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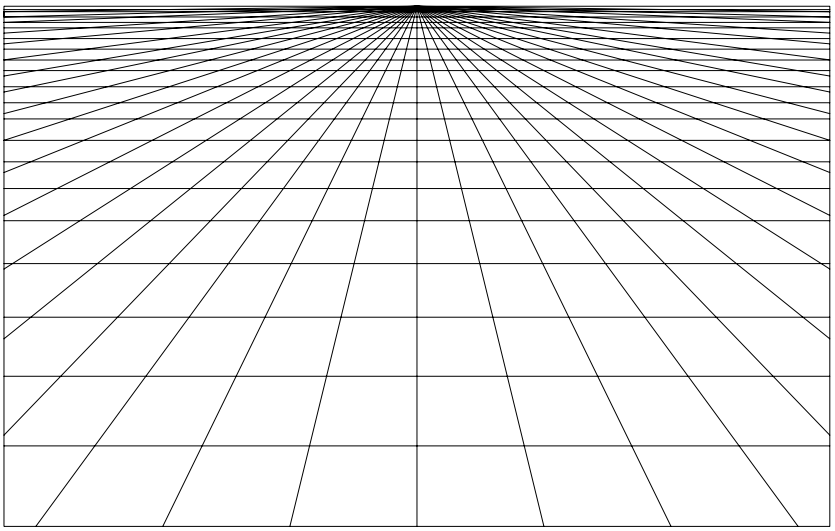

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Innovation Management in Knowledge Intensive Service Companies

A case study of Det Norske Veritas and TrygVesta

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Abstract

Innovation has always remained a significant factor in the growth and development of the companies. Both manufacturing and service industries have been striving to innovate and enhance their business performance. With regards to innovation management, manufacturing companies have remained the prime subject of analysis. Despite the significant growth and value creation of the service industries generally speaking, and knowledge intensive services in particular, a major focus of research has been put on manufacturing industries. But for the last couple of years, knowledge intensive service companies have been attaining considerable attention due to their role for job creation in the developed countries. Knowledge intensive service companies like the one studied here have been increasingly utilising both internal and external resources in generating innovation (i.e. new ideas. knowledge, technology, R&D). When it comes to the idea generation and collection, the entire staff has been contributing to the idea generation process and innovation has not been confined to the R&D department. The companies have been increasingly collaborating with the external partners in order to generate extra resources. They have established best practice innovation management models in order to deal with the challenges of so called “open innovation”. These management models vary from company to company due to external environment or internal requirements.

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Muhammad Ejaz

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Abbreviations

CFTs – Cross-Functional Teams

CIS – Community Innovation Survey

CIS² – second Community Innovation Survey

DISR – Department of Industry, Science and Resources

DNV – Det Norske Veritas

ESI – Early Simultaneous Influence

ICT – Information and Communication Technologies

IT – Information Technologies

P&G – Procter & Gamble

R&D – Research and Development

RIS – Reciprocal Integration Capacity

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Chapter 1: Introduction

1.1 Study background

In the current global competitive emerging economical settings, innovation has been regarded as the engine of growth and development. Both manufacturing and services industries have been striving to innovate and enhance their business performance. In this current environment, it is generally believed “not to innovate is to die” (Freeman & Soete, 1997). Thus, companies anticipated innovation as the best possible path to survival, growth and competitiveness in the emerging economy. They have been investing a considerable sum of money in Research and Development (R&D) and innovation. According to a survey, the world’s top twenty companies alone spent over 110 billion dollars in R&D in 2004 (Alignent Software, 2005). Conventionally, it is thought that investment on R&D will automatically transform into successful innovation. But the process is not as smooth and automatic as it is perceived to be. Many companies invest in generic R&D in a bid to develop in-house capability. Resources are spent on reinventing the “wheel”. Careful planning is needed before making investment in R&D. Feasible ideas do not go smoothly through the development process due to a flaw understanding of customers` demands, untargeted marketing and poor investment planning. Unfortunately, in a large number of companies, good ideas fail during the innovation process or after launching innovations into the market. Studies show that most new ideas and products fail commercially in the market-place (Cooper, 1999; Clancy & Shulman, 1991). When it comes to success rates, only 14% of all new ideas and products commercially succeed (Liberatone & Stylianou, 1995). R&D spending may enhance the number of patents, but these are not a guarantee to innovate successfully. For example, Thomas Edison is remembered by many as very successful, with a great number of patents in his name. However, while Edison was one of the notable inventors in the history of

