activities &amp; systems</td>
<td>Exporters are asked to indicate the importance level of various external support systems</td>
<td>16</td>
<td>Five point rating scale ranging from 1 = not important to 5 = highly important</td>
</tr>
</tbody>
</table>
3.6.4 Method of analysis and justification

To examine each of the research propositions, factor analysis was used to group the measures appropriately for the situation being examined. **Principal Components Analysis** with Varimax rotation was used for the extraction of factors, each consisting of items that load (factor loading > 0.5) on only one factor. To determine the number of factors, four criteria were used, namely (i) **Kaiser Criterion** of retaining components with Eigen value ≥ 1, (ii) **Cattell’s Scree Test Plot**, (iii) **Comprehensibility** i.e., limiting the number of factors to those whose dimension of meaning is readily comprehensible (usually the first two or three factors), and (iv) **Variance explained criterion** of using the rule of keeping those factors that account for most or certain part of the variance. Only factors with acceptable Cronbach’s Alpha coefficient (> 0.7) were retained. Factor means were examined to determine relative importance of the different factors.

Communalities across the set of variables were checked. Communality measures the per cent of variance in a given variable explained by all the factors jointly and may be interpreted as the reliability of the indicator. When an indicator variable has a low communality, the factor model is not working well for that indicator and possibly it should be removed from the model (Statnotes, 2009). The statistical software package used for factor analysis was SPSS - Version 18.

**Principal components analysis** is recommended when the primary concern is to determine the minimum number of factors that will account for the maximum variance.
in the data for use in subsequent analysis (Statnotes, 2009). **Varimax rotation** is an orthogonal rotation of the factor axes to maximize the variance of the squared loadings of a factor (column) on all the variables (rows) in a factor matrix, which has the effect of differentiating the original variables by extracted factor. Each factor will tend to have either large or small loadings of any particular variable. A varimax solution yields results which make it as easy as possible to identify each variable with a single factor. This is the most common rotation option in factor analysis.

**Kaiser criterion** is a common rule of thumb of dropping all components with Eigen values < 1.0. The Kaiser criterion is the default in SPSS and most other computer programmes. A **Scree plot** comprises of plotting the components on X axis against that of Eigen values on the Y axis, with the practice of choosing only those components before elbow of the plot.

The resulting analysis was tabulated showing

(i) The items included in each factor
(ii) Factor loadings
(iii) Percent variance explained by each factor
(iv) Cronbach’s alpha for each factor
(v) Means for each factor.

Factor means were examined to determine relative importance of the different factors. Items that loaded heavily on more than one factor and those with low correlation with
other items were dropped. All factors had acceptable Cronbach’s alpha coefficient (i.e., > 0.7).

Cronbach’s alpha is a tool used for assessing the reliability of scales. Alpha coefficient ranges in value from 0 to 1 and may be used to describe the reliability of factors extracted from dichotomous (that is, questions with two possible answers) and/or multi-point formatted questionnaires or scales (i.e., rating scale 1 = poor, 5 = excellent). The higher the score, the more reliable the generated scale is. Nunnally (1978) has indicated 0.7 to be an acceptable reliability coefficient but lower thresholds are sometimes used in the literature.

Differences between exporters and non-exporters were explored, using Multivariate Analysis of Variance (MANOVA) and t-tests where appropriate. MANOVA tests were used to compare the means of each factor individually to see which ones were significantly different between the two groups (i.e., exporters and non-exporters). Mean scores of each factor for the two groups (exporters and non-exporters) were also computed. Since five-point rating scales were used for each item in the survey, the calculated factor means scores also have the same range.

MANOVA tests were used to see whether the groups of factors identified, all together, significantly differentiated between the exporters and non-exporters for the situation being examined. Hotelling’s Trace is the most common and traditional test when there are two groups formed by the independent variable (James and Maxwell, 1985). The larger the Hotelling’s Trace, the more the given effect contributes to the model. Wilk’s Lambda and Pillai’s Trace are also reported in MANOVA analysis.
Multivariate Analysis of Variance (MANOVA) is used to see the main and interaction effects of categorical variables on multiple dependent interval variables. MANOVA uses one or more categorical independents as predictors, like ANOVA, but unlike ANOVA, there is more than one dependent variable. Where ANOVA tests the differences in means of the interval dependent for various categories of the independent(s), MANOVA tests the differences in the centroid (vector) of means of the multiple interval dependents, for various categories of the independent(s).

The main assumptions to carry out MANOVA (Statnotes, 2009) are (i) the observations are independent of one another, (ii) the independent variable(s) is / are categorical, (iii) the dependent variables are continuous and interval, and (iv) group sizes are more or less equal, (v) sample size is adequate etc. The research data satisfies all the main assumptions for carrying out MANOVA tests.

The *t*-test is appropriate when there is a single dependent variable, whether interval or ratio (in this case Firm Size and Age) and a dichotomous independent variable (in this case Exporter and Non-exporter), and wish to test the difference of means.

Likert scales and five point rating scales are very commonly used with interval procedures, provided the scale item has at least 5 categories. A number of reasons account for this use of likert scales. First, these scales have been found to communicate interval properties to the respondent, and therefore produce data that can be assumed to be intervally scaled (Schertzer & Keman 1985). Second, in the
marketing literature Likert scales are almost always treated as interval scales (for example, Javalgi et al. 2003)

Likert and other five point rating scales are ordinal but their use in statistical procedures assuming interval level data is commonplace in marketing research literature. In regard to use of MANOVA in this research, which assumes interval data, with ordinal Likert scale items, in a review of the literature on this topic, Jaccard and Wan (1996, p. 4) summarize, ‘for many statistical tests, rather severe departures (from intervalness) do not seem to affect Type I and Type II errors dramatically’

3.7 Limitations of the research

When interpreting the results of this research, practitioners should be aware of certain factors that might limit the inferences that may be drawn. Notably, the research examines the differences between exporters and non-exporters within one knowledge intensive professional services industry i.e. engineering consulting and in one country i.e. India. Testing the validity of the findings would ideally necessitate replication of this research within other countries and/or other professional service industries. Realistically, nonetheless, generalizations of the research findings may be applicable to other knowledge intensive and contact based professional services, of which there are many. Also, the cross-sectional nature of the data limits our ability to rule out cause-effect inferences.

Further research is required to generalize the findings to other services industries and in other countries. Patterson and Cicic (1995) have developed a classification scheme.
for internationally traded services (see figure 2.1) which highlight different characteristics among services based on two key dimensions: degree of tangibility and degree of face-to-face contact required for service manufacture and delivery, resulting in a four cells typology of service types. Typically, engineering consulting is a location bound customized service (cell 2).

Furthermore, the research is based on the opinions of a single respondent (CEO, senior manager) in each firm when it is assumed that decisions on internationalization are usually made by several people in the firm.

However, in spite of these limitations, the research results enable us to advance the body of knowledge of a relatively unexplored issue: the differences between the exporters and non-exporters of knowledge intensive professional services like engineering consultancy service.