The Emerging Dynamics of Innovation
The case of IT-Industry in India

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Abstract

The rise of an Indian IT-industry has been a remarkable success story. The offshore business model, with its low-cost based value proposition has been the main thriving aspect for the industry. Yet the times are changing, and the increased competition, commoditized offering and increasingly demanding customers bring challenges for the future. To answer those challenges, the leading IT-companies in India are in the path towards efforts to continuously move up in the value chain and drive non-linear growth. Innovation is considered as a highly contributing factor in accomplishing these ambitions in this fast changing, technologically driven industry.

In the light of this challenging and interesting context, this dissertation aims to reveal the emerging innovation dynamics in the Indian IT-industry. This exploratory research is conducted by analyzing the case study, based on qualitative in-depth data gathered by interviewing fourteen individuals working in the industry’s leading companies in Bangalore, India. The collected data is analyzed with grounded theory research method, resulting in a framework which can be applied and tested in variety of other contexts.

The dynamics are studied through emerging drivers of innovation and the enabling aspects. The analysis of the case study reveals the efforts of the companies to move towards active innovation strategies by emphasizing innovative culture building in the company across the units and ranks. The findings of this study suggest that innovation processes are becoming more increasingly interactive, requiring simultaneous networking across multiple communities, groups and units. Sensitivity towards the customer is highlighted, and new type of openness towards the customers and partners can be witnessed. The emergence of efforts towards valuing locality as an innovation driver is spotted, and the possibilities for crossovers analyzed. The technical nature of the industry ensures that these companies are using the newest technologies to enable this change process towards higher levels of innovativeness. By analyzing the emerging dynamics of innovation, this dissertation contributes to the theories of innovation by concluding in a framework deeply grounded in the data from the under-researched IT-industry in India.
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1. Introduction

The legendary economist and innovation researcher Cristopher Freeman (1982) once stated: “not to innovate is to die” (p.169). Innovation is a necessity for companies and industries that are riding the inevitable tides of change. Organizations have realized that they need to seek new ideas and unlock new sources of value to survive in the fast changing globally competed world.

Ever since Joseph Schumpeter started the conceptualizing of the innovation in the 1940s, there has been an increase in the publications about the change in technologies and an increase of innovations. Rapid advancements in the technology are affecting almost every industry in the world. Yet no industrial development in history is marked by such rapid technological changes and levels of business complexity, as the industries related to information technologies (IT). Emergence of new technologies is challenging the nature and scope of the industrial competitiveness.

IT-industry in India has been a great success story and a huge positive contributor to the Indian economy, mainly due to the successful outsourcing model. Yet today, challenges such as increasing competition, weakly growing economies and anti-outsourcing policies in the west, have negatively affected this industry. The changing context and the emerging technologies are altering the business landscapes, and the question remains, which companies are able to widen their focus, move higher in the value chain, and drive sustainable growth in the future. When facing these challenges, innovation is seen as a very high contributing factor in an industry, which in the past has been mainly known for its low-cost value proposition.

Companies recognize that the challenge is to move from “outsourced and made in India” to “imagined and owned in India” (Kumar & Puranam, 2011, p.3). Drawing from a case study of companies in Bangalore, India, this dissertation provides a contextualized study of the emerging dynamics of innovation in India. This is done through a qualitative case study using a grounded theory method, aiming to create a framework highlighting the contemporary innovation dynamics and the relationships of the different contributing actors in this industry. The findings will be analyzed in the light of the innovation concepts from the last decades to review the possible correspondent tendencies, finally concluding the research in a framework highlighting the emerging dynamics of innovation in the Indian IT-industry.
1.1 Motivation for grounded theory

“You can’t go and get lot of reports with lot of data in India very easily. You have to do primary research” (Cha).

As explained in the introduction, the challenges the IT-industry in India is facing and the fastness of this change make it very interesting to research innovation in this context. Increasing amount of research is published about the IT-industry in India, yet this area still remains under researched. The researcher has decided to use grounded theory as the guiding research method for this dissertation. Using grounded theory is well suited for an exploratory study where the researcher is not sure about the outcome and thus the researcher remains open to exploring a substantive area. According to Strauss and Corbin (1998) by choosing this road the researcher lets the concerns of those actively engaged in the area in to guide the emergence of a core issue. Thus in the grounded theory research, the researcher does not begin a project with a preconceived theory in mind, rather the researcher begins with an area of study and allows the theory to emerge from the data (Strauss and Corbin, 1998).

1.2 Research question

According to Strauss and Corbin (1998), the research question helps to decide on the methods used and setting the boundaries for the research. As the reason of grounded theory research is to develop theory, the research question should be framed in a manner that allows the flexibility and freedom to explore a phenomenon in depth (Ibid.) Strauss and Corbin (1998) argue, that although the initial research question starts out broadly, it becomes progressively narrowed and more focused during the process. Subsequently Eisenhard (1989) highlights, that even though the researcher should formulate a research problem they should avoid thinking about specific relationships between variables and theories as much as possible, especially at the outset of the process.

Following this and the preliminary research conducted about the innovation models throughout time and the lacking existing research about innovation in this complex and unique context, the following question emerged as the first broad research problem to guide the first phases of the data gathering process:

-How are companies innovating in this context of IT-industry in India?
As the research progressed, the researcher was able to narrow the question. During the interviews the researcher was able to hear first-hand, which themes were surfacing regarding innovation and the areas related. Subsequently, once arriving at the site the researcher was able to observe the mood and issues prominent in this industry. For this reason the emerging theory started to build around the challenging context and the imperative for the whole industry to become more innovative. The researcher was fortunate to interview the leading industry experts and discuss about the emerging ways in which the companies are driving innovation inside the company and beyond. Therefore the new research question started evolving around acknowledging the interesting innovation dynamics in the industry and finally led into the following research question;

- What are the emerging dynamics of innovation in the context of IT-industry in India?

This question arises from the context of the industry finding itself in another “inflection point” as one of the respondents articulated the situation. To answer the challenges of this new inflection point, the companies need to embrace innovation as an essential part of their business model, operations and strategy.

1.3 Scope and delimitations

The companies operating in the IT-industry in India serve as a delimitation of the problem field in which the emerging innovation dynamics will be studied. Industry in this dissertation is defined through the companies operating in the chosen industry. Thus the emerging dynamics are identified and analyzed through a company perspective and institutional actors are not included. The main units of analysis in this dissertation are 14 persons interviewed across different companies operating in IT-industry. In this dissertation a rather broad definition of innovation is used as described by Fagerberg (2003), in his definition innovations derivate from generating and implementing a new idea through new combination of existing resources, skills and knowledge aiming at market success.

In line with the chosen grounded theory and the choice of applying pragmatist research philosophy, the perspectives of the innovation process have been emphasized by primarily basing the data collection on unstructured and semi-structured in-depth interviews with actors involved in the innovation efforts in the chosen context. Due to time and resource limitations, the scope of this research is to focus on leading innovative IT-companies in this context, in addition to interviewing leading industry expert and a consultant. By
deciding on using grounded theory, the researcher has chosen to develop theory instead of testing an existing theory. The framework created in this dissertation focuses on emerging dynamics, thus it will not give the reader a holistic picture of all innovation efforts of the companies.

1.4 Outline of the dissertation

This dissertation is structured around nine chapters. First chapter introduces the research and the problem field. Second chapter entails a study about the innovation concepts and theories in the literature. This chapter aims to demonstrate the researchers request to understand the innovation concepts from the beginning of innovation theories and models to the recent years. A framework assembling the concepts and theories concludes this chapter, giving an outset for this dissertation.

Before starting the analyzing of the data, the applied methodology will be presented in the chapter three. Chapter four will present the research design and chapter five further the research process. Chapter six focuses on the theory building process resulting in the introduction of the core categories found after close scrutiny of the data. Chapter seven will introduce the case study of the IT-industry in India, and further introduce the elements of the dynamics based on the core categories resulting in an empirical framework. Chapter eight will analyze the case in-depth building a final framework presenting the elements of the dynamics and their relations. The final chapter contains a discussion about the findings, lays out the possibilities for further research and finally concludes the research.
2. Literature Review

The literature review presents the innovation theories and concepts from the last century onwards. The aim of the review is to demonstrate the changes in the field of innovation concepts throughout the time and provide a background for the grounded theory method research about emerging innovation dynamics.

2.1 Innovation pre-1950s

Industrialization brought rapid technological developments within large scale industries and resulted in growing economies and establishment of numerous new companies, often founded by single entrepreneurs (Sundbo, 1995). Freeman and Soete (1997) describe the period from 1890 to 1940 as the period of electricity and steel, electricity representing a power source much mobile than steam engine, and steel providing a tough and relatively cheap material, leading to increased productivity and growth at the macroeconomic level. Later in the beginning of the 20th century technological projects such as the radar, the Manhattan project and nuclear energy led to strong believe in science (Marinova and Phillimore, 2003).

2.1.1 Karl Marx – Technological change

Innovation was a term that was just beginning to appear in the academic literature of the twentieth century (Godin, 2010c). Yet already before, the issues surrounding technological change and inventions were discussed in an increasing amount of publications.

Marx’s theory placed technological innovation as one of the prime movers in capitalist development, for Marx changes in techniques of production gave rise to modern industry (Godin, 2008a). Machines gave rise to the capital-goods sector, and secondly brought increases in productivity in other sectors of the economy (Ibid.). Marx suggested that over time, capitalists would invest more and more in new technologies, and less and less in labor.

For Marx (1976) technological progress was needed to achieve economic growth. In his view the competitive structure of capitalism encourages innovation as the innovative firm will enjoy a higher rate of profit due the monopolistic position. In Marx’s theory increase in wealth was mainly due to the aim to obtain maximum surplus –value from the employment of labor resulting in an increase in productivity and capital:
“the capitalist has two objectives: in the first place, he wants to produce a use-value which has exchange-value, i.e. an article destined to be sold, a commodity; and secondly he wants to produce a commodity greater in value than the sum of the values of the commodities used to produce it, namely the means of production and the labor-power he purchased with his good money on the open market. His aim is to produce not only use-value, but a commodity; not only use-value, but value; and not just value, but also surplus value” (Marx, 1976, p. 293).

Marx is a pioneer also when it comes to emphasize the importance both science as a force of production and technological competition, where firms need to engage in innovation in order to gain markets and reduce costs (Rosenberg 1976).

2.1.2 Ogburn and Gilfillian- Invention in sociology
Godin (2010a) argues that William Ogburn together with his colleague S. Colum Gilfillian were among the first to devote extensive and systematic studies to technological innovation. Ogburns colleague S. Colum Gilfillan (1935) used the term “Sociology of Invention” first time and formulated 38 principles of invention. Ogburn as a sociologist wanted to explain social chance: “why social change occurs, why certain conditions apparently resist change, how culture grows, how civilization has come to be what it is “(Ogburn, 1922). According to Ogburn (1933-1934) culture is growing by means of invention: “The key to social change may be sought in invention (namely) in any new element in culture (....) to understand social change it is necessary to know how inventions are made and how they are diffused” (p. 331). To Ogburn, invention is the evidence of change, thus if there are few inventions, there are few changes (Ogburn and Nimkoff, 1940).

Ogburn studied three factors that explain how inventions occur: first factor was Individuals including mental ability, second culture base including antecedents and achievements and third social attitude towards new (Ogburn, 1922). According to Godin (2010a) one of Ogburn´s essential findings was the exponential growth of innovation. “When the material culture was small inventions were few, and now when the material culture is large the inventions are many” (Ogburn 1922, p.105).

To Ogburn (1926) invention is a “step in a process rather than the entire creation of something new” (p. 38). Invention is the combination of prior art and ideas as the combination of known elements into a new element, “A great discovery or invention often requires many years of effort, usually by several inventors and the contributions of many inventions” (Ogburn et al., 1946, p. 59). Therefore invention depends in many individuals not one genius (Ogburn and Nimkoff, 1940). This notion contradicted the “heroic entrepreneur” myth that was popular at the time.
2.1.3 Schumpeter- First Steps to Conceptualize Innovation

“The essential point to grasp is that in dealing with capitalism we are dealing with and evolutionary process...

Capitalism, then, is by nature a form or method of economic change and not only never is but never can be stationary... The fundamental impulse that sets .and keeps the capitalist engine in motion comes from the new consumers’ goods, new methods of production or transportation, new markets and the new forms of organization that capitalist create” (Schumpeter, 1942, p.83).

Austrian economist Joseph Schumpeter is seen by many as the first person trying to systematically conceptualize innovation. According to Schumpeter it was not sufficient to study the economic through static lenses focusing on the distribution of given resources across different ends. In his view economic development had to be seen as a process of qualitative change, driven by innovation, taking place in historical time (Fagerberg, 2004). In his work innovations lead to the emergence of completely new industries and create renewed momentum for economic development (Coombs et al., 1987).

Schumpeter popularized the term creative destruction: “I may use that biological term—that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. This process of creative destruction is the essential fact about capitalism (Schumpeter, 1942, p.83). Schumpeter also emphasized the tendency to innovations to cluster in certain industries and periods (Fagerberg, 2003).

Schumpeter defined innovation as the new combination of factors of production, created by the entrepreneur (Xu, 2007). According to Schumpeter (1934), the process of technological change in a free market consists of three parts: first was invention conceiving a new idea or a process. This was followed by innovation arranging the economic requirements for implementing an invention and lastly diffusion followed by people observing the new discovery and adopting or imitating it (Schumpeter, 1934). This Schumpeterian trilogy is often considered to provide a useful taxonomy to describe the technological process (Stoneman, 1995).

Schumpeter distinguishes between five different types of innovations: new product, new methods of production, new sources of supply, exploitation of new markets and new ways to organize business (Schumpeter, 1934). According to Schumpeter (1934) innovation was not a random phenomenon. His own account of the processes emphasized three main aspects. First was the fundamental uncertainty inherited in all of the innovation projects. The second was the need to move quickly before somebody else did involving
leadership and vision in the process, two qualities he associated with entrepreneurship. The third was the prevalence of resistance to new ways that entrepreneurs had to fight (Ibid.).

2.1.3.1 The Importance of the entrepreneur
In his early work Schumpeter (1934) focused on individual entrepreneurs and their task to carry out these new combinations highlighting that there was a resistance to the new ways that the entrepreneurs needed to fight in order to succeed in their aims. This struggle of individual entrepreneurs advocating novel solutions to particular problems and social inertia is referred as a term Mark I, which was advanced in his book the Theory of Economic Development (1911). Schumpeter was criticized of failing to take the organizational dimension properly into account in the Mark I. In his later work Schumpeter acknowledged this, and he emphasized the importance of co-operative entrepreneurship in big firms and the role of endogenous inventive action, yet this phenomenon was not analyzed in detail (e.g Fagerberg, 2003).

2.1.3.2 Moving towards the idea of R & D
Schumpeter shifted his emphasis in his later work from future monopoly expectations to existing monopolistic advantages as the essential factors in allowing the introduction of new ideas into economic life (Freeman et al., 1982). He observed that innovations require resources such as resource and development (R&D) and design which are expensive, have a minimum efficient size and sometimes show positive returns to scale (Coomb et. al., 1987). Technology, whether generated outside the economic system or in the large R&D laboratories of a monopolistic competitor, is for Schumpeter the leading engine of growth and therefore the technology push hypothesis finds a place in Schumpeter´s ideas (Ibid.).

2.1.4 Maclaurin –Linear model
An acknowledged innovation theory researcher Godin (2008b) published an article titled as: in the Shadow of Schumpeter: W Rupert Maclaurin and the study of technological innovation. This publication argues that the origin of systematic studies on technological innovation owes its existence to the economist W. R. Maclaurin. According to Godin (2008b) Maclaurin developed further Schumpeter’s ideas and proposed a theory of technological innovation, that later became called as the model of linear model of innovation. Maclaurin identified five steps leading to technological innovation from research to use: Pure science, invention, innovation, finance and acceptance (Ibid). According to Godin (2008b) even though the model is criticized, systematization of the idea into a sequential theory is MacLaurin’s construction. Maclaurin defined innovation as: “when an invention is introduced commercially as new or improved product or process it becomes an
innovation” (Maclaurin, 1953, p. 105). This idea of commercialization later has become widely used in innovation theories and concepts.

2.1.5 Solow- Black Box

First attempt to incorporate technical progress in the economic equation was the influential mid-1950s production function study of Solow (1957), who analyzed U.S total factory factor productivity during the period from 1909 to 1949. Solow’s approach was that the component of economic growth, which changes in capital and labor could not explain, is due the technological advances. He concluded that “gross output per man hour doubled over the interval [1909–49], with 871/2 per cent of the increase attributable to technical change and the remaining 121/2 per cent to increased use of capital” (Solow, 1957, p. 320).

