Chapter 2

Literature Review

2.1 Introduction

Competitive Advantage has been an important topic of discussion among the academia and the corporate. It is accepted as an important ingredient for the success of an organization. Many methods have been advocated to evaluate competitiveness at firm, industry and country level. The Indian IT industry has set itself apart and is favored across the world because of its capabilities. This chapter showcases and acknowledges the work of researchers who have contributed significantly to the current topic of study.

Section 2.2 highlights the key concepts of Competitive Advantage and also reviews the existing literature available on the topic. Section 2.3 summarizes the literature on IT industry of India. Section 2.4 is focused on proposing a conceptual model / framework on the competitiveness of IT industry of India. Section 2.5 contains the summary of the chapter.

2.2 Competitive Advantage

Strategic Management gives the firms directions to form business strategies. Strategic Management includes the development and implementation of achievable goals by a firm in regards to the external environment and internal resources. It gives the firms directions towards moving in a specific direction to help the firm in growth. Strategy has been defined differently by different researchers. Mintzberg (1988) has defined strategy into five different types and later developed these five types of strategy into “10 schools of thought about Strategy Formation”. These ten schools of thoughts have been further classified under three categories. The below mentioned table (refer Table 2.1) is a compilation of the work of Mintzberg.
<table>
<thead>
<tr>
<th>Model</th>
<th>Approach</th>
<th>Basis</th>
<th>Contributions</th>
<th>Limitations</th>
<th>Typical</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Design School : A process of conception</strong></td>
<td>Understandable and distinctive strategies are devised. The in-house condition of the business is used to match the exterior surroundings.</td>
<td>Architecture as a metaphor.</td>
<td>Order. Less uncertainty. Helpful in comparatively constant environment. Maintain sturdy and futurist guidance.</td>
<td>Generality may disfigure actuality. Strategy has many variables and is intrinsically intricate. Bypassing learning, rigid in fast-changing environment. High danger of conflict.</td>
<td>SWOT Analysis, Ashridge Mission Model</td>
</tr>
<tr>
<td><strong>The Positioning School : An analytical process</strong></td>
<td>It places the company within the context of its industry and looks at how the firm can develop its strategic positioning within that business.</td>
<td>Industrial organisation and military strategy</td>
<td>Strategic Management is a science. Provides content in a orderly way to the current way of looking at strategy spotlight on pure specifics. Chiefly of use in starting phase of strategy growth, when date is analysed.</td>
<td>SAME AS PLANNING SCHOOL. Overlooks supremacy, politics, customs, and societal elements. Is partial towards big firms. Number-oriented.</td>
<td>Competitive Advantage. Five Forces Model. Value Chain. BCG Matrix. Game Theory. The Art of War (Sun Tzu)</td>
</tr>
<tr>
<td><strong>The Entrepreneurial School : A visionary process</strong></td>
<td>The futurist course of action takes place within the brain of the magnetic creator or leader of a firm. Rests highly on instinct, conclusion, insight, familiarity and insight</td>
<td>Economics</td>
<td>A vision and a futurist CEO can assist firm to navigate consistently through rough weather particularly in starting or very hard years for the organisation. Intentional in wide line but stretchy and developing in the details.</td>
<td>Walking through an already stated route can shade from possible advances or unforeseen hazards. How to get the correct leader? Entrepreneurial, farsighted leaders have a propensity to go too high. A CEO would be required to put a lot of effort here.</td>
<td>Entrepreneurial Government. Seven surprises for new CEO’s Leadership styles</td>
</tr>
</tbody>
</table>
### The Cognitive School: A mental process

- **Studies how people recognize patterns and develop information.** Focused on the psyche of the strategist and the way it created information.
- **Psychology**
  - Believes that strategy is a cognitive process and is in the psyche of the strategist. Tactics evolve as concepts, maps, schemas and frames of reality. Focuses on the imaginative side of the strategy development. Tough at the height of a single strategist. Very helpful to understand the reason for minds imperfectness.
  - Not possible to use after the conceptual level. Not effective to build big concepts or plans. Currently not useful to guide collective strategy processes.
  - **Whole Brain Model, Johari Window, Cognitive Bias, Groupthink, Myers-Briggs Type, Indicator**

### The Learning School: An emergent process

- **Administration** keeps close watch on what is effective and what is not. They include ‘lessons learned’ in the total plan of action. Strategies cannot be developed in a single discussion. Strategies need to germinate slowly as organization grows.
- **Education, Learning Theory**
  - Is better equipped to deal with problems of uncertainty and complexity. Provides scope to learners also and not just leaders. No requirement of supreme leader. Good for complex and continuously changing conditions. Works well in strong professional organizations.
  - Is of no use during crisis as well as stable conditions. Too much planning may not lead to a foolproof strategy. Also learning is a costly process. There are costs associated with learning.
  - **Organizational Learning, Forget Borrow Learn Framework, Knowledge Management, SECI Model**

### The Power School: A process of negotiation

- **The strategy is evolved as a result of negotiation between company and its stakeholders**
- **Political Science**
  - Is helpful for the strong people to live in corporate. Helpful in debating all the perspectives of an issue. Helpful to come out from problems and bring change. Helpful in minimizing conflicts and reach a decision Realistic. Mainly of use to know about Strategic Alliances, Joint-Ventures and Stakeholder Analysis.
  - Politics can be troublesome. It utilizes and wastes lot of energy and is costly. Can lead to deviations. May lead to no strategy or just doing some tactical exercise. Exaggerates the place of supremacy in strategy formation.
  - **Bases of Social Power, Power Distance, Stakeholder Value Perspective, Core Group Theory, Force Field Analysis,**

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*(Table 2.1 contd…)*
The Cultural School: A collective process

Attempts to include diverse groups and divisions within the firm. Strategy formation is perceived as essentially joint and mutual process. The strategy that is formulated is a mirror image of the corporate culture of a firm.