innovation, he was also one of the most unsuccessful innovators since he did not have the necessary skills to innovate; specifically to commercialise his achievements. As a result, Edison's financial backers removed him from every business venture he had initiated (Riederer et al 2005). A recent trend regarding the spending on R&D and innovation is the "open innovation model" (Chesbrough, 2003a). Many innovative companies have invested less in internal R&D efforts nonetheless they are capable of innovating successfully by drawing upon knowledge and technology from a number of external sources. Companies are shifting their resources from 'R' (Research) to 'D' (Development). The innovation process is becoming an open rather than a close (i.e. in-house) process. Innovative companies like IBM and Procter and Gamble (P&G) are referred to as two successful examples of open innovation. Innovation companies are also developing strategic alliances and joint ventures in order to exploit external (existing) knowledge and resources. All these changes make the innovation process much more challenging, obliging innovative organizations to adopt both, a dynamic capability and a strategy of innovation based on continuity and sustainability. Hence, innovation is a never ending process which should be considered a 24/7 endeavour (Shapiro 2002), meaning that organizations need to innovate seven days a week and 24 hours a day. The companies that successfully manage such innovation process are likely to maximise gains.

1.2 Rationales and significance of the study

Innovation studies have traditionally covered both, micro (innovation in organizations or firms) as well as macro level perspectives (policies, innovation and development). When it comes to micro level studies, a number of enquiries have been conducted on topics like innovation- measurement/management, R&D spending, innovation strategies, networking, and new product development. With regards to innovation management, manufacturing

companies have remained the prime subject of analysis. Despite the significant growth and value creation of the service industries generally speaking, and knowledge intensive services in particular, a major focus of research has been put on manufacturing industries. In contrast to a manufacturing company which delivers goods, a service company provides “the delivery of help, utility or care, and experience, information and other intellectual content – and the majority of the value is intangible rather than residing in any physical help” (DISR, 1999 in de Jong et al 2003, p.14). The intangibility and non-storage nature of services are among the big factors that differentiate a service company from a production company. Due to this fact, it is generally believed that the service industry collaborates more closely with customers, suppliers and other companies. Their innovative contributions (ideas, information, technology and knowledge) usually come from customers, suppliers and other companies. Customers actively participate in the production and consumption process. Knowledge intensive companies rely heavily on higher education institutions for research and training of their labour force. They collaborate with other companies in a bid to access resources, especially technology and market access. As a result, this situation is altering the balance between internal (or in-house) and external (or open) knowledge acquisition, idea generation and innovative capability. Thus, it is very important to understand how knowledge intensive companies manage the challenges of “open innovation” (Chesbrough, 2003a).

For the last couple of years, markets and economies have been passing through a process of rapid change and customers have been demanding services that could fulfil their requirements. This poses a great challenge of managing the innovation process while traditionally companies develop a culture and mechanism of innovation around homogeneous and stable settings. In stable settings, they developed routines which led to the so called good practice model based on the rules of the effective innovation management (Ettlie, 1999;

Dodgson, 2000; Shavinina, 2003). Innovation management in shifting settings require new approaches due to diverse challenges and opportunities (Tidd et al 2005). These new approaches should have the capacity to respond swiftly and effectively to the challenges and opportunities emerging due to changes in market and customers` behaviour. In order to deal with the changes in market and customers` behaviour, a dynamic innovation management system is required. In such a structure, knowledge of markets and customers is assigned high priority instead of established innovation model. Taking these changes into consideration, this study will contribute to the on going innovation management practices undertaken in response to changing market and economical settings.

Companies have often been innovating on the basis of so called “closed innovation model” where the process of innovation took place internally within the organizational boundaries. In most of the cases, the process has been based on top down system initiated by the R&D department. But this process has been passing through a transformation period and bottom up initiatives of innovation have also been emerging as common innovation practice. Within this bottom-up orientation, ideas and knowledge could be collected internally or externally from the customers, professionals, research institutions and other companies. Hence, innovation process has become a mixture of top down and bottom up approaches based on external and internal ideas, technology and knowledge. This study is important in the sense that it will highlight the multidimensional perspectives of managing innovation.

1.3 Research problem and questions

As argued above, the service industries face a number of challenges with regard to innovation management. However, from open innovation perspective, service industries have not been granted same level of importance as manufacturing industries have been enjoying. Taking these challenges and problems into consideration, my research problem can be defined as follows:

How does innovation management process deal with the challenges of open innovation in the service sector?