This apparent invisibility of what happens when you invest in science and technology gave rise to the so-called black box innovation model. The black box model emphasizes that the innovation process itself is not important and that the only things that count are its inputs and outputs (e.g Fagerberg, 2003; Marinova and Phillimore, 2003). Innovation process was seen as a protective cover with which scientific inquiry could flourish, since all that was required was innovative outcomes in return for the input of resources (Marinova and Phillimore, 2003).

2.2 1950-1970s –Linear models: technology push and demand pull

During the post-war era the advanced market economies enjoyed unparalleled rates of economic growth largely through rapid industrial expansion. These new industries created by new technological opportunities resulted in rapid employment creation, rising prosperity and an associated consumer boom, leading to rapid growth of the consumer goods (Freeman et al., 1992).

The markets Western markets were becoming increasingly saturated and therefore companies were forced to innovate to compete, which increased focus on technological product development (Sundbo, 1995). This steered the companies to implement innovation processes within R&D departments that were often led by engineers (Bruland &Mowery, 2004). Innovation research mainly studied the sources of innovation within organizations, and focused on how to attain the objective of innovation and promote innovation in organizations through effective management of R&D activities (Xu, 2007).
According to Rothwell (1994), the process of the commercialization of technological change was perceived as a linear progression from scientific discovery, through technological development in firms to the marketplace. This is called the technology push concept of innovation, which assumed that more investment in R&D resulted in “more successful new products out” (Ibid, p.8). Technology push model became popular with policymakers around the world because of its clear message and economic rationale (Marinova and Phillimore, 2003).

*Figure 1: Technology push model.*

As the theoretical research on innovation advanced, instead of focusing mainly on the entrepreneur as the driving force of innovation academic studies touched more and more on specialized fields of innovation. The previous way of managing companies through intuition and the personal drive of the entrepreneurs was gradually replaced by a more systematic and organized form of management, due to the focus on implementation of technical innovation (Sundbo, 1995, p. 70). Thus the innovation concept was moving from an individual endeavor to a social discipline.

After the technology push model another linear model, called second generation “demand-pull” model, emerged. From 1960s to 1970s manufacturing output continued to grow, and investment emphasis began to switch from creating new products towards rationalization technological change (Clark, 1979; Mensch et al., 1980).

*Figure 2: Demand pull model*

According to Rothwell (1994) this was accompanied by growing strategic emphasis on marketing, as large and highly efficient companies fought for market share. Perceptions of the innovation process began to change with a marked shift towards emphasizing demand side factors, i.e. the market place (Ibid.).
2.2.1 Schmookler - Demand-pull
Jacob Schmookler (1962, 1966) can be seen strongly affecting the creation of the demand pull model. He challenged Schumpeterian supply-side driven logic by alternative perspective, where the demand for products and services was more important in stimulating inventive activity than advances in the state of knowledge (Ibid.). Schmookler (1962) empirically tested “demand-pull” hypothesis concluding that innovation is driven by economic demand as human needs precede technological solutions.

Schmookler’s approach despite the clarity of the reasoning and the results could not hold stance when confronted with undeniable empirical rejections by researchers such as Schrerer in 1982, who tested Schmookler’s hypothesis with a larger sample (Audretsch et al., 2011). Many researchers criticize his approach as overly simplistic, particularly for ignoring factors independent of economics that heavily influence how innovation happens (Ibid.). Demand-pull became over time assimilated into multidimensional models and disappeared from researcher’s agendas in the 1980’s (Godin, 2013).

2.2.2 Myers and Marquis- Innovation process
Myers and Marquis’ (1969) much referred research was based upon an examination of some 567 innovations in five different industries was an ambitious effort to empirically study the innovation process. The aim of their research was to “provide empirical knowledge about the factors which stimulate or advance the application in the civilian economy of scientific and technological findings” (Myers and Marquis, 1969, p. iii). Their research concluded favoring demand pull: recognition of a demand is more frequent factor in innovation than recognition of technical potential” (Myers and Marquis, 1969, p.60).

Myers and Marquis’s definition of innovation was: “Innovation is not a single action but a total process of interrelated sub processes. It is not just the conception of a new idea, nor the invention of a new device, nor the development of a new market. The process is all these things acting in an integrated fashion” (p.15). Myers and Marquis (1969) defined the process of innovation as composed of five stages: recognition (of both technical feasibility and demand), idea formulation, problem solving, solution, utilization and diffusion.

2.2.3 Everett M. Rogers- Diffusion of innovations
In his bestselling book; Diffusion of Innovations, which was first time published in 1962, Rogers started the theorizing of diffusion process by synthesizing research from over 508 diffusion studies. Rogers (2003) defines diffusion as the process by which an innovation is communicated through certain channels over time among the members of a social system (p.5).
According to Rogers (2003) a social system is defined as a set of interrelated units that are engaged in joint problem solving to accomplish a common goal. All members or units of social system cooperate at least to the extent of seeking to solve a common problem in order to reach a mutual goal and sharing of this common objective binds the system together (Rogers, 2003). Individuals go through five stages when adopting new innovations: Knowledge, Persuasion, Decision, Implementation and Confirmation (Ibid.). Rogers (2003) defined adopter categories, where innovativeness is defined as the degree to which an individual is relatively earlier in adopting new ideas than other members of a system. These groups are: 1) innovators, 2) early adopters, 3) early majority, 4) late majority, and 5) laggards (p. 262).

**Figure 3: Adopter categories.**

For Rogers (2003) an innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption. It matters little, so far as human behavior is concerned, whether or not an idea is “objectively” new as measured by the lapse of time since its first use or discovery.

In his research Rogers (2003) found out that innovations that are perceived by individuals as having greater relative advantage, compatibility, trialability, and observability and less complexity will be adopted more rapidly than other innovations. One of the most distinctive problems in the diffusion of innovations is that the participants are usually quite heterophilous (Rogers 2003). A change agent, for instance, is more technically competent than his or her clients. This difference frequently leads to ineffective communication as the two individuals do not speak the same language (Ibid.).
2.3 1970s- The third generation model of innovation

The early to late 1970s with two major oil crises was a period marked by high rates of inflation and demand saturation in which supply capacity generally outstripped demand growing structural unemployment. Companies were forced to adopt strategies of consolidation and rationalization, with growing emphasis on scale and experience benefits and it became increasingly necessary to understand the basis of successful innovation in order to reduce the incidence of wasteful failures (Rothwell, 1994).

2.3.1 Criticism towards the first and second generation models of innovation
The first and second generation models are criticized for being overly simplistic, naïve and treating each activity or department individual and isolated from others as “black boxes”. There was little systematic evidence to verify the claim of the models, in fact already in the 1970s in many studies non-linearity was often observed (Forrest 1991).

Berkhout (2006) argues that the first generation model represents innovation as a pipeline of sequential processes and incorporates market information very late in the process, so that commercial applications are often merely technical inventions and thus often not adopted by the market. According to Berkhout (2006) science was replaced in the second generation models by the market as the main source of innovation, even though the process was still seen building from sequential steps. Forrest (1991) concluded his criticism about the first and second generation innovation models questioning whether the pursuit of a truly general innovation model is possible given the complexity and variety of the innovation process.

2.3.2 Mowery and Rosenberg - Critical review of demand-pull
Pure demand-pull theories were already strongly criticized in the 1970s when Mowery and Rosenberg (1979) reviewed empirical studies published previous years that were concluding in the support of demand-pull. They found out that the empirical studies of innovation did not in fact justify these conclusions. Mowery and Rosenberg (1979) further pointed to the confusion in the literature between "needs" and "demand" that should be clearly distinguished. Human "needs" are extremely varied and often unsatisfied for long periods; they cannot alone explain the emergence of particular innovations at a particular time (Ibid.). According to
Mowery and Rosenberg (1979) innovation should not be viewed as a linear process, whether led by demand or by technology, but as a more general process of interaction between technological capabilities and market need linking potential users with new developments in science and technology. Essentially, these empirical results indicated that the technology-push and need-pull models of innovation were extreme and atypical examples of interaction between, on the one hand, technological capabilities and, on the other, market needs (Mowery and Rosenberg, 1979).

2.3.3 Rothwell- 3rd generation coupling model

The linear pipeline model of innovation became heavily criticized in the literature and the focus started to shift towards combinations of the previous models. According to innovation researcher such as Freeman & Soete (1997), during this time the researchers realized that the vast majority of innovations lies between potential market and technical knowledge and involves some imaginative combination of these two as necessity might be the mother of innovation, but procreation still requires a partner.

The third-generation interactive, or “coupling”, model of innovation (figure 4) emerged as presenting the best practice at the time. It was still essentially a sequential process, but in this case with feedback loops. The model suggested that technological innovation comes from coupling of markets needs and technological opportunities (Rothwell, 1994).

*Figure 4: The coupling model of innovation.*

This model has been criticized by emphasizing technological innovations and neglecting non-technical innovations in the form of organizational and market innovations. According to Berkhout (2006) this was a
result from a tendency to focus on the company’s new technological capabilities rather than including solutions for institutional barriers and societal needs.

2.3.4 Utterback and Abernathy - Innovation phases
Utterback and Abernathy (1975) introduced a model for innovation that included some coupling features. They suggested that industries evolve from a fluid phase to a specific phase and that this progression is punctuated by transition period. This model from Utterback and Abernathy (1975) suggested a consistent pattern of variables (innovation, product, competitors, organization, threats, and process) which will change systematically with changes in firms' product and process development.

Utterback and Abernathy (1975) noticed that the rate of product or process innovation depends on the present stage of the product’s life cycle; a radical product innovation would start any new industrial sector, followed by radical innovation in the production processes. After that widespread incremental innovation would appear. Their so-called A-U model shows that many product innovations occur at the early fluid stage of the life cycle. When the volumes grow, the advent of dominant design appears that is often defined as the design that satisfies the majority of users. This paves the way for a shift toward process innovation as firms shift their attention to improving quality and reduce cost through process innovation (Ibid).

2.4 1980- 2000 - Interactive and networking models

From 1980’s forwards innovation has gained more and more importance gradually replacing efficiency and quality as the main source of competitive advantage for firms (Bolwijn and Kumpe, 1990). Therefore a more detailed and a vast body of literature has emerged focusing on various aspects of innovation and revealing best practices in this field. From the 1980s on, global strategies became more important and intensive networking activities grew in importance (Rothwell, 1991). Ever more sophisticated information technologies coupled with flatter, less bureaucratized and more decentralized, even virtual, organizational arrangements with key areas of expertise (e.g. IT) often being provided externally result in innovation processes that are becoming more increasingly interactive, requiring simultaneous networking across multiple (global) communities, groups and units (Swan et. al., 1999).

Rothwell (1994) argues that these trends are ever growing in importance, and firms are striving towards increasingly better integrated product and manufacturing strategies; greater flexibility and adaptability are being sought; and product strategies are more strongly emphasizing quality and performance features. In
addition, the policies and regulations concerning environment are bringing regulation issues on the corporate strategy agenda once again (Rothwell, 1992).

2.4.1 Marked-based view and resource-based view
In recent decades the innovation literature has been focusing on the drivers of innovation. This point of view has two schools: the market-based view and the resource-based view. The market-based view argues that market conditions provide the context to facilitate or constrain the extent of firm innovation activity (e.g. Porter, 1980; Slater and Narver, 1994). The key issue here is the ability of a firm to recognize opportunities in the market place, yet however only a few firms have ability to do so (Trott, 2005).

The resource-based view of innovation has roots in the mid-1980s resource-based view (RBV) of the firm introduced by Birger Wernerfelt (1984). It considers that a market-driven orientation does not provide an appropriate foundation for formulating innovation strategies for markets which are dynamic and volatile. He argues that a firm’s own resources provides a much more stable context to develop its innovation activity and shape its markets in accordance to its own view. The resource based view of innovation focuses on the firm and its resources, capabilities and competencies (Trott, 2005). It argues that when firms have resources that are valuable, rare and not easily copied they can achieve a sustainable competitive advantage- frequently in the form of innovative new products (ibid.).

2.4.2 Kline and Rosenberg- Chain linked model
A popular model highlighting the end of the era of linear models was Kline and Rosenberg’s (1986) Chain Linked Model. This model is a more complex model with multiple paths from where innovation might arise with many feedback loops. Kline and Rosenberg’s (1986) model contrasts previous R&D based models arguing that research is first and foremost an important contribution to the stock of existing knowledge and therefore an indirect influence on innovation, although it may give rise to new designs directly (line D) and be influenced by innovations (line S).
2.4.3 Innovation Systems

During the first decades of innovation theories the focus was on creating new products within organizations. From the 1980s the focus of innovation studies called for a broader perspective highlighting the notion that organizations are not innovating in isolation, but in the context of a system (Freeman and Lundvall, 1988). This theory became popular in explaining why the national education system, industrial relations, government policies and many other national institutions have fundamental influence for successful innovations to emerge (Freeman 1995). In addition, this concept highlighted how most organizations often innovate in an alliance or network of actors and how the flow of technology and information is the key in this process on the national level (Ort 2006). The approach argues that the performance of the firms operating in a system is dependent on the quality of that system, more particularly on tuning the subsystems (e.g. R&D, users, intermediary and supportive infrastructure) in favor of the company (Freeman, 1997). Another consequence of the systems approach is that, and very heterogeneous actors are involved in the innovation processes (Kuhlmann et al., 1999).

There are several definitions of national innovation systems. First narrow definition from Freeman (1987, p.1) was that national innovation systems are: “... The network of institutions in the public- and private-sectors whose activities and interactions initiate, import, modify and diffuse new technologies”. Today more sophisticated definition is used by i.e. OECD from Metcalfe (1995): “that set of distinct institutions which jointly and individually contribute to the development and diffusion of new technologies and which provides...
the framework within which governments form and implement policies to influence the innovation process. As such it is a system of interconnected institutions to create, store and transfer the knowledge, skills and artefacts which define new technologies” (p.462-463).

The definitions can be classified into broad and narrow definitions of system of innovations. Following Lundvall (2010) the narrow definition includes organizations and institutions directly related to searching and exploring technological innovations such as R&D departments, technological institutes and universities. The broad definition encompasses all aspects and parts of the economic structure and institutional set up that create, diffuse, and exploit innovations and in which learning takes place (Lundvall, 2010). The national innovation system approach suggests that research system’s ultimate goal is innovation (Godin, 2009).

This approach of emphasizing the systemic characteristics of innovation lead to the emerge of new concepts with focus on other levels of the economy than the nation state. Thus, in 1988 a group of Swedish scholars commenced parallel work on technological systems focusing on innovations in particular techno-economic areas that might not be located inside of the borders of nation or a region (Carlsson and Stankiewicz, 1991). In addition the literature on regional systems of innovation has grown rapidly since the middle of the nineties (e.g Cooke, 1996) as can be said from the innovation literature overall.

2.4.4 Service Innovation

The research on service innovation is another example of the innovation research’s expansion to include more and more specific research areas. Services are growing importance in today’s world as manufacturing declines, especially in many western economies. This has resulted in more research focused in service innovations. Innovation in services received little systematic attention until the 1980s when a number of studies were published mainly focusing on services and new possibilities emerging from IT. In the 1990s a number of research projects were launched, and services were taken more seriously in the innovation and R&D studies. Miles (2004) argues that besides their economic importance, innovation in services affects sectors beyond the actual service sector and additionally some services play pivotal roles in innovation processes throughout the economy as agents of transfer, innovation support, and sources of innovation for other sectors.

One example of this is the growing research of knowledge intensive business services (KIBS). KIBS hold and increasingly important role in today’s knowledge-based economies (Miles, 1993). Leiponen (2001) found in her study that the KIBS firms can be highly innovative. Innovative service firms invest in standardizing services and underlying procedures. Service innovation is thus associated with organizational learning and knowledge (ibid).
According to Miles (2005) the KIBS sector consists of firms who have emerged to help other organizations to deal with changing technologies and social conditions for which external sources of knowledge are required. The growth also reflects organizational strategies and management thinking such as “outsourcing” and a focus on core competences.

2.5 From 2000- user-led innovation

The innovation literature has truly expanded in the last decades to cover many specific fields and topics, creating different theories for the types of innovation (product versus service), to different approaches of innovation (incremental versus radical) and organization types (public versus private) to mention few. Due to this variety the researcher was forced to focus solely on the theories that she, after the first introductory dive to the problem field, felt could be useful for the purpose of this dissertation.