Anthropology

Stresses on the important part that social processes, attitudes and ethics are playing in judgment-making and in strategy formation. Clarifies conflicts to strategic transformation and helps to deal with mergers and acquisitions.

Unclear, can lead confrontation to change and can be distorted to justify status-quo. Give few signs on how things should become.

Appreciative Inquiry, Cultural Dimensions, Cultural Intelligence, Ashridge Mission Model

The Environmental School: A reactive process

The strategy is shaped as a result of tests from the external environment. The environmental school takes the environment as an actor.

Biology

The prime role is of the environment in strategy formation.

Taking environment as a dimension is mostly unclear. This makes it less practical for strategy formation. Rejects real strategic choice for organisations. It is unrealistic.

Contingency Theory, Situational Leadership

The Configuration School: A process of transformation

Strategy formation is a routine in which the organization transforms from one type of decision making structure to another.

Context

Strategy and Organisational development are strongly amalgamated and should be merged. A firm may be explained as steady arrangement of its attributes, which it assumes for a phase of time in exacting type of context. This leads to particular behavior which results in specific strategies. The phases of stability are disrupted infrequently by some process of alteration. Key to strategic management is most of the time: to maintain constancy, or at least flexible strategic change, but occasionally there is a requirement for change and to be able to handle that.

In real life there are many configurations and not just a specific number of valid configurations. The pattern is in the eye of the beholder, if you describe reality by using configurations, then you are distorting reality to be able to explain it.

Organisational Configurations, Chaos Theory, Catastrophe Theory, Disruptive Innovations
Competitive advantage forms core in the researches being done in the area of Strategic Management. The researchers have given their own understanding of competitive advantage. Barney (1997) concluded that competitive advantage is universally accepted in strategic management courses and textbooks as an essential concept in strategy.

Momaya (2000) has suggested that competitiveness is being used widely to judge the socio-economic condition of a country. Other renowned models/ frameworks of competitiveness are EVA (Economic value added), Value Pyramid, Total shareholders return, Value curve, EFQM (European foundation of quality management), CMM & P-CMM, APP (Asset-process-performance), IVM (Integrated value management), BSC (Balance scorecard), VC (Value curve).

Competitive advantage has been seen from 3 different perspectives: ownership based, access based or proficiency based (Ma, 1999). A firm can gain competitive advantage by ownership. The same has been acknowledged by various researchers in their work. It could be in terms of market position (Porter, 1980) or because of resources which are unique (Barney, 1991) or reputation (Hall, 1992). It can be also be due to access to factor market or product market (Barney, 1986; Lieberman and Montgomery, 1988). Also the firm can have a stronghold in the market due to excellent knowledge and capabilities due to which it is able to provide better products and services to the customer (Prahalad and Hamel, 1990; Teece et al, 1997). An Enterprise Performance Management System (EPIS) has been developed by Sharma (2000c) which has provided the managers with a tool that is helpful for them to increase the performance of the enterprise, the business unit as well as responsibility areas and centers.

(Table 2.1 contd…)
Sanders & Premus (2002) have suggested that competitive advantage does not necessarily equate to superior performance while Peteraf, 1993; Porter, 1980 have emphasized that it is a relational term and is a comparison between two firms on the basis of competition.

The term Competitive Advantage was discussed from a long time and considerable research has been done in this field. Notable work has been done by Miles and Snow (1978) and Porter (1980). Miles and Snow have proposed a theoretical P-A-D-R (Prospectors, Analyzers, Defenders, and Reactors) strategic framework. Prospectors are constantly seeking for new market opportunities, Analyzers are firms that maintain a relatively simple line of products while also introduce new products that have been successful with other companies, Defenders are companies which have limited product offerings, while Reactors are companies where the managers are constantly looking after the changes in the environment but are unable to respond to the change.

Michael Porter's well known Five Forces of Competitive Position model provides an elegant perspective for assessing and analyzing the competitive strength and position of a Corporation or business organization. The five forces that Porter suggests are (1) Threat of new market entrants, (2) Threat of substitute products, (3) Bargaining power of buyers, (4) Bargaining power of suppliers, (5) Rivalry among the existing competitors. Porter (1980) has defined competitive advantage as something that ‘arises from discovering and implementing ways of competing that are unique and distinctive from those of rivals, and that can be sustained over time. He gave generic strategies of Cost leadership, Differentiation and focus.

1. Cost leadership is achieved when firm would be providing the products at the lowest cost but with very high volumes without hampering the quality of the product. A research by Alfirevic (2004) has concluded that one fifth of the large Croatian enterprises are trying to be the market leader by providing the products at low cost.

2. Differentiation is achieved when a firm attains market leadership on the basis of its offerings being different from its competitors. The firm is able to create a brand image for itself because of the differentiation. Companies like Apple constantly keep
working on innovation and offer products that have unique features and attract customers’ attention immediately.

3. Similarly some firms intensely focus on a very small but niche market segment to attain leadership position. They may focus on this niche market through the cost leadership strategy or through differentiation strategy.

Cater & Danijel (2005) have concluded that firms with a simultaneous competitive advantage in lower price and differentiation are more successful than firms with a competitive advantage in just one of the two forms.

Competitive advantage can be defined as business methods, skills, means or resource capabilities that enable a firm to outperform its competitors during competition (Barney, 2001). A firm can achieve competitive advantage by implementing strategies that are not used by its competitors. This will help in enhancing firm’s positioning and value (Bone & Saxon, 2000). It may also be a result of excellent execution of strategies, speed, agility and implementation of resources above and beyond competition approach (Barney, 1991; Bharadwaj, 2000).