The following three sub-questions have been formulated to analyse the above query:

1) What are the major sources of ideas for the development of new services?

2) How have the companies been collaborating with the external partners in the innovation generation process?
3) To what extent are employees assigned responsibility to take individual decisions?

Chapter 2: Theoretical background and literature review

Researchers have been practicing a number of patterns and traditions with respect to different research studies. In these studies, theoretical background literature has been used with a number of diverse goals and purposes. In our current study, Theoretical background literature will fulfil three main purposes attached to the study. First, literature will underline the specific assumptions behind the research questions (Marshal & Rossman, 1995) and provide with further guidance and motivation. Second, it will highlight research and intellectual traditions around current study. Third, it will help identify the mechanism to interpret data.

When it comes to theory, there have been a number of theories that have emerged for the last couple of decades as the literature on innovation studies has been growing. Whithin this flourishing literature, the “open innovation” (Chesbrough, 2003a) model can be regarded as a valuable contribution to innovation studies. According to the open innovation paradigm, innovation is becoming more open where external sources of idea creation and knowledge is dominating the innovation process. It is a shifting paradigm from traditional and widely accepted closed innovation model where internal R&D and idea generation has been viewed as a competitive advantage. In the close innovation model, only large organizations with a significant financial and human resources has the capacity to innovate. But according to open innovation, the dominance of the large companies with a significant capacity has been challenged by the newcomers with a very little or no internal R&D at all. These newcomers are comparatively more innovative than their competitors by utilising the research conducted by others. This new paradigm has been labelled as the “open innovation” model which requires new ways of managing innovation. However, the open innovation model has not been empirically tested applying a large-scale data. Accordingly, we are not going to empirically examine open innovation either, but our goal is to apply open innovation as lens.

There are a number of innovation management models that have been developed and examined using qualitative and quantitative approaches. However, there is no single model that has been backed by research community in order to manage innovation. By keeping this into consideration, “The Seven Circles of Innovation” (Centre for Ledelse og Fremtidstanken, 2005) model has been selected as a framework in order to analyse and discuss data. This model incorporates a number of widely accepted principles that has been applied in other well know models of innovation management.

2.1 Innovation

Innovation as a phenomenon interests academics, businessmen and politicians alike. Innovation as a field of research started during the 1960s and continues to move forward due to its central role to economic growth of the country and sustained competitive advantage the to firm (Schumpeter, 1934). The fact that innovation is the central element in the firm’s performance is greatly accepted. When it comes to what defines innovation, there are a number of definitions which creates ambiguity like many other phenomena. According to Freeman, innovation is “the technical, design, manufacturing, management and commercial activities involved in the marketing of a new (or improved) process and equipment” (Freeman, 1982 in Bessant, 2003). While this definition of innovation may look quite simple, a more comprehensive definition of innovation covering a number of issues is not easy. In this definition, services have not been mentioned as a separated element and have been accepted as part of technological products. A relatively broad definition has been proposed by Gibbons et al (1994), namely “(Innovation) might be defined as the application of ideas that are new to the firm, whether the new ideas are embodied in products, processes, services or in work organization, management or marketing systems (DIST, 1996, p.2.). This definition covers some of the very important concepts attributed to the phenomenon of innovation. Innovation

has been classified according to “type”. Innovation theorist Schumpeter distinguished between five different types: new products, new methods of production, new sources of supply, the exploitation of new markets, and new ways of doing business (Fagerberg, 2005). Schumpeter’s work paved the way to classify innovations according to characteristics like what differentiate them in relation to current technology (Freeman and Soete, 1997 in Fagerberg, 2005). According to this point of view, improvement in current innovations is labelled as “incremental” or “sustained” or “marginal” innovations as compared to the novel and which is named as “radical” or “disruptive”. Innovation has also been classified as “technology push” and “demand pull” (Riederer et al 2005). The first concept “technology-push” innovation emerged as a result of Schumpeter’s theory of economic development in which he described innovation as “creative destruction” (Schumpeter, 1912). In contrast, Schmookler, (1966) viewed innovation as a result of demand forces within the market.