2.5.1 Erik Von Hippel- Democratizing innovation

The role of communities has started to emerge in the innovation literature, as their role in innovation outside of the boundaries of the firm has been recognized. The dominant role of users in creating functionally novel innovations was established already 20 years ago by von Hippel (1988). This led to a publication of the book Democratizing Innovation in 2005, compiling fast growing cluster of publications about this idea, since during the advent of open software the role of communities and lead users in the innovation process deserved a new focus.

Von Hippel (2005) defines innovation communities as: “meaning nodes consisting of individuals or firms interconnected by information transfer links which may involve face-to-face, electronic or other communications” (p. 96). They can, but need not be membership groups and social communities with interpersonal ties and social identity. In innovation communities, participants reveal their innovation freely and others find the information revealed to be of interest (Von Hippel, 2005). The innovation community can be purely functional but may also fulfill the role of a social (virtual) community providing sociability, support, a sense of belonging and social identity (Van Oost et. al., 2008). Although Von Hippel defines innovation community broadly, he has mainly addressed and analyzed it as a locus or setting for exchanging innovative ideas and information among involved individual community members (Von Hippel, 2005).

According to Von Hippel (1986) lead users are users who first “face needs that will be general in a marketplace—but face them months or years before the bulk of that marketplace encounters them,” and
second, they are positioned “to benefit significantly by obtaining a solution to those needs” (p. 796). Lead users can invent, design, and build their own solutions for their specific needs (Ibid.). Since lead users are aware of future market needs, they potentially serve as an excellent “need-forecasting laboratory for marketing research” (Von Hippel, 1986, p. 791).

2.5.2 Christensen- Disruptive Innovation
Clayton M. Christensen’s (1997) original theory focused on disruptive technologies and technological innovations. He explored how new technologies come to surpass seemingly superior technologies in a market. Over time, Christensen widened the application of the term to include not only technologies, but also products and business models (Markides, 2006). As an indication of this diversification, various diverse innovations are listed by Christensen as disruptive innovations varying from online businesses such as online bookselling to cheap mass-market products such as power tools and motorcycles (Christensen and Raynor, 2003).

Christensen’s (2007) described the power of disruptive technologies by that even though disruptive technologies initially underperform established ones in serving the mainstream market, over time they eventually displace the established technologies. He argues that entrant firms supporting the disruptive technology displace incumbent firms that supported the prior technology. This happens while initially the disruptive technology does not satisfy the need of the customer, yet over time the technology matures and brings the performance of the disruptive technology to the point where it can satisfy the requirements of the mainstream markets (Christensen, 2007). Incumbent firms may have hard time catching up the lead and therefore disruptive technologies tend to be associated with the replacement of incumbents by entrants (Ibid.). Markides (2006) argues that different models for a disruptive technological innovation, disruptive business-model innovation and for disruptive product innovation are needed.

2.5.3 Chesbrough- Open-innovation
Traditionally from the 1950 onwards the firms relied on internal R&D to create new products. Henry Chesbrough (2003) labelled this as the closed innovation model. He argued that while the R&D based model of innovation had worked quite well in the past, the innovation landscape had changed due to factors such as labor mobility, abundant venture capital and widely dispersed knowledge across different companies and organizations (Chesbrough, 2003).

Chesbrough (2006) defined open innovation as “the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation respectively. Open
innovation is a paradigm that assumes that companies can and should use external ideas as well as internal ideas, and internal and external paths to market, as they look to advance their technology” (p. 1).

Figure 6: Open innovation model

A starting point for the idea of openness is that a single organization is not able to innovate in isolation. It has to engage with different types of partners to acquire ideas and resources from the external environment to stay abreast of competition (Chesbrough, 2003). Chesbrough (2003) contends that: “Not all the smart people work for us. We need to work with smart people inside and outside our company” (p. xxvi). These people are now inherently more accessible, and others will use them if you do not and this includes also the customers. Hence, companies should find ways and methods to acquire this external knowledge (Chesbrough, 2003).

2.5.4 Co-Creation of innovation

The concept of co-creation has been capturing a great deal of attention in the academics in the last year, including increased attention in the co-creation of innovation. Prahalad and Ramaswamy (2004) explain that most customers no longer are satisfied with the interaction between firms and customers. Co-creation refers to collaboration with customers for the purposes of innovation, with the notion that the end value will be enhanced because the customer can tailor the product as he or she desires (Lusch et al., 2007). Co-creation may be compared with the notion of customization (Prahalad and Ramaswamy, 2004b). According to them, the difference between “co-creation” and “customization” lies in the degree of involvement of the customer; in co-creation the customer should play more active role than in customization. In customization, the customer’s role is usually restricted to the end of the innovation phase and in for example making suggestions for incremental changes to an almost complete product or service. In contrast, co-creation refers to the
involvement of the customer as an active collaborator right from the beginning of the innovation process (Kristensson et al., 2007). Prahalad and Ramaswamy, (2004a) highlight that firms should create an environment where customers can have active dialogue and co-construct personalized experiences. The environment should facilitate active dialogue, joint problem definition and problem solving, and individual personalized experiences.

### 2.6 Innovation models in the literature

This table presents the researcher’s own view about the most important innovation theories throughout the time. Since the 1990’s explosion” of different innovation theories, only some examples of the theories and concepts have been chosen that the researcher has seen a contributing theories for this research. The theories are divided into generations that have taken inspiration from the innovation generations in the literature (see appendix 2). The influential authors are named, as well as the most prominent models and theories. For the purpose of this dissertation the innovation drivers are also linked to the theories.

**Table 1: Innovation models and theories**

<table>
<thead>
<tr>
<th>Generations</th>
<th>Influential authors</th>
<th>Models and theories</th>
<th>Who or what drives innovation</th>
<th>Essence of the idea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-1950s</td>
<td>Karl Marx</td>
<td>Technological innovation for economic growth</td>
<td>Capitalist investing in technology and machines</td>
<td>Technology replacing labor</td>
</tr>
<tr>
<td></td>
<td>William Ogburn &amp; S. Colum Gilfillan</td>
<td>Social change trough innovation</td>
<td>Contracting heroic entrepreneur; innovation by many actors</td>
<td>Invention evidence of social change/ exponential growth in inventions</td>
</tr>
<tr>
<td>Pre-innovation models</td>
<td>Joseph Schumpeter</td>
<td>Creative destruction Temporary monopolies</td>
<td>Mark I: entrepreneur Mark II: collaboration of entrepreneurs</td>
<td>Creative destruction essential part of capitalism</td>
</tr>
<tr>
<td>Theories about technological change</td>
<td>Maclaurin</td>
<td>Linear Model of innovation</td>
<td>pure science</td>
<td>Linearity. Innovation occurs when invention is commercialized</td>
</tr>
<tr>
<td></td>
<td>Solow</td>
<td>Black box innovation model</td>
<td>Inputs to science</td>
<td>Only inputs and outputs count, not the innovation process itself</td>
</tr>
</tbody>
</table>
### 1950-1970s

**Linear models:**

**Technology-push and demand-pull**

- **Schmookler**
  - Demand-pull
  - Demand drives innovation
  - Human needs precede technological solutions

- **Schumpeter, Bruland & Mowery, Freeman**
  - R&D management
  - R&D
  - Effective management of separated R&D departments

- **Myers & Marquis**
  - An empirical study of innovation process
  - Concluded in recognition of both technical feasibility and demand
  - Innovation not a single action but a total process of interrelated sub processes

- **M. Rogers**
  - Diffusion of innovations
  - Not specified
  - Innovations diffused in a social system

**1970-1980s**

**Coupling/interactive models**

- **Mowery & Rosenberg**
  - Denying Innovation as a linear process
  - Market needs and technological capabilities
  - Market needs and technological capabilities

- **Rothwell**
  - Coupling model
  - Both technology and demand
  - Combining concepts from past research

- **Albernathy & Utterback**
  - Innovation life cycle theory
  - Product innovation drives process innovation
  - Early phase product innovation, followed later by process innovation

**1990-1990s**

**Network models**

- **Freeman & Lundvall**
  - (National) innovation systems
  - Globalization, alliance or network of actors
  - Institutions have fundamental influence

**1990-1990s**

**Service innovation**

- **Miles**
  - Service Innovation & Knowledge intensive business services (KIBS)
  - Importance of services
  - Services play pivotal roles economically as well as in innovation processes

**1990-1990s**

**User-led innovation**

- **Erik von Hippel**
  - User-centric innovation
  - Lead-users
  - Bringing users to the innovation process

- **Christensen**
  - Disruptive innovation
  - Vision of the future
  - Understanding user experience important, often entrant firms

- **Chesbrough**
  - Open innovation
  - Openness
  - Usage of ideas from outside the company

- **First popularized by Prahalad and Ramaswamy**
  - Co-creation
  - Deep collaboration
  - Partners and customers as active collaborators

Source: own illustration
3. Methodology

This part will guide the reader through the researcher’s choice of methods used in this dissertation. Firstly the nature of this research is explained. Following is the discussion of the reflections and choices made regarding the philosophy of science including epistemological and ontological stance. Subsequently, the research strategy is described deriving from the choice of methodology.

There are many definitions about what constitutes methodology. This dissertation chooses to use the definition from Birks & Mills (2011, p. 4) stating that methodology is a set of principles and ideas that inform the design of a research study. Corbin and Strauss (2008, p.5) argue that our choice of methodology is considerably influenced by our worldview by the beliefs and attitudes about the world we live in.

3.1 Nature of the research

The research process started with an inquiry about the innovation models and theories presented in the literature. After reaching an understanding about the past models and literature, the researcher started wondering about what could be the next step in the innovation models and whether innovation occurring in the IT-Industry in India truly is represented in the models.

To narrow the research area a context of Indian IT-sector and a case study approach was chosen. Furthermore due to the nature of the research question and the case study approach, a qualitative research approach was the natural choice.

As discussed before, already in the beginning of the project grounded theory became choice for a research method. In the grounded theory method the researcher does not begin a project with a preconceived theory in mind; rather the researcher begins with an area of study and allows the theory to emerge from the data (Corbin and Strauss, 2008). Therefore especially in the beginning phases of this study the researcher is using an inductive approach, meaning that she is moving from specific observations to broader generalizations and theories (Saunders et al., 2009). This is a suitable approach for a grounded theory study since in this method concepts and design must be allowed to emerge from the data and thus grounded theory will have the potential to produce theories that are derived directly from real life settings (Strauss and Corbin, 1998). In the later phases of the research when categories start emerging and the researcher is able to compare and group
concepts finally resulting in a framework, the researcher used both inductive as well as deductive approach. The deductive approach is aimed at testing a theory (Saunders et al., 2009) and therefore well suited especially for the later phases of a grounded theory research. Strauss & Corbin (1998) acknowledge the mixing of both approaches by stating that grounded theory is indeed an interplay between induction and deduction (p. 137).

3.2 Qualitative research

For the purpose of narrowing the research area, a case study approach in the context of the Indian IT-sector was chosen. Due to the nature of the exploratory research question and the case study approach, qualitative research approach is the natural choice enabling researcher to draw conclusions from rich, in depth data.

Strauss and Corbin (2008) define qualitative research in a rather straightforward manner, defining it as that type of research that produces findings not derived from statistical procedures or other means of quantification, thus highlighting the nature of qualitative research opposed to quantitative research. Sandelowski (2004) offers more precise definition of qualitative research, stating that it is a term for an array of attitudes towards research and strategies for conducting inquiry aimed at discovering how human beings understand, experience, interpret, and produce the social world. According to Strauss and Corbin (2008) there are three major components in qualitative research. First there is the data, which can come from various sources, in this case deriving from the interviews. Second, there are procedures that researchers can use to interpret and organize the data including conceptualizing and reducing data, and elaborating categories. For the third component there are the written or verbal reports, which in this case refers to this dissertation.

3.3 Philosophy of science

The research philosophy adopted by the researchers contains important assumptions about the way in which the researcher views the world (Saunders et al., 108). Scientific research is based on a philosophical assumption of how the researcher perceives the world and how knowledge about this world can be obtained. Corbin and Strauss (2008) argue, that grounded theory can be used with various philosophical and disciplinary positions. In the following chapters the choice of the philosophy of science used in this dissertation is explained.
3.1.1 Ontology and epistemology
Ontology is concerned with nature of reality. This raises questions of the assumptions researchers have about
the way the world operates and the commitment held to particular views (Saunders et al., 2009). Guba and
Lincoln (1994, p.8) define the ontological question as: “what is the form and nature of reality and, therefore,
what is there that can be known about it?”. For Saunders et al. (2009) the two aspects of ontology are
objectivism and subjectivism. Objectivism represents the position that social entities exist in reality external to
social actors concerned with their existence. For subjectivist the social phenomena are created form the
perceptions and consequent actions of social actors. For the epistemology Guba and Lincoln (1994, p.8) define
the question as: “What is the nature of the relationship between the knower or would-be knower and what can
be known”.

3.1.2 Pragmatism
A distinctive feature of grounded theory is that it emphasizes the generation of the theory. Yet there are
different versions of grounded theory, and this research guided by the version from Strauss and Corbin. Strauss
and Corbin’s grounded theory can be described as a “pragmatic” approach with a more structured attitude to
theory building. It prescribes the use of a set of analytical tools and guiding principles (1998).

The guiding philosophy in this research is the research philosophy of pragmatism describing how knowledge
about this world can be obtained. Pragmatism defines reality as being made by and experienced through
human activity (Strubing, 2007). As Strubing (2007) argue, pragmatist have developed a procession perspective
on theory, and this perspective can be easily rediscovered in Strauss’s methodology. Strauss and Corbin (1994)
themselves argue that they follow close the American pragmatist position. According to them a theory is not
the formulation of some discovered aspect of preexisting reality “out there”. Their position is that truth is
enacted, theories are interpretations made from given perspectives adopted or researched by researchers.

The roots of pragmatism rely in the American philosophical school of thought which emerged in the late 19th
century. Charles Sanders Peirce (1839-1914,) William James (1842–1910) and John Dewey (1859–1952) were
the founding fathers of pragmatism, each having their own views of the philosophy (Bechara and van der Ven,
2007). It has been said that ““there are as many pragmatisms as there are pragmatists” (Meyer, 1908, p.326).

Pragmatism includes philosophers taking either objective or subjective views of ontology. Realism adopts an
objective ontology (Bechara and Van der Ven, 2007) and this research adopts a view point of realist
pragmatism. Thus following realism, this research is guided by objective ontology that assumes that social and
natural reality has an independent existence prior to human cognition (Johnson and Duberley, 2000). Thus there is a reality out there independent of cognition (Bechara and Van der Ven 2007). One of the most fundamental arguments of pragmatist epistemology is “for rationalism reality is readymade and complete from all eternity, while for pragmatism it still in the making” (James, 1948, p.115), thus reality is continually in the making on the part of active beings. Bechara and Van der Ven (2007) argue that all pragmatist adopt subjective epistemology that emphasizes the relation between knowledge and action. Knowledge is “truthful” to the extent that it is successful in guiding action thus reality becomes such only insofar and as long it is a part of the environment within which actors act.

Peirce introduced abduction a creative mode of discovery instead of relying in induction (Bechara and Van der Velt, 2007). Abduction according to Peirce relies on the notion that induction as an inference from a sample to a whole, while abduction is an inference from a body of a data to an explaining hypothesis. Consequently Induction is the method of testing hypothesis and abduction includes the method of discovering them (Burks, 1946). Peirce proposed a method of scientific discovery through systematic observation and creative inference (Bechara and van der Velt, 2007). Creativity is also a vital component of the grounded theory method manifesting itself in the ability of the researcher to aptly name categories and let the mind wander and make free associations that are necessary for generating stimulating question and for coming up with a comparison that leads to discovery (Strauss and Corbin, 1990). As discussed earlier, pragmatism defining reality as being made by and experiences through human activity and the notion of creative inference fits this research, since it is done by interviewing social actors acting in a “real world”. Pragmatism is oriented toward solving practical problems in the “real world” (Feilzer, 2010) and thus well suitable for this research.
4. Research Design

4.1 Technical literature

The researcher started the research by dedicating significant amount of time towards researching the in the innovation concepts and models from the 19th century onwards. This was necessary since the researcher seek to obtain deep understanding about the innovation concepts, to be able to witness how the whole concept of innovation has been understood throughout the past. Albeit that in grounded theory the data steers the research, Strauss & Corbin (1998) recognize the importance of literature as an tool to enhance sensitivity, owing to the notion that knowledge of the field make analyst sensitive as to what look for in data and that the literature can be used as a stepping point to formulate questions during the initial interviews. Additionally, Yin (2003) argues that in general to overcome the barriers to theory development one should try to prepare the case study by reviewing the literature form the area of study. During this process, the researcher did not pay particular attention to one specific model or theory risking of being too familiar with the literature. This could result in a situation, where the researcher to see the particular concepts in data due to the familiarity of that concept from the literature, and therefore altering the results (Strauss & Corbin 1998). Thus before starting the data collection the researcher had a deep understanding of the concept of the innovation yet with no pre - determined theory or problem statement following Holton (2007), who argue that grounded theory requires the researcher to enter the research field with no preconceived problem statement, interview protocols or extensive review of literature. Instead, the researcher remains open to exploring a substantive area and allowing the concerns of those actively engaged therein to guide the emergence of a core issue.