Competitive advantage has been discussed from various perspectives like resource based, competence based, demand based, industrial organization economics, relational view, intellectual capital based etc. Considerable work has been done on the resource based view. The resource based perspective of competitive advantage has been analyzed by many researchers and they have contributed varied views on this. The resource based view has its roots in the economic models of monopolistic competition (Chamberlin, 1933). The firm based perspective actually rises from neo classical microeconomics and Bain/ Mason Industrial Organization (Hill and Deeds, 1996). It has a lot in common with fields of industrial economics and this has been shown in the work of Conner (1991) and Mahoney and Padian (1992).

The resource view tries to identify the factors inside the firm that bring competitive advantage. The same has been illustrated by Barney (1986), Dierickx and Cool (1989), Penrose (1959), Wernerfelt (1984). Penrose (1959) alongwith Montgomery and Wernerfelt (1988), in their research have emphasized that resources are used at
various places. It could be a mix of situations, circumstances and industries (Grant, 1991; Kogut and Zander, 1992).

Teece et al. (1997) have concluded that competitive advantage may also be created by the ability of organizations to effectively combine resources. As per Amit and Shoemaker (1993), Peteraf (1993) the resource-based view (RBV) of the firm, is based on the fact that the firm’s resources and capabilities are important if one wants to understand business performance. In this model according to Barney (1991), Bharadwaj, Varadarajan, and Fahy (1993) a firm is developing and implementing strategies that help in achieving competitive advantage because of its own unique, valuable, non-imitable, and non substitutable resources. This improves the firm’s overall effectiveness and efficiency.

<table>
<thead>
<tr>
<th>Core principles</th>
<th>Key sources</th>
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<tbody>
<tr>
<td>Grounded in evolutionary economics</td>
<td>Penrose (1959)</td>
</tr>
<tr>
<td>Capabilities are heterogeneous within firms and imperfectly mobile</td>
<td>Barney (1991), Barney and Arian (2001)</td>
</tr>
<tr>
<td>Capabilities must be valuable, rare, difficult to imitate and non-substitutable in order to be a source of competitive advantage</td>
<td>Barney (1991), Dierickx and Cool (1989), Peteraf (1993)</td>
</tr>
<tr>
<td>Intangible capabilities more likely to lead to competitive advantage</td>
<td>Hall (1992)</td>
</tr>
<tr>
<td>Complementarity of capabilities more likely to lead to competitive advantage</td>
<td>Powell and DeMiguel (1997)</td>
</tr>
<tr>
<td>Sustainability of competitive advantage depends on the deployment of isolating mechanism to protect from imitation, including causal ambiguity, complexity, tacitness, path dependency and legal barriers</td>
<td>Lippman and Rumelt (1982), Dierickx and Cool (1989), Reed and DeFillipi (1990)</td>
</tr>
</tbody>
</table>

**Fig 2.1 The Core Principles of Resource Based View**


Barney (1991) has proposed that advantage creating resources must meet four conditions, namely: (1) Value; (2) Rareness; (3) Inimitability; (4) Non-substitutability. Amit and Schoemaker (1993) go even further, producing a list of eight criteria i.e. (1) Complementarity; (2) Scarcity; (3) Low tradability; (4) Inimitability; (5) Limited substitutability; (6) Appropriability; (7) Durability; (8) Overlap with strategic industry
factors. Gupta et al. (2009) have argued that only with the help of resources a firm cannot be competitive, something more is required.

To strengthen the point Rijamampianina et. al. (2003) have suggested that business strategy of a firm controls the resources which give competitive advantage. Grant (1991) has emphasized that sustainability of competitive advantage therefore requires resources which are idiosyncratic (and therefore scarce), and not easily transferable or replicable. Prahalad and Hamel (1990) argue that sustainable competitive advantage is dependent upon building and exploiting "core competency "-those capabilities which are fundamental to a firm's competitive advantage and which can be deployed across multiple product markets. Sharma (2015) has argued that time has come to think beyond core competency and focus on ‘basket of competencies’. It not only creates new opportunities but can also change threats into opportunities. Porter (1991) has emphasized the need for firms and countries to broaden and upgrade their internal advantages in order to sustain and extend competitive advantages. According to Powell (2001), the hypothesis of competitive advantage dominates theories of sustained superior performance. Under any leading strategy theory, sustained superior performance exists, it has specifiable causes, and these causes are tied to the concept of competitive advantage.

Ambastha & Momaya (2004) have emphasized that competitiveness is a result of incorporated endeavor across diverse tasks and thus has close association with strategy method (refer Fig 2.2). It is at three levels: country, Industry and firm and given a model for the competitiveness of firms. They have emphasized that competitiveness at the micro level of firm is mostly liked by practitioners and also has caught the interest of researchers. On the basis of literature review they have selected connotations of firm level competitiveness which provide wide and complete view on origins of competitiveness, their significance and performance. These sources have been categorized under ‘Asset’, ‘Processes’ and ‘Performance’ on spectrum of strategic and operational levels.

In order to simplify the model, the researcher has adapted the model in Fig 2.3 of Ambastha & Momaya (2004). The model has competitiveness at its root and which is due to assets, performance or the processes of a firm. We may also say that competitiveness is a result of either the assets like brand, culture, technology of an organization; or due to
processes like innovation, quality, adaptability; or due to performance in terms of value creation, customer satisfaction, market share, productivity etc.