In spite of its obvious importance, product and process innovation have received more scholarly attention than other types of innovation. It is important to note that the American economical performance in the middle of the twentieth century was due to organizational innovation which is usually called “managerial revolution”. When it comes to product and process innovation, the focus of innovation has been concentrated on high-tech industries. For the last couple of years, innovation in biotechnology and IT has remained the prime subject of research. Low-tech industries which still cover a great deal of manufacturing sector are rarely covered in the innovation literature. Above all, service industries that constitute more than half of the national economy of the developed countries have not been assigned the significant importance they deserved.

2.2 Relationship between entrepreneurship and innovation

Entrepreneur spirit has always remained as main critical factor for economical performance. The dynamic role of entrepreneur has particularly been linked to growth and change. The concept of the entrepreneur was used for the first time by Cantillon (1680-1734) in a series of his writings (Wennekers & Thurik, 1999). In his view, the entrepreneur is a person who engages in business activities in an atmosphere of uncertainty. With the passage of time, literature on entrepreneurship has been growing. But like many other phenomena entrepreneurship has been described by researchers in many ways due to its diverse roles. According to (Wennekers & Thurik, 1999), entrepreneurial theories can be divided into three intellectual traditions. The first one is called German School of thought and is composed of von Thunen, Schumpeter and Baumol. These researchers perceive entrepreneur as a creator of instability and creative destruction. The second the neo-classical school of Marshal and Knight emphasises that the entrepreneur leads the markets to equilibrium through his entrepreneurial activities. The third the Austrian school of Menger, von Mises and Kirzner perceives an entrepreneur as explorer of profit opportunities. From these three schools of thought, the works of Schumpeter and Knight received significant importance. Schumpeter distinguishes entrepreneurship as a function and entrepreneur as a person who drives innovation. As a person, he or she is not confined to any geographical boundaries and could lead to change and innovation from a small firm, a medium size company, a global multinational corporation or from outside a company (Larson, 2000). When it comes to entrepreneurship as a function, Schumpeter views it as a process of creative destruction and new ways of doing things. In short, Schumpeter describes innovation as a result of entrepreneurship.

In contrary to Schumpeter, Knight calls investor or selector as entrepreneur who launches new enterprise (Brouwer, 2000). He differentiates uncertainty from risk. In his view,

“It is uncertainty and not risk which forms the basis of a valid theory of profits and accounts for the divergence between actual and theoretical competition (Knight, 1921, p.21).

There are a number of researchers who think that entrepreneurship and innovation are closely linked to each other. Drucker, (1985) argues that innovation is the main activity of entrepreneurship. According to Lumpkin and Dess (1996), innovation is the main dimension of entrepreneurship.

2.3 Innovation in knowledge intensive private services

The service sector has been playing a dominant role in the economy of developing countries. It has emerged as the main driver of the economy and has generated most of the jobs for the last couple of years. This sector has accounted for 70% of value added in 2000 (OECD, 2005). In the services sector, knowledge intensive private services have been attaining a growing importance. The term knowledge-intensive has been invented by economists who have long been labelling firms as capital intensive or labour intensive. Labelling a firm knowledge-intensive incorporates that knowledge is the most important factor of inputs (Starbuck, 1992). Sveiby (1997) has characterised knowledge-intensive companies in the following way: “Most employees of knowledge companies are highly qualified educated professionals – that is they are knowledge workers. Their work consists largely in converting information to knowledge, using their own competencies for the most part sometimes with the assistance of suppliers of information or specialised knowledge” (p.19). From this definition, it can be summarised that one should not characterise a service firm as knowledge-intensive unless workers equipped with the higher education degree play a dominant role at the work place. Windrum and Tomlinson (2006) have identified a number of knowledge-intensive services like banking and finance, computer and IT, facility management, Insurance, market research, telecommunications and consultancy services.

Despite the central role in the economy and job creation, service innovation has been assigned very little attention by researchers and national innovation policies. The majority of innovation studies have been focussing on innovation in manufacturing industries especially on product and process innovation. But studies on service innovation have been growing and can be divided into three groups: assimilation/technologists approach, demarcation/service-oriented approach and synthesis/integrated approach (Coombs & Miles, 2000; Gallouj, 1998 in de Vries, 2006). Technologists approach conceives service innovation as the introduction of new technology and its impacts on services. Service oriented approach highlights the distinctive nature of services from manufacturing and stresses the need of new theories. Integrated approach does not make any difference between services and manufacturing. There have been substantial efforts to measure the innovation in knowledge-intensive services for the last couple of years. But the data on a number of aspects of innovation is less comprehensive and inconclusive. In some cases, methods developed for the manufacturing sector have been applied on the services. In other case, service innovation has been linked to the technology introduced in firms. Community innovation survey (CIS) provides first clear example of measuring service innovation. According to the CIS² (second Community Innovation Survey) the ratio of innovation activities is quite high in knowledge-intensive services. For instance, 68 per cent of computer services and 64 per cent of telecommunications have been characterised as innovative enterprises (Miles, 2005). This shows that knowledge-intensive services can be characterised as the most innovative group within the broad services sector. Accordingly, knowledge-intensive private services should be assigned the role of a very important actor in the innovation process. They are interesting from the perspective of open innovation to understand their sources of ideas, knowledge, technology and their patterns of collaboration.