4.2 Case Study

One definition of a case study comes from Yin (2003) arguing that a case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context when boundaries between the phenomenon and context are not clearly evident and in which multiple sources of evidence are used. To understand what is happening in the context of innovation in Indian IT-industry a case study approach was a natural choice since the case study is well suited to use in an instrumental way to investigate a broader phenomenon (Stake, 1995). Case study research gave the researcher a possibility to study the phenomena in
depth and acquire rich data using the case as the object of research. As Easton (2010) argues, the chosen research philosophy, pragmatism can provide a powerful justification for the use of case studies since they offer a possibility of studying a problem defined situation in great detail. According to Yin (2003) case study’s unique element is its ability to deal with a full variety of evidence - documents, artifacts, interviews and observations. The distinctive need for case studies arises from the desire to understand complex social phenomena (Yin, 2003) and thus the researcher sees a case study as a valid tool to understand the phenomena of innovation in this industry.

Following Yin (2003) there are three types of case studies: exploratory, descriptive and explanatory. The purpose of this research is to explore the dynamics of innovation found in the Indian IT-industry. Thus an exploratory case study is used, since the purpose of an explanatory case study is to explore those situations in which the intervention being evaluated has no clear, single set of outcomes (Yin, 2003). An embedded single case study of IT-Industry in India was chosen, which includes the study of embedded units of analysis and the dimension of context (Yin, 2003).

*Figure 7: Case study*

Source: Own illustration based on Yin (2003).
4.3 Choosing the location

With a third of India’s software technology park units, the Karnataka state is the country’s largest software technology hub and India’s largest software exporter (Karnataka, 2014).

Figure 8: Map of India and Bangalore

Bangalore was a natural choice for a research location, since many of the world’s leading global IT-companies have their R&D centers in Bangalore, according to the government of Karnataka (2014) 9 of top 10 leading IT companies on Forbes Global 2000 list have based headquarters of their India operations in Bangalore. This has resulted in a situation, in which today nearly 40% of the country’s IT industry is concentrated in Bangalore, and the city has highest number of R&D centers in India (Karnataka, 2014). The chapter number seven will introduce the whole IT-industry context and its importance to India more in detail.

4.4 Choosing the case study participants

Deciding to do a field study in a foreign culture means that additional challenges arise. Buchanan et al. (1988) describe these challenges with a neat quotation “Fieldwork is permeated with the conflict between what is theoretically desirable on the one hand and what is practically possible on the other”. This means that even though the researcher aims to ensure representativeness in the sample, uniformity of interview procedures and adequate data collection across the range of topics to be explored, in the reality limiting aspects to the research may occur. This can occur in the form of for example the members of organizations blocking access to information, constraining time allowed for interviews, go on holiday, and join other organizations in the middle
of your unfinished study (Buchanan et al 1988). Saunders et al. (2009) “in the conflict between the desirable and the possible, the possible always wins” (p.171).

In relation to doing a field study, the difficulty of obtaining access in relation to more intrusive methods and approaches has been recognized many times in the literature (e.g. Buchanan et al., 1988; Easterby-Smith et al. 2008). Operating in a role of an external researcher can also pose problems since gaining a physical access might be a major issue to overcome, since the researcher may have no prior contacts (Saunders et al., 2007). The researcher was fortunate to reach to the possible participants through a gatekeeper. A gatekeeper is defined by King and Horrocks (2010) as an authority to facilitate access to potential participants. The benefits of using a gatekeeper is wide-ranging, the first one is credibility offered through an experienced professional (Easterby-Smith, et al., 2008). Other benefits include facilitating the contact with participants and reassuring the credibility and trustworthiness of the researcher (King & Horrocks, 2010). In this case the interviews were set up by a local third party, a gatekeeper. This enabled the usage of the gatekeeper’s local connections and networks that the researcher herself alone would not have had. Morse (2010) argues, that for grounded theory an excellent research participant is one who has been through, or observed, or experienced the issue under investigation, and thus using an experienced local gatekeeper enabled the researcher to identify and access excellent participants, which would not have been possible without this connection.

4.5 Company introductions

The researcher aimed to interview and meet in the short time spent in Bangalore, a most representable group of companies as possible. The companies and person interviewed can be divided into two sections. First are small companies with one sole, interviews, encompassing a widely recognized consultancy in this industry and a think-thank. These interviews enabled the researcher to collect rich data about the wider context of the industry in which innovativeness is aimed to be accelerated. This data was complemented with and interview with a representative from a large IT-giant with decades of experience in the industry.

To gain deep understanding of the companies in this context, the data sample includes multinational outsourcing companies established both outside of India as well as Indian born multinationals. All of the companies interviewed have focused substantial part of their research and/or development efforts in India and thus interesting target of research. Due to the confidentiality issues the companies are presented by Hindi numbers from one to seven (Ēk to Sa).
Table 2: Names and profiles of the companies interviewed

<table>
<thead>
<tr>
<th>Comp.</th>
<th>Established</th>
<th>No. of employees (approx.)</th>
<th>Profile</th>
<th>Interviewed persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ėk</td>
<td>1979, USA</td>
<td>60,000</td>
<td>Company Ėk enables businesses and service providers to transform their operations and deliver information technology as a service. Fundamental to this transformation is cloud computing in the form of helping IT departments to store, manage, protect and analyze their most valuable asset, information. Company is presented in approx. 86 countries and in India it is presented with approx. 3500 employees in 2013. Bangalore host one of the company’s biggest foreign center of excellences.</td>
<td>Ėk1-Chief Technology officer Ėk2-Senior director Ėk3-Director Ėk4-Principal Technologist</td>
</tr>
<tr>
<td>Do</td>
<td>1968 USA</td>
<td>82,500</td>
<td>Company Do designs and manufactures integrated digital technology platforms that consists of a microprocessor and chipset, and may be enhanced by additional hardware, software, and services. Intel sells these platforms primarily to original equipment and design manufacturers and industrial and communications equipment manufacturers in the computing and communications industries. Company has approx. 4200 employees in India with plans to expand the Bangalore R&amp;D center.</td>
<td>Do1-Director Do2-Senior manager Do3-Technologist</td>
</tr>
<tr>
<td>Teen</td>
<td>1981 India</td>
<td>160,000</td>
<td>This company works in the fields of consulting, technology and outsourcing solutions with a global focus helping clients in more than 30 countries to manage their businesses. Company Teen is headquartered in Bangalore and large part of the workforce is approx. 144,00 is from India.</td>
<td>Teen1-SVP Teen2-Senior Research associate Teen3-Head of strategy planning</td>
</tr>
<tr>
<td>Chaār</td>
<td>1999 India</td>
<td>12,800</td>
<td>Company Chaār delivers technology services and accelerates growth for its customers by solving business challenges with breakthrough technical innovations. Company specializes in e-commerce, mobility, cloud enablement, digital transformation, business intelligence, data analytics, testing, infrastructure, EAI and ERP solutions. This company is headquartered both in Bangalore and in the USA, and has presence in 13 countries.</td>
<td>Chaār1- Chaār2-</td>
</tr>
<tr>
<td>Pānch</td>
<td>2002 India</td>
<td>90 (in 2011)</td>
<td>Company Pānch is a Globalization and Market Expansion Advisory firm, with specialization in areas like global sourcing, emerging markets expansion, human capital optimization, small &amp; medium businesses, innovation, cloud computing and enterprise mobility. The company provides advice to global</td>
<td>Pānch-CEO</td>
</tr>
</tbody>
</table>
leaders in business and technology and works collectively with them to tackle prevailing organizational challenges with offices in four different countries.

<table>
<thead>
<tr>
<th>Company</th>
<th>Year</th>
<th>Location</th>
<th>Details</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cha</td>
<td>1945</td>
<td>India</td>
<td>146,00</td>
<td>Company Cha is a global information technology, consulting and outsourcing company. The company has over 55 emerging technologies centers of excellence to enable them to harness the latest technology. The company is present in over 175 cities globally.</td>
</tr>
<tr>
<td>Sa</td>
<td>2013</td>
<td>India</td>
<td>- not specified</td>
<td>The association Sa is a policy think tank to share expertise and further develop a powerful software product industry in the country. This association plans to share its expertise and collective experiences with members, and create a larger awareness in the society and government about the critical role of the software industry.</td>
</tr>
</tbody>
</table>

Source: Own illustration based on company websites
5. Research process

5.1 Context for the data collection

5.1.1 Sampling
This dissertation is written by using an abbreviated version of grounded theory. In this version of grounded theory the researcher works with the original data only and does not have the opportunity to leave the confines of the original data set to broaden and redefine the analyses with further theoretical sampling in the form of further interviews (Willig, 2008). Thus in this version the researchers and analyses the interview transcripts without further sampling and theoretical sensitivity and saturation will be implemented within the texts analyzed.

First the researcher used convenience sampling to locate persons that have gone through or have observed the process, in other words who might be experts in this area. Convenience sampling is well suited for identifying the scope, major components and trajectory of the overall process (Morse, 2010). The convenience sampling was facilitated by a local gatekeeper as described in the data collection chapter. After the first interviews, the interviewees referenced to other knowledgeable people and companies and thus the researcher was able to recognize further meaningful data collection targets. This method is called snowball sampling, that is well suitable for exploratory purposes and is primarily used for qualitative studies (Biernacki and Waldorf, 1981; Morse, 2010).

The next stage of sampling can be described as purposeful sampling, in this method the researcher seeks participants that are going through or are currently in particular stage of researched phenomenon as this enables a rich description of different stages in the same time as they are experienced (Morse, 2010). This type of sampling occurred later in the data collection process when the researcher had obtained her first experiences in interviewing and had on overview of the situation in the researched field in Bangalore.

5.1.2 Interviews
As the research started with an exploratory purpose, for the first interviews unstructured interviews approach was chosen. Unstructured interviews are informal and enable the researcher to explore in depth a general area in which she or he is interested (Saunders et al., 2009). There is no predetermined list of questions although the researcher needs to keep in mind the aspects she or he is wanting to explore. In the interviews following Saunders et al. (2009) the interviewees were given the opportunity to talk freely about events, behavior and
beliefs in relation to the topic area. This has been labelled as an informant interview since it is the interviewee’s perceptions that guide the conduct of the interview (Saunders et al., 2009). Aligned with the unstructured interview approach the strategy for the researcher was to let the interviewees to tell about their innovation story and about the current situation with the innovation process in the company and the discussion proceeded naturally afterwards. After the first interviews the researcher acquired a better picture of the interesting topics in the field and the interview approach became slightly more semi-structured in nature. Therefore the researcher started each interview with an unstructured discussion and proceeded with more detailed questions. The nature of semi-structured interviews of having considerations to the given context and letting questions emerge when conducting the interview is well suited for Grounded Theory (Corbin and Strauss, 1998).

For this research seven companies and 14 individuals were interviewed. Ten of the fourteen interviews were conducted on a one-to-one basis between the researcher and the participant. Two of the fourteen interviews were conducted between the researcher and two participants due to the lack of time from the participant side. For each interview one hour was scheduled, yet due time restraints from the participant side, the interview times varied from 30 minutes to 96 minutes. Interviews were recorded by two devices resulting in good quality sound files to ensure smooth transcriptions phase later for the researcher to acquire written records of the discussions for the coding. Before the interviews, the researcher investigated Corbin and Strauss (1998) suggestions about different type of questions including: sensitizing questions, theoretical questions, practical and structural questions and lastly guiding questions. In addition to the interviews, the researcher was invited to a one day knowledge summit in Bangalore to deepen the knowledge about the theme of using knowledge management to create a product revolution in India. In the summit the researcher had the opportunity to talk with a wide range of industry experts and observe which kind of topics surfaced in relation to the innovation efforts.

5.2 Data collection limitations

5.2.1 Sampling limitations
Due to the foreign location and lack of contacts, the researcher relied on the gatekeeper in getting the interview opportunities. Data collection in the chosen method, grounded theory, would in ideal case progress to theoretical sampling after the categories start to emerge. The researcher spent 16 days in Bangalore, which
excluding the weekends and travelling days, counts to 10 days of actual interviewing time. Also the notorious traffic and day-to-day challenges of conducting a research in a foreign setting limited the time spent with research. Due to these constraints this researcher is conducted using an abbreviated version of grounded theory and in this version the researcher works with the original data only and analyses the interview transcripts without further sampling. Theoretical sensitivity and saturation will be implemented within the texts analyzed.

In an ideal case with grounded theory research the researcher would first sample data from one source, code it and write a memo from it. Due to the time limitation and the challenges with the foreign setting the researcher did not always have the possibility to do this. However, the researcher acknowledged this and listened the recordings of the previous interviews before travelling to the proceeding interview. The memos (see an example in appendix 3) were then written during and after the interviews.

5.2.2 Interview limitation
Ideally, it would have been beneficial to conduct a first round of contextual interviews with expert actors to then refine and limit the topics for interviewing the companies in the sector with a better understanding of the context beforehand. Due to the time and schedule constraints this was not possible. In addition, the companies were not permitted to share their PowerPoints which in some cases brings difficulties in analyzing the transcripts and in some cases the researcher must rely more on the field notes written during the interviews.
6. Building theory

Once the interviews were transcribed, the analysis phase of the research began. To be able to cope with large amounts of data deriving from the interviews, the researcher chose a widely used qualitative data analysis software Atlas.ti for a tool to assist in the analyzing of the collected data. ATLAS.ti enables the researcher to organize the important codes and quotations, facilitates comparison between different interviews and assists in ensuring a throughout and clear data analysis.

In the following chapters the method is presented as a step by step process to facilitate the understanding of the method. Strauss and Corbin (2008) highlight, that the analysis of the data is not a structured, static, or a rigid process. Thus even though the process in this chapter is presented as a step-by-step and straightforward process, this analytic process was not continuous nor subsequent, and during the process the researcher needed to re-evaluate, repeat, and occasionally return to previous phases. The following picture illustrates the process of the content analysis, which will be described more in detail in the chapters to follow.

Figure 9: Continuous data analysis loop

Source: Own illustration.

6.1 Microanalysis

Doing microanalysis is an important step in a theory development, especially in the beginning of the project. Doing microanalysis compels the analyst to listen closely to what the interviewees are saying and how they are saying it (Strauss and Corbin 2008). Microanalysis is done by careful scrutiny of data, opening up text and discovering its meanings and variations for the researcher to be able to uncover new concepts and
relationships and to systemically develop categories (Ibid). By line-by-line coding the researcher asks a set of questions about the data: “what is this data a study of? What category does this incident indicate? What is actually happening in the data? What is the main concern being faced by the participants? What accounts for the continual resolving of this concern (Glaser, 1998). These questions sustain researcher’s theoretical sensitivity, transcends descriptive details and encourages to focus on patterns arising from the data (Holton, 2007). Analysis is the interplay between researchers and data. The researcher should maintain a certain degree of rigor carefully ground analysis on data yet also use creativity for extracting and innovative, integrated and realistic scheme from masses of data (Corbin and Strauss, 2008).