Sharma (2007) has integrated the three approaches of Michael Porter, C.K. Prahalad and Sumantra Ghoshal and given a Three – dimensional (3-D) framework for competitive analysis (refer Fig 2.5).
<table>
<thead>
<tr>
<th>Assets</th>
<th>Processes</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand</td>
<td>Strategy</td>
<td>Value creation</td>
</tr>
<tr>
<td>Reputation</td>
<td>Innovations</td>
<td>Customer satisfaction</td>
</tr>
<tr>
<td>Culture, systems</td>
<td>Quality</td>
<td>Market share</td>
</tr>
<tr>
<td>Human Resources</td>
<td>Design &amp; Deploy Talents</td>
<td>New product development</td>
</tr>
<tr>
<td>Technology</td>
<td>Persuasion, power</td>
<td>Price, cost</td>
</tr>
<tr>
<td></td>
<td>Managing Relationships</td>
<td>Productivity</td>
</tr>
<tr>
<td></td>
<td>Flexibility, adaptability</td>
<td>Variety, range</td>
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<tr>
<td></td>
<td>Marketing</td>
<td>Profitability</td>
</tr>
<tr>
<td></td>
<td>manufacturing</td>
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<tr>
<td></td>
<td>IT applications</td>
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**Fig 2.3 Adapted representation of the model of Ambastha, Momaya(2004)**

**Fig 2.4 Key Elements of the Corporate Wheel: Five Variables Model of Corporate Momentum**

It focuses on Competition Analysis, Competitiveness Analysis, and Performance Analysis. Competition Analysis focuses on nature of competitive forces. Competitiveness Analysis focuses on strengths and weaknesses and the elements of ‘competition vector’ includes productivity, quality, cost of production and marketing ability. Performance analysis is based on the performance of sector and business entities and should be analysed in terms of production, productivity, quality, cost of production, markets shares, profitability etc.

Analyses of the strategies for competitiveness of seaports has been done by Cruz, Ferreira, Azevedo (2009) and have given a conceptual model as shown in Fig 2.6. The model integrates four dimensions: Competitiveness, Strategies, Resources and Capabilities and Performance. Each dimension has various variables and indicators which lead to the integration.

While we are talking about competitive advantage, it becomes very important in view of the research undertaken, the reasons for international competitiveness or international competitive advantage. It all started with the Neo-Classical economic theory which was given by David Ricardo in 1817 in his book “On the Principles of Political Economy and Taxation” in which he has formulated the concept of comparative advantage. He emphasized that a country with more cost advantage in a particular product will go with the production of that product which leads to the theory of international trade. But there were many other management researchers who
argued that other factors like skills, technical factors, R & D, innovation are also important criteria for international competitive advantage.

Fig 2.6 Proposed Conceptual Model

Porter (1990) in his work combined the views of economics and management and gave his famous Porter's Diamond Model. He said that every country needs to identify its competitive advantage. The past two decades have seen a country gain national competitiveness due to its industry. IT industry of India has brought international recognition and fame to the country. In the diamond of competitive advantage he has shown that a country- specifically its local firms- have the capacity to use location bound resources in such a way that facilitates them to be aggressive in worldwide markets. He has argued that the diamond is a logically reinforcing system, with each of its determinants being reliant on the state of the others. The competitive advantage of a nation can be measured by the worth of the national manufactured goods which enters global markets, and/or the rate of growth of that product in contrast to that of its competitors. The countries can improve on their
competitiveness by upgrading the quantity or quality of their resources and capabilities and by utilizing them more efficiently.

Sharma (2000 b & d) has argued in his research that forward engineering helps an organization in framing strategies. It keeps in mind the current and potential capabilities of the organization with respect to present and future challenges in a competitive environment. Forward engineering is a fusion of wisdom and inventiveness and this helps in finding unique strategic solutions to problems. There are various tools used for forward engineering namely: BOW Analysis, CINE Matrix, FATE Analysis, SPOT Analysis and Anti – Benchmarking.

The works of Porter, 1990; Dunning, 1999; Aoki, Kim and Okuno-Fujiwara, 1997; Wade, 1990 combined together take us to the conclusion that policies are an important source of competitive advantage. Policies should be able to stimulate and complement the market. The policies should be aimed at the science and technology environment in the country. They should boost R&D nationally as well as across the borders, internationally. They should provide access to local markets and help in aiding the marketing activities internationally.

Leonidou et. al (2011) have shown empirically that the implementation of definite national level schemes for the purpose of encouragement to export helps in strengthening the organization’s capacities and resources related to export. These help in development of foolproof strategies in the area of exports. Implementation of the strategies leads to competitive advantage in terms of cost, products or services. These assist in realizing higher export performance. It also increases market share and gives better financial returns. Kaleka (2011) has concluded that achieving competitive advantage in the international markets depends to a great extent on the level of service the firm offers to its customers. Doren & Kumar (2001) have argued that Asian firms can increase the international competitive advantage by utilizing the internal resources within an external supportive environment.

Sharma (2006) has designed ‘METRIC’ Analysis. ‘METRIC’ Analysis helps us in analyzing competitiveness from five aspects. This analysis helps in improving competitiveness through these five dimensions. (Refer Fig 2.7 ).They are Markets
(M), Economic Basis (E), Technology (T), Resources (R) and Institutional Capacities or Competencies (IC). The first factor, Markets means changes that are there in the market. Second factor economic basis means the economic factors which affects and bring changes in the firm/industry. Third is Technology which is very important for determining competitiveness. It determines how a firm has used technology to improve and differentiate from competitors. Fourth is resources which can be in terms of labor, skills, policies etc. Finally is Institutional Capacities which explains the steps taken to improve or grow managerial capacity of organization or sector. ‘METRIC Analysis is a very powerful tool which has given us new dimensions to analyze competitiveness in the modern world. It gives us a new approach through collaboration to achieve competencies. Instead of rivalry and competition it talks about the competitors collaborating and working together to sustain competition. This is visible in the ‘IC’ dimension which discusses partnerships and collaboration. ‘METRIC’ Analysis is a qualitative tool which helps in uncovering the areas which are not accessible through quantitative research. It helps in identifying the research gaps.