2.4 Open innovation as theory

The phenomenon of innovation has been studied by researchers with diverse background and knowledge. These studies and theories have contributed significantly in enhancing the span of innovation as a field of study. Among these different theories, open innovation (Chesbourg, 2003a) theory is among the latest contributions to innovation study. According to Chesbourg et al (2006),"Open innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation and expand the markets for external use of innovation, respectively" (p.2). This definition explicitly recommends that firms should utilise external as well internal ideas in order to generate innovation. Ideas and knowledge can be created internally or they can be bought or picked from outside. To a large extent, it is presumed that knowledge and technology are widely available and can be bought or sold like other goods and services. Ideas have been flourishing in different locations from individual inventors, to academic research institutions, to innovative firms. Accordingly, the open innovation paradigm challenges the broadly accepted and empirically proved view that firms should invest and conduct R&D internally in order to innovate. In the open innovation model, it is assumed that benefits from internal R&D have been diminishing (Chesbrough, 2003a & Chesbrough, 2003b). As a result, firms invest little on internal R&D and have started looking for expertise and knowledge from external sources which is boosting their ability to innovate. Proctor and Gamble's (P&G) is explicitly following the open innovation model by shifting its emphasis from internal R&D to external source of ideas (Laursen & Salter, 2006). Proctor and Gamble's is not alone in the process of external idea collection, big companies like Cisco, Intel and Microsoft have been flourishing by utilising basic research produced by others (Chesbrough, 2003a). In Chesbrough`s view, less concentration on internal R&D can be attributed to job shifting trend among knowledge workers. This carrier shifting trend is widely

perceived by researchers as a phenomenon attached with the globalization process which made it possible for the workers to move to other firms and locations.

Open innovation is just not limited to search for knowledge and ideas from internally and externally, but it advocates the commercialization of internal and external ideas through external and internal paths to market as Chesbrough et al (2006) mentioned in his definition of innovation. He suggests that internal ideas can also be transferred to market through different paths. But our study is limited to the openness of the companies in relation to the external use of ideas, technology and knowledge. We would like to know whether companies are utilising ideas, technology and knowledge developed outside of their organizational boundaries.

Open innovation is usually perceived as an open source practices for software development. But according to Chesbourgh et al (2006), open innovation and open source methodologies should not be treated alike. They have only one common character which is to collaborate and create value from external sources of information. However the central point of open innovation is based on a business model as a source of value creation and value capture. This process can be called innovation process which is based on invention (a scientific breakthrough) and innovation (commercialisation of innovation) (Nelson & Winter, 1982). The value capturing attribute of firms provides them a leading position with the passage of time.

Open innovation has highlighted some of the changing realities happening in the landscape of innovation. However, innovators have long been collaborating with other organizations, suppliers and customers (von Hippel, 1988; Lundvall, 1992) in order to innovate. They have developed a partnership with customers and organizations which resulted in the form of many joint corporate ventures between different organizations. When it comes to the knowledge transferring, universities industry collaboration has long remained a common form of network approach. Universities have remained one of the significant

suppliers of basis research and trained labour force. This network between universities and firms has remained quite common in biotechnology industries (Mowery et al 1996). Biotechnology and information technology industries are heavy relying on universities and other research institutions for basic research.