The research began by close, word by word, analysis of the interviews to discover new ideas. The researcher distanced herself from the concepts mentioned in the literature, due to the grounded theory’s aim to seek new possibilities in phenomena and classify them in ways that others might not have thought of before, or consequently find phenomena that are not systemically developed in terms of their properties and dimensions (Strauss and Corbin 2008). Opening the text was needed since it enables the researcher to expose the thoughts, ideas and meanings contained in the data (Strauss and Corbin 2008). After reading the interviews several times and following the continuous questions asking method as described by Glaser (1998) the following amount of ideas or “open codes” for conceptualizing emerged:

*Table 3: the total amount of open codes*

<table>
<thead>
<tr>
<th>Interviews</th>
<th>Codes</th>
<th>Interview</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teen1</td>
<td>150</td>
<td>Teen2</td>
<td>74</td>
</tr>
<tr>
<td>Ėk1</td>
<td>97</td>
<td>Ėk2</td>
<td>50</td>
</tr>
<tr>
<td>Do 1</td>
<td>59</td>
<td>Do 2</td>
<td>63</td>
</tr>
<tr>
<td>Cha</td>
<td>67</td>
<td>Teen3</td>
<td>55</td>
</tr>
<tr>
<td>Sa</td>
<td>28</td>
<td>Ėk3</td>
<td>46</td>
</tr>
<tr>
<td>Chaār</td>
<td>20</td>
<td>Ėk4</td>
<td>111</td>
</tr>
<tr>
<td>Pānch</td>
<td>94</td>
<td>TOTAL</td>
<td>912</td>
</tr>
</tbody>
</table>

Source: Own illustration
After the careful scrutiny of data the researcher started conceptualizing the data. According to Strauss and Corbin (2008) a concept is a labeled phenomenon, an abstract representation of an event, object or an interaction that is identified as being significant in the data (p. 103). When the researcher comes across with another concept that she or he finds sharing some common characteristics through comparative analysis, it is given the same name, and placed it in the same code. This was done by using questioning, such as what is going here, as suggested by Strauss and Corbin (2008) and by thinking about the properties of the idea. The categories were changed several times when researcher’s understanding of the topic and the method increased. In the following pictures the reader can witness an example of the evolution of the categories.

Figure 10: Example of the evolution of the categories

From first versions,

<table>
<thead>
<tr>
<th>Name</th>
<th>Grounded</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>people</td>
<td>14</td>
<td>Super</td>
</tr>
<tr>
<td>means</td>
<td>16</td>
<td>Super</td>
</tr>
<tr>
<td>idea</td>
<td>16</td>
<td>Super</td>
</tr>
<tr>
<td>challenges</td>
<td>21</td>
<td>Super</td>
</tr>
<tr>
<td>requirements</td>
<td>21</td>
<td>Super</td>
</tr>
<tr>
<td>culture</td>
<td>23</td>
<td>Super</td>
</tr>
</tbody>
</table>

To the later versions:

<table>
<thead>
<tr>
<th>Name</th>
<th>Grounded</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>ability to scale product globally</td>
<td>14</td>
<td>Super</td>
</tr>
<tr>
<td>Platforms as a mechanism to manage and get ideas</td>
<td>14</td>
<td>Super</td>
</tr>
<tr>
<td>hearing the voice of the customer for future possibilities</td>
<td>15</td>
<td>Super</td>
</tr>
<tr>
<td>jointly to augment capabilities, expose techies, expand thinking</td>
<td>16</td>
<td>Super</td>
</tr>
<tr>
<td>employees needing to look beyond</td>
<td>19</td>
<td>Super</td>
</tr>
<tr>
<td>challenges with co-operation</td>
<td>21</td>
<td>Super</td>
</tr>
</tbody>
</table>

Source: Own pictures from AtlasTI

After the first step of breaking the data into concrete parts and finding new ideas, thoughts and meanings the researcher assigned each of these codes into a category. In this step the ideas and events that were found to be similar in nature or related in meaning were grouped under more abstract categories (Strauss and Corbin 2008). The name might be placed because the imagery or meaning they evoke when examined comparatively and in context or the name might be taken from the respondents themselves (Strauss and Corbin 2008, p. 102).
6.3 Constant comparative analysis

According to Strauss and Corbin (2008) theoretical comparisons are tools for looking something somewhat objectively rather than naming or classifying without a thorough examination of the object at the property and dimensional level. Constant comparative analysis ensures that the researcher does not merely build up categories but also breaks them down again into smaller units of meaning. In this way, the full complexity and diversity of the data can be recognized, and any homogenizing impulse can be counteracted (Willig, 2008). The ultimate objective of constant comparative analysis is to link and integrate categories in such a way that all instances of variation are captured by the emerging theory (Strauss and Corbin, 2008). Constant comparative analysis was part of the analyzing process continuously from the beginning to the end. Eventually, the researcher chose to move away from the AtlasTi tool, for the comparative analysis. Once the researcher had establish the constantly fluctuating amount of categories, due to the new emerging of subcategories and novel categories, she was able to arrange these main categories with old fashioned post-its to keep the creativity of the process.

First time when starting categorizing, the researcher had 305 different categories, yet in time the amount was reduced to 24 categories. This can be seen as normal since the researchers are encouraged to find major categories by carefully comparing the initially found categories (which may later become subcategories) and by integrating them into a larger structure (Dey, 2007). The reduction of the categories was done through applying axial coding, where the researcher makes conceptual connections between a category and its subcategories. It must be noted, that this process took a substantial amount of time, due to the inexperience of the researcher.

The research eventually realized that the concepts can be first grouped under descriptive categories to retain the flexibility to later, once the relevant themes start to occurring move them more abstract and sophisticated higher order concepts, based on its ability to explain what is going on (Strauss and Corbin 2008). These higher order concepts are the ones building the final framework in this dissertation Categories are inherently theoretical, implicitly explanatory, and often metaphorical and exemplary, rather than rule bound (Dey, 2007). All the phases are continuous and not subsequent. In the beginning phase of the coding process the researcher did not use already established concepts (such as co-creation, open innovation) as categories, as borrowed concepts often bring with them commonly held meanings and associations. These meanings might bias our interpretations of data and prevent seeing what is new in the data (Strauss and Corbin 2008).
6.4 Selective coding

Following Corbin and Strauss (2008) version of grounded theory, selective coding is the process of integrating and refining the theory. If theory building is the goal of a research project then findings should be presented as a set of interrelated concepts, not just as listing of themes. Relational statements are constructed; researcher reduces data from many cases into concepts and sets of relational statements that can be used to explain what is going on (ibid.). In this case the researcher was able to let go of certain categories, realizing that they were not relevant to the phenomenon that was under research. First step into integration is deciding a central category (Corbin and Strauss, 2008). Techniques to aid integration are for example writing a storyline, moving from description to conceptualization, using diagrams and reviewing and sorting through memos (Ibid.). For this research deciding the central category proved to be difficult, since the data with the initial 917 codes had various ways possible to organize it. For deciding the central category, or in this case categories, the researcher used the storyline writing method, and was able through Atlast.Ti quantitatively judge the most grounded categories in the data. The criteria for establishing a core variable (category) within a grounded theory are that it is central, that it relates to as many other categories and their properties as possible (Corbin and Strauss, 2008).

After the rigorous coding process, the core categories started to emerge. The primary function of the core categories is to integrate the theory and render it dense and saturated and explain how the main concern is resolved (Holton, 2007). The challenges and possibilities of creating innovative culture inside the companies became evident in the data, especially in the context of rising global competition and industry level pressures arising from market saturation. In addition, the overall specific context of India and the industry overall effected the need for innovations. Subsequently, in the organizational level collaborative aspects were very much discussed as these appeared to emerge as a high level of strategic importance in the new innovation strategies in the companies. In some cases the drivers and enablers are overlapping and belonging to both categories. The researcher has decided on a simplifying effort to present the categories on the table below, since each of these categories will be discussed more in detail in the case section of this research and analyzed further in the chapters to follow.
Table 4: Core categories

<table>
<thead>
<tr>
<th>Innovation drivers and enablers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Drivers</strong></td>
</tr>
<tr>
<td>Competitive pressures</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Establishing Culture</td>
</tr>
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<td></td>
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<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Collaborative aspects</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Customer needs and problems</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Local context</td>
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<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Source: Own illustration

6.5 Limitations

In this method researcher must need to learn to listen, let the data speak and adopt more flexible, less preplanned and less controlled approach to research (Strauss & Corbin, 1998). Grounded theory was a new method for the researcher, and thus the different data analyzing steps often needed to be repeated. Especially in the situations and times when the researcher realized, that she was moving away from the method, for example in the form of controlling the categories and subcategories and not letting the data “speak” for itself.
Even though the researcher is able to see after a close scrutiny of the data which are the most grounded categories, the purpose of this research is not to produce empirical data to rank the most important drivers against the less important drivers and enablers.
7. Case Study

This chapter aims to give the reader a comprehensive understanding of the IT-industry in India and the innovation efforts in researched this context. After introducing the context of IT-industry in India, this chapter will give the reader a holistic overview of the innovation drivers that emerged after the data analysis and further introduce the selected, main enablers for the purpose of building an empirical framework. The empirical framework will be analyzed more in detail in the chapter to follow.

7.1 Industry context

This chapter intends to give a short introductory to the context of IT-industry in India in which the phenomena of innovation dynamics are being studied. The overall context will be introduced as well as the ways the companies are answering the challenges posed by the context. The purpose for this section is to provide a background for the subsequent analysis, which will go further into detail regarding the innovation drivers and enablers found in this context.

7.1.1 Relevance of the IT-Industry in India

India, as one of the oldest civilizations, offers an interesting and unique background for this case study. As a developing country with more than one billion inhabitants and a very young population structure, India has a substantial potential for future economic success. Significant challenges such as significant overpopulation, environmental degradation, extensive poverty, and widespread corruption remain to be solved. Yet many aspects, such as the economic growth following the launch of economic reforms in 1991 and a massive youthful population has emerged India as a regional and global power. India’s gross domestic product (GDP) in 2013 was estimated 4.99 trillion dollars with a real growth rate of 3.2 % (est), (CIA World Factbook). The GDP composition when measured by sector of origin was the following in 2013 (est.): agriculture 17,4 %, industry 25,8 % and services 56.9 % (CIA World Factbook).

IT-sector has a huge importance for India’s economy. According to the trade association of Indian information technology and business process outsourcing (BPO) named the National Association of Software and Services Companies (Nasscom) the IT sector has 8.1 percent relative industry share of the Indian GDP and it is the largest private sector employer in India (NasscomA). This sector is the highest net value add sector in addition
to having the largest share in total services exports with 38 percent and 14 percent share of country’s total exports (Ibid.). IT-industry, including business process management (BPM), continues to be a net employment generator adding 166,000 jobs in FY2014, thus providing direct employment to about 3 million people, in addition to indirect employing estimated 10 million people (NasscomB). In the fiscal year 2014, the IT-BPM sector reported revenues of USD 118 billion, divided among the following categories presented in the figure below,

*Figure 11: IT-BPM revenues 2014*

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software products &amp; ER&amp;D</th>
<th>BPM</th>
<th>IT services</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>23</td>
<td>18</td>
<td>13</td>
</tr>
</tbody>
</table>

Source: own illustration based on information from NASSCOM, the numbers in the chart present billion dollars (NasscomA).

### 7.1.2 Short history of IT in India

This is a short history of the software industry in India. This information is mostly obtained from the interviews held in Bangalore. The interviewees worked either in the leading companies in the IT-industry in managerial positions or in the leading related consultancies introduced in the section 4.5 in this dissertation. These interviewees had witnessed the changes within their own eyes, being part of the changing organizations through the turbulences of the history and further part of the decision making bodies defying the future of these leading companies.
7.1.2.1 First inflection point

Following chapter is based on the interview with the representative from think-thank titled as Sa in this dissertation, if not referenced otherwise. In the late 1970s India decided to throw large multinationals, such as Coca-Cola, and IBM dominating the computer market in India, outside of the country. This suddenly created a situation where a new player was needed to take care of the IT and software needs of the country. Some companies such as TCL saw this opportunity and started manufacturing computers in India. When the policies changed and multinationals were allowed to enter the market again, the local companies were in the crossroads. They needed to compete with the quality competitors, such as IBM returning to the country again. Around this time the first seeds of outsourcing of R&D were planted, due to the factors such as the Indian companies realizing that they had a big potential leveraging the low cost and sufficiently qualified pool of English speaking engineers. During these years the reputation of the industry grew resulting in growing trust towards the capabilities of local Indian engineers (Sa). This was enforced by the government’s active support of the IT service industry, such as deregulation of foreign investments, establishment of educational institutions, development of telecommunications infrastructures, and setting up of techno parks (Chun and Hyun, 2001).

7.1.2.2 Second inflection point

Hundreds of small companies came up in India to solve the Y2K problem in the last year of 1990’s. There was a mass of people that were enough skilled to fix that problem at the time. Yet this created a concern about what all these thousands of companies do would after this problem is fixed. This was a blessing in disguise, since India as a country of engineers got recognized (Sa). Many large companies headed by American companies launched their R&D, project, branch or similar offices in India, in addition to new Indian companies growing due to the high value contracts with companies willing to outsource their IT to a country with technically trained, English speaking professionals (Sa). One further factor was the availability of 24-hour communication with customers in the US, considering the 12-hour zonal time difference between India and the US. Another parallel element working in favor of Indian companies was the well-placed diaspora of Indians in US high-tech firms (Chun and Hyun, 2001). The offshoring model, where the MNCs serviced their clients from India, developed further to global delivery model, which is a combination of onsite and offshore model where the offshore development centers might be located over the globe leveraging the talent across the globe, became
a success story of its own kind (Teen1). These factors gave rise to the thriving IT-industry in India, which continues to grow and contribute to the Indian economy.

7.1.2.3 Third inflection point

What makes this context especially interesting is the context the companies are operating today. Over time, other MNCs started replicating the Indian outsourcing model and setting up captive bases in the country and therefore the cost advantage of Indian companies started slowly eroding. "We haven’t done much innovation. For 20 years, the IT industry has been working on the principle that it can provide cheap engineers who work at cheaper rates” (Teen 1). As the respondent form company Cha argues: “This IT outsourcing has in the last 5-10 years got commoditized and the only thing that started being different between different countries was prize”. For years the Indian companies grew by being able to prize their offerings attractively compared to their western competitors but this competitive advantage started eroding especially when other countries, such as Philippines and China, have entered the competition within same type of cost structure, “therefore the companies and the whole industry is looking into “how do I differentiate myself”? (Cha). These challenges today are topped with the crisis in the western market, that have also affected this industry by a trend of re-shoring, where some US corporations are increasingly shifting operations which were outsourced earlier, back to the US in addition to observing European markets implementing protectionist policies (Gobalan and Madjd-Sadjadi, 2012).

7.1.3 Answering the challenges

There are multiple trends that the researcher witnessed while interviewing in Bangalore that play a pivotal role in affecting the dynamics of innovation in this context. In addition to ensuring the competitiveness of current business models, the companies today need new business model innovations in the same way as global delivery model changed the industry. “.. but without business model innovation, you have very little chance of success in these markets” (Teen1). New ways need to be invented and implemented, where less people were needed to give the same output and the offered services will compete with better performance. “So the Indian industry is again in a inflection point, at we want to break ourselves away from this model of people into cost model, Ok, uh, because that is not scalable (Cha). Due to the pressures the companies need to widen their focus and move higher in the value chain. The companies interviewed mainly planned to accomplish this by focusing on new products, intellectual property, raising the consulting capabilities and further strengthening the existing business models and processes.
One of the important aspects in the last year has been, that companies realized that investing in intellectual property (IP) assets is an important factor in differentiating between the competitors. “Break the relationship between cost and revenue, how do you do that? You do that by developing intellectual property or intellectual assets. Because once you develop intellectual property, then you can monetize it multiple times” (Teen 1).

Breaking this relationship between cost and revenue is an important factor in the attempt for non-linear growth. In addition to focusing on the developing intellectual property, creating new products would be one way adding to the aim of non-linear growth, as one person describes: “That’s where we have to focus on products, and get into a new business model, which is not a function of effort but it is a function that you pay as you use” (Teen1). These products and business models in the companies evolve most importantly around the following areas: cloud and platform based offerings, software-as-a-service (Saas), IP-based solutions, and mobility.

Entrepreneurship and new start-ups will also affect this context and the competitive situation. “There were really no start ups in India 5-6 ago, very few” (Do 1). What makes this context special, is that “the dorm room start-ups in India are still very few” (Sa), most of the start-ups are still started by older employees from the industry seeking the next interesting career move. India itself as a market is growing, and the established companies and start-ups have noticed this and started creating software products for the local market. One interviewee describes it as a “revolution taking place, and you are getting companies in India, who are really transforming things on the back end” (Sa). One particular strategy of the start-ups and smaller companies is that they are able to offer their products and services with nano-prizes, and thus going after very large volume sell in the local markets.
Innovation is needed to answer the challenge the competitive landscape is creating. The companies are building and implementing new innovation strategies to be able to transform their business towards more competitive, profitable and thus successful future. Next chapter introduces the emerging measures the companies are taking towards driving innovation.

7.2 Emerging innovation dynamics in the industry

This chapter in this case study will present how the companies are driving and enabling innovation to answer the challenges described in the earlier chapter. The four main drivers and the enabling aspects presented in this case are based on the grounded categories that emerged from the grounded theory method data analysis. First category introduced in the previous chapter is the context. This following chapter goes in to deeper to the remaining categories: establishing culture, collaborative aspects, customer needs, and lastly the effects of locality.