Fig 2.7 ‘METRIC’ Model Representing Five Aspects of Competitiveness

(Source: ‘New Managerial Tools for Strategic Analysis’, Subhash Sharma, SMF 9th Convention, held at, Indian Institute of Management (IIM), Khozikode, May 18-19, 2006)

Another important tool given by Sharma (2009) is ‘SWAN’ Analysis. ‘SWAN’ stands for Strengths, Weakness, Achievements and Next Steps. This is model for self empowerment, improvement and development. It helps an individual, a firm or a country to identify and strengthen the strengths and minimize the impact of weakness.
With the help of this model the researcher has tried to identify the various factors required for India to sustain its competitive advantage.

2.3 IT Industry in India

We are living in the information age. It has become an integral part of our lives. Companies understand it and are investing heavily in IT and realizing its business value and role in decision making (Simon, 1979). The last decades of the 20th century saw the downfall of many fundamental assumptions of the industrial age (Sahay, Saxena & Kumar (2001). Businesses are employing IT capabilities and competencies to gain competitive advantage. This has led to development of a unique sector into a full fledged industry. Technology is the accelerator for improving performance and meeting client requirements in today's economy (Boomer, 2010). Sung (2008) has argued that with the use of information technology a firm is able to increase its performance. It helps in increasing the efficiency, shapes organizational structure, acts as a threat and shapes the corporate strategy.

Indian IT industry has been a topic of interest for researchers across the globe. The rise of the industry has left all dumbstruck and forced them to analyze the major factors that led to the growth of the industry. The Indian IT industry has been a key area of interest for researchers who have wondered about its sudden emergence. Many researchers have tried to identify the factors responsible for its growth. The current study is the way ahead in trying to develop a framework and identify factors leading to competitive advantage of the Indian IT industry. Some of the factors could be: government policies; skilled, affordable and English speaking workforce; increasing demand from the global markets; competitive environment; etc. Chandra et. al (2006) have explored the reasons for the growth of India as a superior knowledge hub and have identified certain factors which are uniquely suited to such a major rise. They have also identified the obstacles which need to be removed for continued growth. They have summarized that the “Made in India” tag is gaining momentum in international markets due to the high service and quality being offered by Indian firms. Also the reverse brain drain has been an added advantage.
Garder (2000) has shown his concern about the old telecom infrastructure of India and the lack of power generation capabilities as hindrance to the growth of IT industry in India. However a lot of work has been done by the government in this area so that it does not act as an obstacle in the growth path. The IT industry of India has given India a hope towards national competitiveness. Kapur and Ramamurti (2001) have used the Porter’s diamond of competitive advantage to review the IT industry of India. They have shown that the reason for India IT sector growth is plenty of intellectual human capital, low wages, and fluency in English language. The barriers to entry are low, therefore many domestic firms have emerged giving way to healthy rivalry. The supporting industries are various educational institutions.

A report published in Economist outlines that the biggest regional competitors to India are China and, for English-language voice work, the Philippines. Both compete with India on price. Gupta (2001) has stressed that IT Industry of India has now taken the central position in the national agenda of India. This is proved from most of the government establishments and offices making heavy use of IT. She also says that several MNC’s are attracted towards India due to large market of technically skilled and English speaking intellectual capital. An article in the year 2007 in the Economist points out that India IT industry has huge workforce to supply quality work. They also have focused on certifications and continuous improvement resulting in excellent customer service and trust of clients.

Luce & Merchant (2002) have written that despite the many problems faced by IT industry of India in the form of burst of IT bubble, Sept 11, 2001 attacks and threat of nuclear attack from Pakistan, it still is able to show its competitive advantage. The globally largest companies contract out IT and business processing work to India. Aggarwal (2008) has argued that the growth of Indian IT industry happened “mainly by accident and partly by design”. India was able to take advantage of the Y2K problem and was able to emerge winner from the dotcom bubble burst. At the same time the economic hardships in US became favorable for India and they concluded that offshore work will not face any trouble be it good or bad times. So in order to reduce costs they transferred a lot of work to India. Globalization is helping Indian firms to spread their wings at the same time making India as a breeding ground for international firms.
Rajeev & Vani (2010) have concluded that trade in services has taken a special place in the global economy. There are a number of services which due to the advancement in technology can be now delivered across the border. The major contributor to this growth is IT and IT-eS (IT enabled services). Parthasarathy (2004) has discussed the various policy changes which made Indian Software Industry the largest non-OECD (Organization for Economic Co-operation and Development) exporter by 2000. He analyzed the conditions under which the export led industry grew. Singh (2003) has suggested that the government policies focused on removing problems in the labor market and infrastructure constraints. But they required focus towards the export subsidies also.

Dedrick and Kraemer (1993) have emphasized on the fact that Indian government stands out from the crowd for intervening at the maximum level to give a boost to the IT industry. They have provided a framework (refer Fig 2.8) which rests on 3 major factors viz: Environment, Technology Policy and IT diffusion.


Subramanian (2006) has contributed significantly to the researches done on the evolution and growth of Indian IT industry. He examined the history, culture, entrepreneurial climate, education system, etc. He has concluded that the current position of the industry is a result of the socio-economic factors combined with political factors. They have helped in framing the public policies which gave a strong and sound technological infrastructure. Curtis (2001) has emphasized that apart from
IT, India has started gaining position in IT-eS also. He stressed that India is the most promising destination for offshore call centers due to availability of educated, English speaking workforce working at very low wages. Ambastha & Momaya (2004) have suggested that the share of Indian Software Industry in GDP has been increasing every year. It has also shown an increase in employment opportunities and industry contributions to exports in witnessing an upward trend. But low cost and effective delivery mechanisms cannot form a part of sustained competitive advantage. They have concluded that firms have to engage themselves to projects in the upstream of the value chain. Radhakrishnan (2006) has emphasized that India should try to develop branded products as well as look into the area of system integration and design, workforce has advanced skill set and the industry should aim towards innovation. He has also raised questions towards R & D and postgraduate education in India.

Bolar (2009) has concluded that in India, major share of earnings from foreign exchange is from the IT Industry. This is largely driven by exports that include software, IT services and ITeS. Nihon (2005) has suggested that a country could gain competitiveness by trade, development of infrastructure, policy regulations in the form of low taxes and liberalized economy. Lall (1982) has observed that, India, despite being a poor country in relation to other developing countries like Brazil and Mexico, appeared to be the most diversified and technologically advanced foreign investor among the developing countries. He attributed this finding mainly to the strong ownership advantages at firm level in terms of large size, multinational identity, access to domestic capital markets, political strength, and managerial skills. Michael A. et al. (1998) have concluded that the new competitive landscape, driven by the technological revolution and significant globalization, was moving towards hyper competition (rapidly escalating competition and strategic maneuvering), extreme emphases on price, quality and satisfaction of customer needs, and an increasing focus on innovation (both in technology and new products/services).

Arora et al. (2000) have concluded that established Indian firms are maturing and growing in their ability to execute larger and more complex projects, as well as execute higher value added parts of such projects (such as requirement specification and high level design). These firms can act as the nucleus around which the industry can develop and mature. They also see entry of new entrepreneurs that are experimenting new
product ideas. Kumar (2001) has shown in his research that India’s success owes largely to the cumulative investments made by the government over the past five decades in building national innovation systems. These include resources in development of a system of higher education in engineering and technical disciplines, creation of an institutional infrastructure for S&T policy making and implementation, building centres of excellence and numerous other institutions for technology development. Among other initiatives, technological capability building with investments in public funded R&D institutions and supporting their projects, by creating computing facilities, and developing infrastructure for data transfer and networking.

Tschang (2001) has developed a model (refer Fig 2.9) to show the linkages between individual, firm and regional levels that have led to the growth of Indian IT industry. India started with its employees and firms at the lower end of the value chain. Thus, the “long hard slog” started with the typical body-shopping situation (involving shipping employees to the US to do simple coding on well-defined or mature products), followed by the capabilities to customize software (i.e., adaptation stage), update products (i.e., modifying stage) and engage in project management (in offshore development centers). The most important factor is that the Indian experience was not based on manufacturing, but, rather, more on “service” and intellectual work.

**Fig 2.9 Linkages between individual, firm and regional cluster**

Dayasindhu (2002) has developed dynamic theoretical framework (refer Fig 2.10) for global competitiveness of Indian Software Industry. He has argued that embeddedness
and knowledge transfer are key determinants of industry clusters that lead to global competitiveness. He suggests that building trust and inter-organization relationships would lead to global competitiveness.

**Fig 2.10 Embeddedness, knowledge transfer, industry clusters and global competitiveness**


Athreye (2005) has emphasized on the significant impact of labor market conditions and entrepreneurial mindset which led to development of the outsourcing model in India. The main advantage of India was in cost due to affordable engineers.
Chandra, Fealey & Rau (2006) have concluded that the Indian IT industry, especially ITeS has shown commendable expansion and has been flexible even to the economic recession. India has not been able to compete with China on manufacturing but has found its prowess in the area of knowledge based services. It has even its resources uniquely suited to achieve competitive advantage. Balakrishnan (2006) has analyzed the reasons for competitiveness of Indian IT industry and concluded that the growth was led by government policies, fiscal incentives, publicly funded training and institutes and enabling infrastructure in the form of software parks. Upadhya & Vasavi (2006) have identified three major characteristics of work and employment in the IT industry: mobility, flexibility and individualization.

In a study by NASSCOM in 2007 it has been analyzed that over the past two decades, India has emerged as a global hub for product research and development (R&D) activity, especially in the technology industry. Today, there are over 600 multinational companies (MNCs) undertaking product R&D in their subsidiaries in India. According to a NASSCOM-McKinsey report in the year 2007, the market is emerging in four major sectors: IT services, software products; IT enabled services, and e-businesses. This has led to an increase in prospects for Indian firms. These categories not only are export oriented but also have a major domestic market.

Boomer (2010) has mentioned in his article that technology plays a significant role in four primary areas that comprise a competitive strategy for the years to come. It includes Talent management; Process and workflow; Marketing and sales; and Strategic advantage. Majumdar et al. (2010) have examined how domestic market structure has influenced the international entrepreneurship in Indian Software Industry. Arora & Athreye (2002) have emphasized on the contribution of the software industry to India’s economy. It has led to growing employment opportunities, human capital and entrepreneurs. Bhatt & Grover (2005) have drawn an analysis of the various views of competitive advantage of IT industry and summarized them as shown in Table 2.2:
2.4 Proposed Conceptual model

Keeping in mind the objective of the study, literature review and integration of models of Dayasindhu (2002), Ambastha & Momaya (2004), Porter (1980, 1990), Sharma (2007), Cruz, Ferreira, Azevedo (2009) the following (refer Fig 2.11) conceptual model has been proposed which is focusing on the strategies and factors of competitiveness that have been used by the Indian IT companies to gain advantage. The model has been empirically tested with the help of various statistical tools. The analysis has resulted in changes in the model which is discussed in detail in Chapter 5. The model is an extension and integration of existing models.
Fig 2.11 Proposed Triangular model for Competitiveness of IT industry of India

From the secondary literature available and World Competitiveness Yearbook (2013), the following factors have been identified as a source of competitiveness. This has been integrated from the various models available on Competitiveness and in context of IT Industry.