7.2.1 Creating permissive culture and cultivating creativity

“A lot of our innovation efforts, at least going back a few years, was centered around establishing a certain culture, right, within the company. A culture of creativity, a culture of problem solving, a culture that makes people bolder to take chances” (Ek1).
From the interviews it became evident that organizational culture has an influence on the degree to which innovations are stimulated in the organization. The effects of organizational culture have been well discussed in the innovation and management literature in the past years (e.g. Martins and Terblanche, 2003). The aspect that makes this topic interesting in this context is that the companies have consciously given a new focus and level of strategic importance towards creating innovative culture leveraging the new technological advancements as their tools.

The priority of establishing the right kind of culture rises from the growing external pressures from globalization and new competitive situation as described in the previous chapter. Creating innovative culture by enhancing creativity, allowing risk taking and increasing efforts towards new solutions has a role to play in this change process for survival. According the interviewees, these companies desire to create company culture where creativity can flourish and a set of places where the employees feel comfortable bringing their ideas forward. The companies are trying to build this by actively establishing multiple approaches. This has resulted in incubating, establishing and nurturing different platforms, spaces and events to build this culture as the respondent from the company Teen (1) describes: “I think 4- years back, uh, we started what is called as innovation lab. The primary agenda of this lab, was to create a culture of innovation in “Teen1”, institutionalize mechanisms for innovation, which included putting in place an innovation process, putting in place an innovation platform that will run this process, conduct innovation events”.

Already earlier many of these companies had innovation processes that people practiced yet this process was not well structured or defined: “There’s always been innovative people in this company, and they continue to innovate. But there was no structured process around it, which could define, you know, this is how you go about, and if anybody wakes up next day morning, of this 150,000 people, that ok I have an idea, what do I do with it, right.”(Teen2). Ideas themselves are insufficient, more knowledge of the process of getting the ideas into successful innovative products is needed, thus innovation processes need to be defined and mechanisms of innovation institutionalized. In the companies interviewed many of these processes and mechanisms are built around community and platform type of measures to be able to manage, organize, and nourish the potential deriving from the large employee base.

7.2.1.1 Allowing risk taking and accepting failure

Building innovative culture is a complex issue that requires different approaches and tools, and is unique to different companies depending on many aspects such as their level of focus on this culture building, their
history, and the backing these efforts get from management. In this industry context some issues regarding culture building were seen highly important, and especially the importance of allowing risk taking and accepting failure was highlighted. From the society perspective, uncertainty avoidance has been high in the Indian culture and the sigma of failing has been seen as a hindering aspect to the innovativeness. Thus the company should play a role in encouraging risk taking as the respondent from Company Pānch describes: “So culture of the organization to allow risk taking. A lot of the other countries, risk taking is in the overall ecosystem... So the company doesn’t have to do anything different. Whereas in India, as a culture we are not very risk taking. So it’s a responsibility of the organization to reinforce that risk taking is important uh, for individuals”. This mentality seems to be slowly changing, at least in the bigger cities often referred as metros as Bangalore, Delhi or Mumbai.

“I think in my mind it’s a flexibility to allow you to fail; what really cultivates that kind of innovation culture and competency” (Do 2). The companies have understood that without risk taking innovation is much less likely to happen. Thus companies need to encourage risk taking and further tolerate failure. Accepting the risk and failure is important especially if the companies are going for breakthrough ideas. In the knowledge management seminar a lot of discussion occurred around the lack of breakthrough innovation in the software area in India. “We need both, the problem with breakthrough ideas is that they're highly risky right, in most of them you don’t know whether you’ll win or not” (Ek4).

One important aspect with creating the innovative culture and failing is the aspect of learning from your failures as in the case of respondent from Do (2), “I think what makes a difference is that I feel that once you've been through several round of failures, then you develop a keen eye to evaluate an idea”. Especially in this context of large established multinational companies, there appears to be the tendency to evaluate ideas by strict monetary terms overlooking the aspects of learning, and subsequently the tendency to lose patience and think short term. This can be in contradiction with the culture building where individual risk taking and experimenting is trying to be encouraged.

7.2.1.2 Create a mass of creative individuals

“So you need to build the innovative culture around you. Next is, I think the acceptance that you have to fail often and fail fast. And these both go back to people, not going to say people, but people is the most important part but, I think culture captures it pretty well” (Ek2).
Naturally for innovations to happen innovative and creative people full of ideas are needed. The competition for talent is rising in the industry and the companies are in lookout for talents, they believe will enforce the innovation in the company. According the respondents, these people should preferably be very entrepreneurial minded people with a lot of passion. Further they should be able to be comfortable with cancellations due to the low rate of ideas that actually will be taken all the way to a representable product or a service. People in these teams should have a lot of awareness in the things around them, in areas such as where the industry is moving, what are the new technologies trending and what are the customers saying.

"India as a country, missed out on, uh, people with niche skills" (Cha).

One challenge particular to the Indian context and IT-sector appears to be the grooming the talent of the large amount of engineering college graduates. When you want to move up in the value chain and for example get into the product business, volume of people is less important compared to sufficient amount of very sharp people with appropriate product related skill. Further grooming and retaining this talent in the tough competition of the skilled labor is seen as a challenge.

7.2.1.5. Mentors and volunteers as enablers

Creative and sharp people with solid ideas alone can be insufficient to drive innovations. In addition skills and aspects such as executive capacity, knowledge about the demand, and technological aspects need to be addressed. This is especially important in the context of creating a culture where employees are welcomed to present their input in various ways, and where the best ideas are taken further to be executed in the future. The companies have paid attention to this by assigning mentors or sponsors from the company to nurture and take further the new ideas, teams and products as in the company Ėk (1), “and the sponsorship model is so popular and it's grown significantly, and now there are 20, umm, last year i think there were 27 sponsors issuing challenges that speak to them, that are relevant for the business, right, that are on top of the mind for them, so that there's a good chance that if it's a good idea, the sponsors have something vested in taking that idea and dragging it forward”. Assigning mentors is seen as an important enabler assuring the significance of the idea for the company, helping to possibly add a business angle to a raw yet interesting idea and in moving the obvious issues around the idea.

7.2.1.6 Motivation for volunteers

“So those removing barriers, creating an ecosystem of people who are willing to help, I think that drives more innovation” (Ėk2).
As described earlier creating the right kind of culture for people with the right type of skills is essential, yet the companies further need to motivate people to take part in different innovation activities. Creating this type of culture that motivates people to help and take part in innovation activities provides a significant opportunity and a challenge for these companies as one interviewee explains: “First when I came here, I will have to motivate people to work, ‘This is, please do this job because it is very good for your resume, please do this job because hey, you’ll get a better offer’ (Do1). The companies are aiming to create a pool of voluntaries to become more innovative, like in the case of company Ēk (1): “So therefore I said, you know, you can’t force people to innovate. You need to have volunteers. And volunteers create more volunteers. Right, and therefore we wanted people to jointly innovate.”

The employees might feel that this is expected as an extra activity to conduct besides the normal demands of tasks at work, like the employee from the company Ēk (4) describes: “I think it’s highly subjective..it depends on the person, whether you want to go an extra mile or you want to just do your M.B.O., still it’s ok here because you complete your MBO, which is your business objective. But all this innovation is like going an extra mile of doing certain things right, so.. personally to me, you have the platform here, you have resources, I mean, so let's go do that. That's the only thing.. Apart from your day job, but perfectly we are measured with our business objectives, but in turn, innovation, I mean, at least you get to meet new people, you get exposed to new ideas, you can get to work on new stuff, so it depends. This one answer highlights different, personal, reasons to participate in the innovation activities. These motivational factors, as for example personal and career growth in addition to keeping up with the peers, were evident in the data.

Further the companies have created different measures to motivate people, both in monetary and in non-monetary terms. Monetary incentives include money prizes for ideas and other awards. Non-monetary terms include promises to incubate good ideas and recognition both inside and outside the company. These measures are especially important when conducting innovation events, competitions and activities alike.

7.2.1.6 Guiding the way by communicating

“I think what we have recognized is that when people start understanding the company’s vision, and appreciate the company’s vision, that’s a motivation for them to contribute. Right, which also means, as leaders we need to communicate the company’s vision on a regular basis, right” (Ēk2).

Companies need to be clear what is meant by innovation and clearly articulate where the company desires to head in the future. Most of the interviewees have already had long careers in the industry and gathered
experience about both successful and non-successful innovation driving measures. Effective communication is important, especially when coming from the management providing approval; “Ok, the more innovative you want to be; the more boundary-pushing you want the innovation to be, more higher the level of management the backing has to come from” (Do2). Without this management backing in the context of these MNCs it will be hard to resist the friction towards new ideas.

One clear tendency in these companies seem to be moving towards more and more towards guiding the innovation efforts to certain direction, in un-favor of “give me your best ideas” type of approach. This is done for ensuring that the innovation is relevant regarding the company’s strategy and vision and has potential to bring in future gains. The question of how much in reality should innovation driving efforts be guided remains open, especially if companies are seeking new breakthrough innovation type of ideas.

7.2.2 Sensitivity to the customer voice
“One thing is to enable better conversations. Can we figure out what the customer is actually looking for?” (Ék2).

Perhaps not surprisingly, the companies are eager to deeply understand the current and upcoming customer needs and problems. This is not irrelevant since, “So the goal is to look at the market, understand the market, see what the trends are, see what are the desires and needs of the people, and then work backwards, and say ok, what are the solutions that we put for these people” (Do1). As the answer indicates, having the connection to the customer enables the companies to come up with products and services that are relevant for the customers ahead of the competitors, and offer superior value to the customers. “Typically, if you have to predict something that’s going to happen 3 to 5 years down the line, very rarely will you get strong signals” (Teen3). Thus hearing weak signals is important and the companies are seeking into ways to go deeper into the minds of the customers and even beyond to get pass the obvious issues as described by the respondent from the company Ék (3), “they’re always willing to give their input, but they are more worried about their problems, and how you can right now help them solve their problems. So you have to kind of, look a little bit deeper into it and see what’s going on”. Thus bare listening is not enough, the companies need the skills to hear the emerging signals, and look deep beyond the obvious immediate concerns of the customers.

7.2.2.1 The art of hearing and translating the learnings
Companies deal with customers on daily basics yet the challenges in hearing the customer and interpreting the feedback are evident, as the representative from company Cha describes, “this is an art. It's not as if, I fill up a
check-list or a questionnaire or a Excel sheet, everything will come out. No, it involves some kind of an art in engaging the customer, some art in translating what you have learnt into, into the people who may be able to view things like that. So it’s not... It is not trivial; I would like to put it this way. And we’re learning the art, learning it right now”. As can be observed from this response, the act of hearing the customers does not end into hearing the signals, the companies are increasingly also focusing on the skills of transmitting this information further.

IT-sector is evidently very engineering talent based industry. The employees therefore usually have an appreciation of the technology and might be very good in selling the technically sophisticated offerings. Yet the same people might not be the most talented ones when it comes to interacting with the customer and thus more rounded personalities are needed as described by Cha, “They have appreciation of technology, ok, but they also have appreciation of economics, appreciation of finance, appreciation of that industry domain, appreciation of what else is happening in the geographical domain. So that’s the skill, and that’s the training that those kind of people we are putting in front of the customer, who can capture it effectively”. More rounded personalities with empathy to the customer, are sought after in these companies, in addition for offering training for the current engineers working close to the customers.

Companies are trying to find the mechanisms to capture the ideas since “having the process of collecting information and running that is going to be critical” (Pânc). Companies highlight the importance for attaining structured mechanisms to collect the information. The companies have different practices to organize the discussions with customers and process the feedback provided by these discussions. A significant part of the discussion still happens in the real - non-digital -space as in the following example. “So we went around and spoke with almost a 100 plus clients to understand, when they think about the future, what are some of the important things that they think about. Just to interact with them etc and to distil it back into our research” (Teen1). This can be seen more in the traditional approach towards market research. The usage of the new technologies is finding their way to these processes as for example in the case with weak signals, when the employees have a space in the form of intra communities to log and discuss about the emerging customer trends globally. In some cases the committed customers are taking part in these discussions online or visiting regularly the site for sessions in the research labs. This is evidence of the next generation customer connection by taking the customers into the innovation process by engaging with them, and creating the new offerings together in deeper ways than for example plain market research requires. This type of deeper connections will be described in the following chapter.
7.2.3. Deeper collaborations

“I don’t want people innovating in a vacuum, I don’t want people sitting in a room and just thinking about things, I want them to talk, right, and having a global thing” (Ek1).

Innovation is now a more integral part of the respondents’ corporate growth strategy and has become more embedded in functions beyond the R&D division, in functions such as marketing, sales and operations. Collaboration needs to be enabled on one hand between the large employee population working in multiple countries, as well as between actors from the outside such as different organizations, academia, non-governmental organizations and partnering companies.

7.2.3.1 Employee collaboration to stimulate creativity

“So before it was that, you are not R&D so you should not innovate, you are marketing, so you do marketing, you are not innovating. That’s not the funda anymore, right. The funda is everybody innovates, or everybody needs to innovate (Teen1).

What has changed in these companies is the mindset that everybody in the organization can and should innovate. These companies are bringing different units from the organization to the focus, for the purpose of harness the power of employee minds and help them in bringing forward their individual abilities to innovate. Ideas can come everywhere, and these MNCs have realized the value of enabling employees to collaborate and network across the boarders for better solutions and effective problem solving. Enabling the employees to feel connected to their peers in the company brings fresh idea across the different countries and segments. By enabling collaboration, the employees are able to combine their skills and support each other: “I’ll always have some skills which may send to more ideas so I’ll find a person who supports me, co-develop that idea, we call that cross-beam collaboration here” (Ek4). Further bringing the employees together collaborating can bring new ideas to the table, combine the ideas in ways unexpected or facilitate the creation of the business case for the new offerings, as this case in the company Cha demonstrates: “business leader saw the potential in the technology, not vice-versa. The technology people could not see... The technology team was struggling off the business use case that will be accepted by the customer”. In this case the business leader was able to see a different use, in a different customer segment, for the technology resulting in a successful new product. Without this collaboration the technology people might have ditched this version of this technology, since it did not fit the needs of customers for the one specific team. The companies have different activities such as
competitions, workshops and conferences in place to facilitate this kind of collaboration across units, in addition to tools such as platforms and communities introduced in a later chapter.

7.2.3.3 Deepening collaboration with outside actors

“...part of problem solving essentially means, appreciating who needs to bring what in the ecosystem to solve this as a problem; and this is what we are going to bring. So particularly for large companies, one of the important things is not just think about what you are going to do, but what is everybody else in the ecosystem going to do and how do you bring them together on one platform and make that entire thing work?” (Do2).

Companies are competing in fast changing global world where it is nearly impossible to pose all the competencies “in-house” to create and market new products and services, and thus partners are needed to augment the needed capabilities. Company’s innovation strategy needs to address the explicit choices, regarding whom to collaborate with, when and how, “we said, even that’s not sufficient, because even that has- today any new innovation that is going to happen or has to happen, is happening at the intersection of multiple disciplines and multiple players, right..... And the moment you go outside your ecosystem, and your own environment, and your own organization, and work with different outside organizations, then the way you need to innovate has to be different” (Teen1). Collaboration with actors from the outside requires a different approach, and these companies are in the learning process to learn the most effective and result bringing approaches. There are wider opportunities to bring chosen value-chain parties including internal partners, suppliers and customers into the innovation process. This type of collaborating might be more traditionally through partnering or going deeper in the emerging form of co-creation as described in the next section.

7.2.3.4 Moving towards co-creation

“The win-win thing is that the partners, we bring in the partners, we co-create. And the co-creation angle is quite often with “Èk”, a partner or two and an end customer. And the information sharing happens because we’re all in it together” (Èk1).

As can be read from the literature review, co-creation refers to the involvement of the customer as an active collaborator right from the beginning of the innovation process to the ending phases. “it’s no more innovating from inside out, that I have this organization and I will innovate and get one product out there, but it is about engaging a different set of participants across the value chain of innovation, which is going to define how innovation has to be done”(Èk2). Similarly to the traditional partnering, co-creation with customers and
partners is seen as a beneficial, since it allows information and capability sharing to happen. One rather obvious reason for partnering is gaining additional skills and competencies that cannot be found only using the resources inside of the company. “And when you bring people from different aspects, the point of reference is very different, when they are looking at the same problem. And that gives very interesting ideas to solve. If you are working at the same company, you know how to look at the problem in just one way, right” (Pānch). In addition to augmenting capabilities, inventing something that is already there is a waste of time and resources “by taking technology that is developed by other people we co-op them into the thing and stuff. We try to do everything, and they are like, ‘Ok why are you reinventing this thing” (Do2).

Innovation processes and actions are more frequently distributed across firm boundaries and therefore new needs to implement and manage structures that coordinate various firms' contributions arise. The actors that play into the decisions of firms as they choose among cooperative arrangements include factors such as the relative size and power of the collaborators, and the risk and uncertainty involved. The companies have realized that there is a need to build a framework when deciding for co-creative activities,” ...– there were certain principles of co-creation. You know, for example, you need to be transparent. You need to have an ability to be able to engage multiple stakeholders, right. You should be able to take responsibility and share risks across multiple, you know, organizations and multiple entities” (Teen1). Yet too many rules and actors may also hinder the co-creation, “but if you put too much rules and rules of engagement, then co-creation is going to be tough” (Ēk4). Concern about security and the ownership of IP is also evident when companies engage in co-creation activities. The companies need to be careful with intellectual property management and communicate clearly the objectives, responsibilities and the ways in which the sharing of possible future revenues and gains will occur and how the using of the knowledge created will be, as the respondent from the company Teen (1) describes: “we have to be very careful with intellectual property management, because you have to tell the client upfront, what are you planning to do with this, how will you use that knowledge”. Therefore the need arises to communicate clearly the objectives, responsibilities and the ways in which the sharing of possible future revenues and gains will occur and how the using of the knowledge created will be.

7.2.3.5 Collaboration enablers
Companies have realized that competitions and events are a medium to bring people together collaborating in the context of a multinational enterprise with thousands of employees dispersed globally across multiple locations. Companies arrange these events and campaigns to empower the employees to bring their creative side into play and spark new ideas.
Platforms and communities are another important aspect enabling innovative culture building and collaboration. This can be an internal space where the employees have possibility to discuss about ideas and seek solutions together as in the following example from the company Ėk (4): *and we have an internal community as well, which is our internal social platform where you can have global conversations with all our employees or partners. So one can go, and there are ideas there, there's evolution of mechanism, see if your idea's good, bad, you could be in Denmark, you have access to the same platform... Sometimes some magic happens like, the problem gets solved faster than coming to a formal support channel. So that's what the community is about*. In the same way these platforms and communities might be shared with customers and partners, as for example in the case of co-creative platforms with customers.

Getting people excited about these is an important factor and a challenge, as described by the senior vice president in the company Teen (1), “*But then platform itself is not enough, then you have to do some local initiatives, excite people, tell them to come put ideas, do some schemes around it, and that keeps happening at the unit level, at the project level, people keep trying different things to get people to come up and give good ideas*. As described in the culture part, the companies are focusing more on the culture building for innovation, and these platforms and communities are part of this development. There seems to be challenges prompting the active usage of these platforms, yet since these strategies are new, the future will tell if the employees across the unit commit to these activities.

### 7.2.4 Locality as a differentiator

“So we are looking at how can we make India as a differentiator. And do we have enough beta customers for us to try it” (Cha).

All the interviewed companies have global presence and most of the revenue coming from other markets than India, yet all the respondents are working in India. India as a market offers unique opportunity for the companies to innovate by using India as a differentiator. India being one of the most populated countries in the world, it is able to offer different set of customers from basically all tiers of economic conditions, from the highest luxury demanding markets to people living with less than a dollar a day. India offers these companies an opportunity to bring new offerings to market for a wide range of different customers, especially when innovating for the consumer markets.
7.2.4.1 Taking a role in the ecosystem

“Certain areas we may proactively go look at, for example, we think healthcare in India is going to be big. Or education in India is going to be big. And we got to be part of it. So what is the ecosystem, you know, where can we play the role?” (Do2).

In the Indian ecosystem there are gaps and thus a chance for the companies to take bigger role in the value chain. This can be risky yet the rewards may also be higher. Due to the lacking institutional settings the companies have the opportunity, and in some cases, the need to take ownership: “Emerging market with weak institutions - offers also opportunities to bring solutions to the challenges: and because India is complex and chaotic, you need a way to manage it and software has become available to manage the sometimes chaotic landscape” (Sa). So the question and opportunity for these companies located in this challenging context is about bringing IT into solving these problems. The collaboration aspect is important; taking the other players in the ecosystem to account and evaluating if there is a room for collaborations is beneficial. Exploring the opportunities for collaborations and seeing what other companies can bring compared to you is important, especially since the companies in this IT-context often lack the subject matter expertise in the areas such as healthcare and education, that they think will be the new areas to tackle for future growth.

7.2.4.2 Possibility for crossovers

“So at least the products that I develop for India, interesting they found a market outside of India first. …So, the reason being, India is a really, really tough market to get into. Uh, people are very value conscious” (Teen1).

The challenges that India as a nation is facing are not unique, and thus using IT in solving the problems that India is facing brings potential to crossover to other emerging markets, or even in specific cases to developed markets. Designing products for a market such as India, where the customers are very value conscious, is an opportunity to design products and services that cater to the needs of these types of customers. Thus due to the context and due to the affordability curve, to be able to compete about these customers the companies are required to innovate below a cost limit. This can be done through offerings which have removed some non-essential features or which reduce complexity in some other way by not compromising quality.

The companies in this context have realized that these type of offerings have a great potential to crossover to another economies in which the economic conditions and aspirations of the people are similar as the respondent from the company Cha describes “if you sell anything to them, you can sell the same anywhere else
in the world. On to the next level, that represents the, you know, how people are in China, how people are in South-East Asia”. Sometimes these products designed for the value conscious customers also find a market in the developed western markets. Interestingly in the case of the companies interviewed this is not yet seen as a driving factor, instead it has been seen occurring more in a form of an unexpected outcome.

7.2.5 Empirical framework
After conducting the case study in the previous section and analyzing the original data with the procedures derived from the grounded theory method, the researcher defined the main categories. This empirical framework summarizes the main findings in the case for the purpose of the next chapter, that will analyze them deeper using chosen theories when applicable to qualify the main aspects for the purpose of generating the final framework. The outer limit represents the context affecting the factors inside. The drivers- culture, locality, listening customers and deeper collaborations -are influenced by the enablers presented in the framework in the inner circle.

*Figure 13: the empirical framework*

![Diagram showing the empirical framework](Source:Own illustration based on the case study)
8. Analysis

To identify the emerging dynamics of innovation in this context, the researcher first turned towards the literature to gain a deep understanding of the concepts of innovation. From that research it became evident, that the time of one dominant innovation theory in the literature has passed. Instead, the literature today is diverse and spattered towards various different directions. The introduction to innovation as concept was followed with empirical data collection in Bangalore, India. Then the researcher dived deep into the data using grounded theory method principles, to identify the main issues and themes occurring from the data. The researcher identified five main emerging categories (table 4) in this phase, and these categories were then more closely examined throughout the case study chapter.

In this chapter the researcher works towards establishing a framework, which will take into account the context and analyze the emerging dynamics of innovation arising from the empirical data analysis. The analysis will go into deeper into the data and also discuss the challenges that the companies face on their endeavor towards innovativeness. The aim is to establish a framework, which can be further used to analyze and compare emerging innovation dynamics in other settings.

8.1 Context- importance of innovation highlighted

As discussed in context part of the case, the companies are facing more and more competitive pressures at the same time as the global downturn adds pressures for international customer to cut IT spending. To answer the challenges of this situation new innovations are needed, especially if the companies desire to move up in the value chain.

In this data trends could be observed in ways which the companies seek to add higher value-added services. These included focusing more on new areas such as consulting or product development, and building up capabilities in the new upcoming areas of social media, mobility, data analytics and cloud computing. All of these new areas and technologies offer immerse opportunities, yet the question remains of who will work out the best solutions, products or capabilities to combine these new technologies in new, creative and effective ways. Another questions that the companies are asking themselves are, what type of business model will be the most profitable for the future and which type of prizing model should the new solutions have. The companies are seeking to break the relationship between cost and revenue and thus drive non-linear growth, by for example focusing on IP-building efforts. There are some positive signs that the efforts are bringing
results, as IT-sector increased filed patent amount with 30 % in the last five years (Nasscom C). Despite this growth, it can be argued that there is room for a much higher growth when considering the companies’ double digit annual growth rates during the same time period.

The evidence of new the start-ups will also change the competitive landscape for the interviewed incumbent companies, especially in their home markets. Many of the companies interviewed are trying to pay close attention to the start-ups, since these nimble and innovative newcomers might come up with disruptive innovative products or services, which might surpass seemingly superior technologies in a market, as described by C. Christensen (1997). From the interviewed companies especially the IT-giants, with their vast resources, are actively on the lookout for acquisitions to drive innovation by acquiring these companies. As said earlier, this context sets an interesting situation for the companies often equipped with thousands of trained engineers to come up with new innovative solutions and offerings.

8.2 Culture- cultivate creativity and tolerate failure

From the case it became evident that building innovative culture is seen as a dominant innovation driving and enabling factor. This research was done by interviewing large established multinational companies, which have been in this business for decades and thus this has an effect on the culture building aspect. From the data it became evident that being a large multinational company creates challenges in the terms of driving innovation and creating nimble, permissive and inspiring work culture. Multinationals have their long ago established ways of operating and thus changing the culture will not occur overnight.

The literature about innovative culture has recognized the patterns of interaction between people, roles technology and the external environment represent a very complex environment for creative culture (Martins and Terblanche, 2003). This is the case also in this industry. As described in the case, the companies have realized that the vast employee and partner base has great potential to drive innovation. To be able to capture and use this mostly untapped potential, the companies have started creating different platforms, communities, events and spaces for these actors to come and join forces. Voluntarily participation is seen as the key, yet challenges remain to inspire the employee participation. Mentors help to guide the way for the projects to result in successful new offerings.
Part of this culture building is the importance of accepting failure for building a culture where new ideas and creativity can flourish. This seems to remain a challenge, since companies judge the ideas and efforts often solely in monetary terms and decide quickly if the new projects or ideas are worth of following. As the respondent from the company Ek (4) vocalizes, sometimes one should not present their ideas further in the companies too early, in order to avoid the companies killing them firsthand: “you get shot outright: go do your work which is relevant. ...Some time you need to fly under the radar, till you could show something tangible, that they could see, and then see the value”. From analyzing this data, and from the various challenges disclosed in the interviews, the policies and efforts towards creating innovative culture need to be better implemented, in order to ensure that the visions reflect the true day-to-day actions and the attitudes of the managers towards contributing to the innovation efforts.

8.3 Locality as a driver

As mentioned in the context part, India itself is emerging as a market for software and other IT-products, and thus the companies present in India have unique opportunity to cater these large and up-coming markets. Subsequently from the personal perspective, many of the interviewees mentioned that the passion to make a difference in India is a “personal” innovation driving factor. These people see the opportunities in solving some of the problems which the nation is facing through new technologies the companies are developing and using.

All of the companies interviewed have a global focus despite having significant amount of the workforce working in India. India, as a market, is able to showcase multiple different customer segments. On one hand there are very wealthy people demanding high-end products, and on the other low-income part of the society with frugal attitudes. This offers unique opportunity for the companies to create and test products. The same type of customer segmentation typology might be added towards business customers as well, the street shop owner in a district of Mumbai would have the need for different type of shelf- stacking and cash-register managing software than a country-wide retail company. Especially some of the start-ups have realized this untapped potential, and are selling their nano-prized, simpler user interface software to the untapped customers segment.

In India, due to the emerging country context, there is comparatively a lot of room in the ecosystem for new actors. That results in the need for companies to take a larger role in the ecosystem, yet also gives the opportunity for a larger growth and learning in the process. The collaboration aspect is very important in this
ecosystem. In other, more mature, markets one usually can point out the possible co-operation partners focused on very specific areas. In the context of an emerging market, the actors need occasionally to be more creative and actively seek after new type of collaborative partners locally and globally, and define the process of collaboration in new ways.

Indian context might be seen as a challenge, yet innovative offerings for these markets also provide great opportunities for crossovers to other emerging countries. This holds especially true when talking about consumer products, yet software and related products are emerging as products with crossover potential, since technology is finding its way everywhere. Especially the area of mobile products, solutions, and services is booming in India, and the companies interviewed are increasingly thinking how to take part on this growth. It appears that possible crossovers to other emerging countries are within the company’s thought process when designing new products as a possibility to grow in other markets.

There was evidence in this data, that some of the products made with a mindset of being relevant for the local Indian market, interestingly found market in the developed world. This emerging phenomenon is termed in the literature as reverse innovation eg. Govindarajan and Trimble (2012). This concept relate to the new upcoming innovation concept often referred as jugaad innovations (Radjou et. al, 2012) or as frugal innovations as termed by eg. Bhatti (2012) and Kumar and Puranam (2011). These concepts refer to reducing the complexity and cost of the product for example by removing some nonessential features as for example in the case of nano-prized, simpler user interface solutions introduced. It is interesting that frugality emerged so often as a topic in the interviews in this context, since the literature of frugal innovations has mainly focused on consumer products (e.g in Bhatti, 2012) leaving the technology intensive areas and business to business products still under researched. Thus this concept offers an interesting area for future research.

**8.4 Sensitivity to the partners and customers**

Even the most amazing invention will be a market failure if it does not meet the needs of the customers. Since customers in this context today are looking beyond cost, companies are seeing that increasing customer connection and sensitivity to the voice of partners will be vital for a long term success. Bolton et al. (2007) argue that superior collaborative competency leads to market success, because it leverages a firm’s ability to absorb information and knowledge from the environment, customers, and its value networks. Great efforts are often required to understand even the expressed needs of the customers (Kristensson, 2007).
As von Hippel (1986) argues, knowing your lead users may provide significant insights to the company. First of all, the lead users are usually the ones facing needs well ahead of them becoming mainstream, and thus potentially serve as an excellent need-forecasting laboratory for marketing research (Ibid.). Other important aspect of this customer sensitivity is that the customers and end users are able themselves to invent, design, and build their own solutions for their specific needs as argued by Von Hippel (1986). For example in the case of the company Ek (3), the company was able to find out the need for a complete new product by paying close attention to the customer: “So we found that customers were tweaking a limited set of the product and making it suitable for their particular customers. So what we did was; we said ok, instead of having to customize the complete application by customers, their IT, or consultants, let’s provide a tool that will actually help you compose an application instead of having to customize an application”.

In the case of the IT-industry the challenge of having very technical oriented employee base may hinder the sensitivity towards customers. For example, this can result in many biases with a technical mindset owning person only hearing what is relevant to the technology side, and discarding the other factors important to the customer. As one of the interviewees articulated this is an art, which needs to be learned. Thus some of the companies have policies and infrastructure in place to offer specific training for the engineers towards better ways of connecting with the customer, yet the lack of resources in the form of time and amount of engineers that can be exposed appears to be an issue.

Hearing what the customers are saying is not the only challenge; other challenge is to transmit this knowledge into worthwhile actions. Customers tend to look their problems naturally only from their perspective, not knowing the limits that the offered IT services and products could deliver. Therefore it is important to seek possibilities to go beyond the customer expectation, especially when discussing about breakthrough innovations. Listening to customers is important, yet in this context the companies can be observed working towards deeper collaboration to move the customers from the client-company type of relationship towards deeper, collaborative, connections. Thus new type of openness towards the customers and partners can be witnessed. These emerging collaborative aspects are discussed in the next chapter.

8.5 Creative networks

As opposed to the previous literature about innovation concepts, the view that innovation solely happens in the R&D division of the company is long gone. Today, the companies have realized the immense potential that
lays in the employee space, partnering networks and customer base and consequently innovation efforts are spreading across all the parts in the organization and beyond. As Chesbrough (2003) argued to make the case for open-innovation: “Not all the smart people work for us. We need to work with smart people inside and outside our company” (p. xxvi).

Companies see the opportunity in encouraging employee collaboration across boundaries by using the new technologies. Creating events, competitions and engaging the employees in deep discussions is hoping to raise the creative sides of the workforce into surface. The creativity combined with the existing technological capabilities can bring new solutions, products and services to the table, driving the future growth.