The model has major components as : A) *Focused Strategies*: This includes strategies of cost leadership and differentiation.  B) *Competitiveness*: This includes Hardworking & Flexible workforce, Affordable Workforce , Intellectual & Skilled Workforce, English Speaking Workforce, Institutions, Infrastructure, Higher education & Training Centers, Goods Market efficiency, Market Size, Innovation, R & D Promotion, Tax Incentives, Prioritisation of Electronics and Hardware Manufacturing, Liberalization of external Trade, Fiscal Incentives, Embeddedness & Knowledge Transfer, Trust & Interorganization Relationships, New Entrepreneurs. C) *Sources – Resources – Forces*(S-R-F). D) *Wheel of Corporate Momentum*. They are explained in details below.
A. Focused Strategies

The strategies are based on the model of Porter (1980). For the purpose of study only cost leadership and differentiation have been considered.

1. Cost Leadership: The Indian companies were able to complete the projects in lower cost as compared to their competitors.

2. Differentiation: Differentiation on the basis of the innovation (technology and new products/services), productivity and technical knowhow.

B. Competitiveness

The factors of competitiveness have been extracted from the existing literature available. The following factors have been considered in the current research undertaken. Each one is explained in details below:

1) Institutions: Institutions are of utmost importance for an industry to flourish to have proper public and private support. Encouraging policies of the GoI is also oriented towards building institutional support to the IT industry. Similarly the private institutions are encouraged in being accountable in its action towards their clients. Ethical work practices also go a long way in building trust between the institutions and its clients. Kettunen (2002) has given a listing of the various types of public-private institutions like local organizations, trade bodies, training centers, government, financial institutions etc. These firms help the firms to face the challenges by assisting through various ways (Lall, 2000). An industry is able to gain competitive advantage/position if the government policies are encouraging (Aoki, Kim and Okuno-Fujiwara, 1997). Development is possible by the effective partnership between the government and private firms. This partnership helps in improvement of the superiority and effectiveness of infrastructure services (Kwak, Chih, & Ibbs, 2009). Many economies around the globe are moving towards the partnership between the government and private firms. This actually helps in better development and growth of the economy. Also it helps in distributing / diverting the financial load from the government (Gupta & Biswas, 2010). A public private
partnership helps in promotion of local economic growth as well as generates employment opportunities (Engel, Fischer, & Galetovic, 2006).

2) **Infrastructure**: The IT industry requires a very robust infrastructure. The software engineers and other IT professionals work offshore as well as on-shore. The telecommunication network, data transmission network, the power back up etc. need to be in impeccable condition for efficient and effective rendering of services. Over the years India has been able to bring about substantial improvement in the IT infrastructure. The government policies have also been supportive. Only a conducive environment can act as a platform for the further development of industries. Dash & Sahoo (2010) have researched and concluded that social and physical infrastructures have a significant impact on the GDP and international trade. Robust infrastructure is a measure of a sound economy. It is required for economic growth and urbanization (Singhal et. al (2011).

3) **Higher education and training**: During the early 1990s India saw a major increase in the number of engineering degree colleges. Also there was a spurt of growth in private institutions that were providing short term certification courses in the area of IT and computer programming. To augment the skills learnt in these degree colleges and training institutes, the recruiters provided further training to hone the skills of the newcomers, to suit its internal requirement. Also continuous training for upgrading the knowledge of the employee was given. Many researchers expressed concern over the existing Indian education system. Many questions have been raised on affiliation, academic structure, eroding autonomy of academic institutions, and the low level of public funding (Agarwal, 2006). At the time of growth of the Indian IT Industry, a large number of private educational institutes grew, but the quality of education provided by them was far from satisfactory.

4) **Goods market efficiency**: While analyzing this factor, it is important to evaluate the competition and the quality of demand condition. Competition has to be studied from domestic as well as foreign competitors. The Indian IT industry faced stiff competition from the global leaders as well as growing IT firms within India. Quality of demand condition has to be understood from the degree of customer orientation and the buyer sophistication. Also we need to have a look towards the trade barriers and the tariffs.
5) **Market Size**: It is defined as the measure of the total volume of the market. It involves both the domestic as well as the foreign market size. The market size was huge and untapped at the time when the Indian firms entered. They were able to reap in the profits due to low labour and skilled workforce. Currently the market is divided between India and other competing countries like China and Philippines. Lucintel in February 2012 has analyzed that the global IT industry is very promising. This is due to increased IT budgets in major industries like healthcare, retail, and transportation sectors, among others. They have forecasted it to reach an estimated US $1,147 billion in 2017 with a CAGR of more than 5% during 2012–2017.

6) **Innovation**: It is very important for a firm to innovate else it will lag behind in the competition. The Indian firms have been continuously favored by the clients because of various services and offerings being offered which is unique in price and service quality. Initially it was more of body shopping and but now have slowly started moving up the value chain by innovating the services. The more innovation the more the competitive advantage of the nation (Wang et. al, 2011). Innovation is not only product/service related but also process related (Harmsen, Grunert, & Declerck, 2000). A nation’s firms capabilities to innovate, rest on numerous factors, and policies. It includes strong core competencies, high-quality education and training, and stable and facilitative economic and trade policies (Nelson, 1993).

Various Incentives by the Government:

The gigantic leap taken by the IT industry of India would not have been possible without the various initiatives and incentives given by the government. They have been classified as:

7) **R & D Promotion**, 8) **Tax Incentives**, 9) **Prioritisation of Electronics and Hardware Manufacturing**, 10) **Fiscal Incentives**, 11) **Liberalization of External Trade**, 12) **Infrastructure Support**: An industry needs constant development which is guaranteed by continuous research and development. The IT industry has seen, with passage of time, huge innovations. Due to R & D the industry has grown manifolds. Therefore it becomes very necessary for any country to promote R & D through various schemes and programmes. The level of country is determined by how technically
advanced it is. India is now seen as a global destination for research and development (Kumar, 2003). The Government of India was able to foresee the future. They took several policy level initiatives (refer Chapter 1 for details) to promote the industry. Separately, the Ministry of Information Technology was set up in October 1999 to promote and encourage the industry. The DoE has emphasized on the crucial role of R & D in the development of the industry and therefore many research centers had been set up at central universities. The Technology Development Council, National Centre for Software Technology, Centre for Development of Advanced Computing(C-DAC) was established to support R & D projects (India, MIT, 2000).