Collaboration with customers and outside partners is hardly an emerging innovation phenomenon, as can be observed in the literature review, for example networks as part of the innovation theories can be observed from the 1980s (e.g. Freemand and Lundvall, 1988). What has changed since is, that the deepness and the nature of these relationships can be observed evolving towards more transparent, deeper collaborative and creative nature. Co-creation as an innovation phenomenon has attracted a lot of attention in the last years. As described in the literature review, co-creation refers to the customer themselves becoming active constituents of value creation. The customers are no longer the passive buyer of goods and services. The companies are aiming at becoming active co-creators interacting with customer communities and networks of firms (Prahalad and Ramaswamy 2004). The companies in this context have in the last years moved towards co-creative type of collaboration efforts. IT-industry is special in a sense that these companies already pose the skills to build for example collaborative platforms and communities, in addition to often offering the customers the possibility to customize the products. Technology gives immense opportunities to design and deliver different products, but the charm is in connecting what the customers and partners value. Thus bringing the customers and partners co-creating is seen as a way to build tomorrow’s offering. Due to the specific nature of this industry, co-creation as a concept may bring substantial benefits. Due to the very technologically complex oriented nature of the industry, a lot of innovation efforts are directed towards fixing the customer problems. As Prahalad and Ramaswamy (2004) argue, co-creation is about joint problem definition and problem solving and thus bringing the customer into these activities may spark new creative solutions to the problems.

The concept of co-creation is used by the respondents not only in the form of collaboration with customers, but also with the fellow teams and employees. This can be justified, since many IT-companies work globally with thousands of employees scattered around the globe. In conclusion, the researcher argues for more
research about co-creation inside the company. When comparing the overall co-creation literature and the co-creation efforts in this complex context, it becomes evident that the simplistic models may not apply. Thus more research on this specific topic about co-creation efforts specifically in the IT-industry in India would be needed.

8.6 Enablers

The companies have realized that if they seek to be more innovative, they also need to enable their employees to be more creative. As presented earlier, this can be done through focusing on the company culture by providing mentors, awarding success and tolerating failure. Communication is a very important enabler, especially in the phase of new innovation strategy building, when the companies need to make clear where the company is heading and which resources are available to the employees.

In this context an emergence of new type of innovation enablers can be observed. What makes the industry special is that these companies host an employee base filled with very technically capable people. Thus the companies are able to use new technologies in building the culture of openness and creativity in the form of platforms and communities. As written in the literature review, Prahalad and Ramaswamy, (2004a) highlight related to notion of co-creation concept that firms should create an environment where the customers can have active dialogue and co-construct personalized experiences. These enablers, in the form of communities and platforms, can be seen constructing this environment by bring the employees inside the company together collaborating across the globe, as well as bringing the global partners and customer into the innovation process.

Using platforms and communities enables deeper type of collaboration in every step of the innovation process. New technologies that these companies are using interestingly in some cases count at the same time as the products of these companies, and as innovation driving aspects. The challenge is to create a pull and encourage the employees and customers in the use of these platforms, as well as use and manage the knowledge created in these spaces in an effective manner.
8.7 Final framework

The final framework illustrates the emerging dynamics of innovation found in this exploratory research. According to Strauss and Corbin (2008), a theoretical framework should be formed with a set of well-developed categories that are systematically interrelated through statements of relationship to explain some relevant phenomenon. In line with the pragmatist approach, theories are developed out of the need to shape, simplify and make memorable the multitude of contingent facts that action threw upon us, thus theory supports practice (Ormerod, 2006).

In this dissertation the first step towards creating a framework was through coding and comparative analysis identifying six interrelated categories. Based on these categories, the case study aimed at giving the reader a holistic picture of the emerging themes in this context. In the analysis part of this dissertation the factors in the case study were analyzed more in depth and synthesized with the innovation literature when appropriate. After this whole process the researcher was able to identify the emerging dynamics in the form of emerging drivers and enablers and subsequently demonstrate their relations.

As can be observed from the literature review about innovation concepts, throughout the years the context has had a significant influence on the innovation theories and concepts. This is further highlighted in this case, since the IT-industry in India is a unique success story in the context of an emerging nation. Therefore in the final framework the aspect “context” is portrayed as an outlining factor incorporating other categories inside. The main aspects in the framework include firstly culture as innovation enforcing, enabling and driving factor. The importance of the active and deep customer connection and listening discussed in the analysis part, becomes included under the term “sensitivity” to highlight the deeper actions beyond mere listening. The empirical framework and the analysis of the data demonstrated a strong emergence of collaboration in many different forms. Clearly the companies, as well as the employees, are embedded in a networked context both inside and outside of the company. The researcher argues that a notion of collaboration and interaction is already assumed to a certain degree under the term of a network. Thus to highlight the importance of these networks vis-à-vis innovation, the researcher chose a term of “creative networks”, to highlight the innovation
driving aspect of these networks and separate them from other, more operational natured network concepts. Lastly the framework includes locality, arising surprisingly strong from the data as an innovation driving factor. These drivers are enabled by aspects such as new technologies, platforms, communities and ameliorated communication. The different drivers and enablers are strongly interconnected, thus this model does not assign specific enablers to specific drivers.

To provide generality and answer the research question of the emerging innovation dynamics in the context of IT-industry in Bangalore, the researcher aims to clarify the findings of the dissertation with this final framework, well rooted in the empirical data and analyzed in the light of innovation theories. The final framework demonstrates the different aspects and their relationships in an abstractive manner aiming to present a framework that can be applied and tested in variety of other contexts.

*Figure 14: Final Framework of the emerging dynamics of innovation*
9. Discussion and Conclusion

9.1 Final framework
Since this research is done using the grounded theory method approach, its purpose is to generate theory, rather than test it. The created final framework contributes to the discussion of the future of one of the most important sectors in India, finding itself in another inflection point. Due to the strong exploratory nature of this dissertation, this framework is deeply rooted in the empirical data collected from the IT-industry in India. This is in line with the applied research philosophy pragmatism, since it places theory in the service of practice. Pragmatism argues against the adoption of abstract principles as ends, preferring to examine the outcomes of means in a particular context (Ormerod, 2006). Nevertheless, to maintain theoretical sensitivity literature was reviewed continuously and simultaneously with the progressing research. In the analysis part of the research the findings were synthesized in the light of the innovation literature from the last decades, to qualify the final framework. Especially the concepts of open-innovation, user-led innovation, co-creation of innovation and frugal innovations have been seen contributing to the final framework.

The main affecting aspects of the framework are chosen after a rigorous data analyzing process. To begin with the importance of the context, especially in the form of the working towards non-linearity and moving up in the value-chain, is behind these emerging innovation dynamics. The technical nature of the industry aligned with constant change ensures the need for innovativeness and offers palatable context to study innovation. The aspect of culture may not be ignored even in the research about emerging dynamics. This industry is not yet very well known for its innovativeness, yet in the last years the companies have taken eager measures to reverse this image by taking innovative culture building in the forefront of their strategy. In the light of the very global nature of the industry and its products and services, it is surprising how much locality has an effect on the innovation efforts. Thus more research on the locality aspect of the innovation in the IT-industry in India is suggested.

Innovation processes are becoming more increasingly interactive, requiring simultaneous networking across multiple communities, groups and units. As discussed, earlier this research suggests that companies in this context are moved towards deeper innovation collaboration, especially through creative networks inside and outside of the company enabled by new technologies, such as platforms and communities. Creative and collaborative networks can also be seen as an enabling factor for the fourth driver in the framework;
sensitivity. Customers are becoming ever more demanding, and sensitivity is required to solve customer problems and present the offerings of the future, deeply rooted in the real customer needs, ahead of the competitors.

As the framework demonstrates the drivers are interconnected; innovation driving culture affects creative networks and vice versa, as well as creative networks have an effect in sensitivity and so on. Enabling aspects are not be assigned to specific drivers, due to the fact that enablers such as new technologies are influencing all the drivers in this technology driven industry.

**9.2 Contributions and further research**

This dissertation contributes to the research about innovation models. The exploratory research conducted offers an outlook to the emerging innovation drivers, enablers and their connections in a fast changing and complex environment. The researcher had a unique opportunity to interview the leading companies in an under researched context of the IT-industry in India, and thus contribute to the knowledge about the current innovation practices. Due to the exploratory nature of this research, it provides very fertile grounds for future research. The researcher sees that the value of exploratory research with its findings deeply grounded in the data is in creating an opportunity for future in-depth research of each of the elements of the framework and their connections.

To highlight some of the opportunities offered by this framework for future research, the researcher would like to distinguish the aspects of locality and creative networks, that still remain under researched in the innovation research in this context. It would be interesting to quantitatively and qualitatively explore the effect of the raising focus on home markets, frugality and consequently crossovers in this very outsourcing revenue driven industry. Creative networks is another intriguing concept for future research, concepts such as creative communities and open-innovation as a research fields have attained a lot of attention in the last years, but this research argues for even more deeper collaboration aspects. In relation to the deeper collaborations, co-creation is a new concept emerging in the literature, as well as in this data. More research focusing solely on this concept in the IT-industry in India would be needed.
This research gives a peek into the new business models that the companies are seeking to build. It would be highly interesting to focus on business model innovations in this context, integrating the elements from the model introduced in this research to their effects on the business models.

The final framework is built in a context of very technological driven industry in a specific emerging market context. Despite this setting, the researcher has aimed on building the framework in an abstract manner, allowing it to be applied and tested in variety of other contexts. The researcher argues that the final framework can and should be used to research innovation dynamics in other complex industries and companies, especially in other emerging markets.

9.3 Reliability and validity

Judging the reliability and validity of a qualitative research is hard, since normally these concepts are related more towards the positivist approach and quantitative studies. Pragmatism involves embracing and examining our own ideas and the theories in this world as tentative, acknowledging that the social world, contexts and concepts are constantly changing, and theories can be adopted on the weight of evidence (Ormerod, 2006). Throughout the research, the researcher has acknowledged the need of self-reflection and self-consciousness, especially in the data analyzing phase of the research. The research believes that this has resulted in an analysis and findings which are well grounded in the data. The final framework is the result of a long data analyzing process with the tools provided by grounded theory. From some over nine hundred codes, the researcher was able to categorize the codes into 24 different categories with subcategories. After axial coding and constant comparative analysis with several rounds of reorganizing, five core categories were established with other categories related to them. These were then analyzed through a case study, and finally the final framework emerged. Golafshani (2003) argues that in qualitative research reliability and validity are conceptualized as trustworthiness, rigor and quality. By following rigorously the grounded theory method and a self-reflective pragmatist approach acknowledging the constantly changing context and concepts, the researcher believes that the findings are qualified and trustworthy, and thus reliable and valid in this point of time.
9.4 Limitations

This research focuses on the emerging dynamics of innovation. Thus the researcher does not claim, that there are no other ways that the companies are building their innovativeness, nor that the traditional aspects, such as R&D, affecting innovation dynamics would have disappeared.

In line with Strauss & Corbin (2008) who emphasize that the researcher does not approach reality as a tabula rasa, the researcher would therefore like to acknowledge that the qualitative data derived from this research methods is influenced by researchers own perceptions of innovation, the sector and not least the Indian context. Yet as a pragmatist, the researcher has acknowledged the possibility of bias in the research process and aimed to take account the need to be self-reflective, and self-critical in all of the stages of the research.

The researcher is making industry wide conclusions based on the interviews held only on one location. She believes this can be justified by the Bangalore status as the leading IT-hub in India. Subsequently the researcher was fortunate to interview the leading industry experts due to the contacts acquired through the gatekeeper. Interviewing the most successful companies in the industry could be seen as a limiting factor. Yet due to the fact, that the purpose of this exploratory research is to research the emerging dynamics of innovation, interviewing the industry leaders and well-known innovators is justifiable. To test the framework created more large scale studies with larger samples should be conducted.

9.5 Conclusion

The aim of this research was to explore the current innovation practices and contribute to the continuum of innovation theories and concepts. This research project started with the researcher’s ambition to explore and understand the phenomenon of innovation in the Indian IT-sector. By applying a pragmatic approach, the researcher embraced the need to understand how the specific context of India affected the relation between the phenomenon and the elements included in the framework, as well as the perceptions of the phenomena according to the respondents. After the initial research and first discussions with the actors in this context, the interesting dynamics in this industry in a continuous flux started revealing. Thus the final research question emerged:

- What are the emerging dynamics of innovation in the context of IT-industry in India?
To answer the research question grounded theory method was chosen with the purpose to generate theory. Seven leading companies in the industry, including fourteen individual respondents, were interviewed in-depth by using semi- and unstructured interview approach. Following grounded theory approach, the researcher did not use pre-determined theoretical framework to ensure the sensitivity towards the raw data. Rather, the researcher studied the evolution of different innovation from the emergence of the concept innovation until today. Following the grounded theory approach, the literature was reviewed continuously and simultaneously with the progressing research. Finally, after introducing a case study of the industry context and emerging aspects of innovation in the case companies resulting in an empirical framework, a final framework build on the analysis of the emerging aspects identified emerged. This final framework answers the research question: What are the emerging dynamics of innovation in the context of IT-industry in India?

The context of an industry in a new inflection point provided the point of departure for the analysis. The researcher found an industry in transition period, scouting for new sources of growth since the competitiveness of the past offshore business model competing with low-cost based value proposition is eroding, at same time as customer are demanding more from the services and products offered. Besides the context setting the challenging environment for the companies, four emerging drivers were discovered. This dissertation argues that the emerging innovation dynamics in IT-industry in India are built around following interconnected innovation driving aspects: culture, sensitivity, locality and creative networks. These drivers are enabled by different aspects such as new technologies, communication, platforms, communities and voluntarily employee activities.

In relation to the past innovation literature it becomes clear that the companies in this industry are moving away from isolated R&D-focused innovation efforts towards multiple approaches to leverage all the capabilities and possibilities both inside, and outside the company. This dissertation argues that a significant challenge and possibility for the companies lies in their efforts to build innovation sparking culture across the company. Efforts towards more customer sensitive and collaborative value creation are highlighted, which have the ability to meet the increased customer expectations and drive growth also in the growing local markets. Innovation processes are becoming increasingly interactive, requiring simultaneous networking across the units and partners. The technically capable companies in this context are well equipped to enable this type of networked innovation efforts, yet as the challenges communicated in this research suggest, many challenges remain. The researcher sees the findings of this exploratory research as a great opportunity for more, in-depth
industry wide, and company specific research to be conducted, for the purpose to further deepen the knowledge of the main findings discovered in this dissertation.
References


Morse, J. M. (2010). Sampling in grounded theory. The SAGE handbook of grounded theory, 229-244.


Appendices

Appendix 1: Interviews

Please find the complete transcripts and interview recordings in the attached CD. These transcripts and interviews are strictly confidential, and not for any kind of further use without the permission of the author.

Appendix 2: Innovation generations

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<td>First: 1780-1840 Industrial revolution</td>
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<td>First: 1880-1892 Entrepreneurial surge Cost-Driven</td>
<td>First: 1840-1890 Age of steam power and railways</td>
<td>Second: 1890-1940 Age of electricity and steel</td>
<td>Technology push, linear process with markets at the end of the pipeline, scientific freedom is very important, no strategic goals, no chain management</td>
<td>Linear models (including technology push and need pull)</td>
<td>1950 R&amp;D Linear isolated activity</td>
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<td>First: 1950-mid 1960s Technology push</td>
<td>Second: 1930s-1960s Technology push Development driven</td>
<td>Third: 1940a-1990s Age of production of automobiles and synthetic materials</td>
<td>Market pull, linear process with science at the end of the pipeline, contract research is very important, weak ties with corporate strategy, little emphasis on chain management</td>
<td>1960 Linear and isolated, adopted routines from project management</td>
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<td>Second: mid 1960- early 1970s Market pull</td>
<td>Forth: 1940a-1990s Age of production of automobiles and synthetic materials</td>
<td>Combination of technology push and market pull, innovation projects are linked to R&amp;D and company goals ('open R&amp;D'),</td>
<td>Interactive Models</td>
<td>1970-1980 Breaking the isolation, becoming more connected to</td>
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<td>Third: early 1970s-mid 1980s Coupling model/interactive model</td>
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<td>Fifth: 1990s networking model</td>
<td>Fifth: 1990s Age of microelectronics and computer networks</td>
<td>Evolutionary models</td>
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### Appendix 3: Example of a memo

This memo was written after the first interview with company DO, before heading to the next.

**Memo:**

More structure perhaps needed, focus on the processes and leave the personal part out. Should listen these first interviews and see what comes up and how should I do it better. Probably prepare in my mind more questions about the start of the process, how the ideas are generated. Dig into deeper to this. Frugal innovations and crossovers came along. MORE FOCUS on the process. Could Idea to ask if they could improve the process how would they do it. Business model innovation came up many times. Ask to define the process step by step in the companies to see how it goes!

Prepare questions:

- Demand, market or technology starting the innovation process?
- If I would be a customer, and I would have this great idea, what would be the most easiest or most probable way that my voice would get heard.
- How much co-operation with external actors is involved in the process?
- In the past years in the literature there has been a hype about this user led innovations, this is happening
- Process innovation versus product innovation
- EMC2: Distributing knowledge, how open?