13) **New Entrepreneurs**: The rise of Indian IT industry has to be attributed to large number of local entrepreneurs who wanted to earn name and fame in this industry. There were many technical professionals who started their businesses due to low entry barriers and low initial investment. The topmost rated companies in the NASSCOM surveys were started by the visionary entrepreneurs of that time (Kumar, 2001). Also many entrepreneurs, encouraged by the supportive government policies and fertile land for IT industry growth, came back to India to set up IT firms.

**Workforce:**

The IT workforce is evaluated on various parameters viz. hardworking and flexible, affordable, intellectual and skilled and English speaking.

14) **Hardworking & Flexible, 15) Affordable, 16) Intellectual & Skilled, 17) English Speaking**: The source of competitiveness for Indian IT industry lies in its highly skilled, low cost workforce (Balakrishnan, 2006). The industry is based primarily on cheap software programmers with limited technical and managerial knowledge (Arora, A. et. al, 2001). India has a large pool of highly trained engineers and scientists (Balasubramanyam et. al, 1997). India and China have high skilled workforce ready to work at low wages (Saxenian, 2005). India has the largest pool of English speaking workforce which is available at low wages (Arora & Athreye, 2001; Moitra, D., 2001). India is home to large skilled, inexpensive, English speaking talent (Kapur, 2002). The US companies were able to get well educated, English speaking workforce from India (Parthasarathy, 2004). The major source of competitive
advantage for India has been low cost, english speaking and trained manpower (Kuruvilla & Ranganathan, 2008).

18. Trust & Inter-organization Relationship

19. Embeddedness and Knowledge Transfer

C. Sources – Resources – Forces (S-R-F): This model is adoption of work done by Sharma (2007). He has focused on managing the resources through Total Resource Management (TRM). He suggests that TRM is incomplete without a proper analysis of the sources behind the resources. A change in the source will impact the resource also. E.g. A change in the labor markets (Source) is going to impact the labor (Resource) also. He also suggests the managers to focus on the forces which bring about changes in the sources which bring changes in the resources. He has concluded that S-R-F analysis is at the core of TRM.

D. The Wheel of Corporate Momentum.

The focused strategies and factors of competitiveness have a relationship with the wheel of Corporate Momentum or the Corporate Wheel. Sharma (2007) has introduced a new concept in the area of Total Resource Management. He has visualized the same in the form of a corporate wheel which has Total resource Management in the center which is responsible for corporate momentum. The key elements of the corporate wheel are:

a) Quality: Quality service is provided by the Indian firms. The foreign clients had a trustworthy relationship with them. In order to continue with the same, most of the Indian IT firms opted for various quality certifications (Isaac et. al, 2004, Chandra & Adur, 1999). Various certifications like TQM, CMMI, and ISO 9000 were followed by the firms and they helped in putting quality management practices in the organization.
b) **Value Addition**: Value addition is given by the Indian firms not only in terms of quality, cost but also in terms of cooperating and trustworthy partnership. It was also in terms of R&D which improved the offerings to the clients.

c) **Cost**: The Indian workforce is ready to work at one-fourth the cost as given to the foreign counterparts. The same has been substantiated in the literature given above. This is actually the main differentiating factor.

d) **Risks**: Risks are always associated with any work which is undertaken. Risks mean that something might be lost. Risk of attrition, risk of losing a client to the competitor, risk of non completion of project, shortage of skilled staff are few risks which are faced by the IT industry.

e) **Productivity**

Other components of the model are:

**E. Macro-economic environment**: The macro-economic environment of a country indirectly impacts the production and vice versa. A stable macro-economic environment leads to a competitive economy. It includes variables like GDP, inflation, employment, monetary and fiscal policy. Sheth (1992) has given a framework for macroeconomic structure. They are regional integration, borderless economy, ideology free world, and technology advances.

**F. Performance**

When strategies, factors of competitiveness and wheel of Corporate Momentum act in synergy, they provide the industry with competitive advantage. The result is increase in performance. Superior performance outcomes and superiority in production resources reflects competitive advantage (Lau, 2002). If a market leader firm is able to prove the extended-term benefits of its advanced performance on quality or novelty or any other nonfinancial metric, it has the capacity to prove itself a game-changer (Eccles, 1991). There are many ways to measure performance. For the purpose of this
study only the following parameters have been included viz. Production and growth trend, contribution to GDP, employment opportunities.

2.5 Summary

From the above discussion, it is clear that the rise of the Indian IT Industry is due to competitive advantage it holds. This competitive advantage has resulted in increased performance in terms of increased participation of Software exports in GDP, an upward trend in the production and growth and increased employment opportunities in IT-ITeS sector. Lot of literature is available in which various researchers have tried to analyze the factors responsible for the competitive advantage in Indian IT industry. The author has tried to analyze the available literature and develop a consolidated framework which has the following components: focused strategies, competitiveness, wheel of corporate momentum. They work in synergy to give competitive advantage and increase the performance of the IT industry. However there is no conclusive evidence if the components do really provide any advantage to the Indian IT industry. Hence, it was felt necessary to put to test the model by developing a questionnaire. The questionnaire has been administered to respondents from the industry. The further chapters are focused on the empirical analysis of the data from the questionnaires and data from secondary sources.