Open innovation took a number of components from previous innovation literature and further explained them in line with the changes taking place in corporate sector. Hence, this new open innovation approach can be regarded as an additional contribution to innovation studies. A firm's openness and open behaviour to external environment can significantly boost and open up new opportunities for innovation. But there are a number of challenges for service companies when it comes to innovation management. As they usually collaborate closely with their partners and especially with the customers, there is a need to effectively meet their expectations and demands. Creation of internal environment that can swiftly respond to changing market conditions is not an easy task. Intangible and non storage nature of services confronts the service companies with the challenge of swift and effective response to customers needs. Creation and collection of ideas requires a strong commitment from the staff. Service companies also face the challenge of analysing the capabilities and resources available to them. In case of non availability of in house capability and resources how to get access to these capabilities and resources can pose a challenge to companies' development and market position. Hence, open innovation should be managed in an appropriate way.

2.5 Innovation as a management phenomenon

Innovation has been characterised as a complex and integrated process with many internal and external actors and based on a range of activities. These activities are interrelated that requires the capability to manage the whole process. According to Davila et al (2006), "Innovation, like many business functions, is a management process that requires specific tools, rules and

disciplines" (p.17). These rules, disciplines and tools vary from sector to sector and industry to industry. Each organization should have its own solutions according to the environment around which it is operating. These solutions cannot be simply copied from elsewhere with a different sort of environment. Managing innovation is different to operations management or personal management that are defined as steering or directing activities happening again and again (Dankbaar, 2003). Innovation management can be defined as the learning and creative capability which helps respond swiftly to changing environment. The process of innovation starts with a new idea by a single individual, but it is a collective success and achievement. As the ideas starts spreading, networks of individuals put their weight and energy behind it. The idea is modified and further developed in order to transform it into good currency (Van de Ven 1986). In order to innovate successfully and effectively, the innovation process should be managed (Deloitte, 2005). This process is nevertheless not free from problems. Van de Ven (1986) has identified four major problems which should be carefully handled in an organization or firm. These problems include, human problem of managing attention, transforming ideas into good currency, managing part whole relationship and transforming structure by institutional leadership. These are not the common problems faced by every company. Different firms may face different problems in relation to its resources and internal and external environment. In order to innovate successfully and effectively, the innovation process should be managed (Deloitte, 2005).

2.6 Different approaches to innovation management

One of the most important contributions to innovation management came as a result of the initiative undertaken by Cooper (2001) called "a five stage-five-gate model along with discovery and post-launch review". Researchers are of the view that most of the innovators develop some kind of structured staging process (stage gates) identified by Robert Cooper as

result of his product innovation studies. Cooper's model begins with "discovery" and passes through gates and stages: gate 1 idea screen, stage 1 scoping, gate 2 second screen, stage 2 build business case, gate 3 go to development, stage 3 development, gate 4 go to testing, stage 4 testing and validation, gate 5 go to launch, stage 5 launch. This model ends at post launch review.

Gofinn and Mitchell (2005) developed a management approach which has been labeled as "the innovation pentathlon framework". As its name represents, the framework suggests following five major elements of innovation management. Innovation strategy: developing an innovation strategy based on resources, technology and market trends. Idea: creating an organizational environment suitable for idea generation. Prioritization: selecting best idea for product, services and process innovation. Implementation: developing innovation through quick, fast and effective means. People and organization: hiring and providing training through innovative organizational structure.

Verhaeghe and Kfir (2002) proposed a framework by adapting Chiesa model (Chiesa et al 1996) which was called Holistic Systems Framework for Innovation. It emphasised that innovation should be managed holistically due to interconnectedness of the different elements. This framework has three parts which are based on a number of important elements. These parts have been named as (1) Inputs to innovation: leadership, market research (customer's requirements and potential competitors) ergonomics (role of environment on creative behaviours), support functions, resources (funding and human resources) and organizational culture (2) process of innovation: idea generation, technology acquisition, development of offerings, networking and commercialization (3) outputs of innovation: this

phase help improve competitive advantage of the organization by concentrating on returns on investments, royalties, turnover, profit and indirect impact.

Following a step by step approach, Tidd, Bessant and Pavitt (2005) proposed a model on the basis of a number of steps that provide a guide line to manage innovation process. The model has proposed the following steps: 1) Search: external and external environment should be searched for ideas, social trends, opportunities, regulations and competitors behaviour. 2) Select: opportunities and ideas should be analysed and best option should be selected by keeping in mind the key parameters of the game. 3) Implementing: concrete steps should be taken in order to move from idea to a successful product or service innovation. This phase has following subcomponents: (I) acquiring: knowledge and technology should be acquired from inside or outside of the firm, (II) execute: formal work on a project is formally started, (III) launching: service and product is launched in the market, (IV) sustaining: innovation should be a sustainable process that should be used in the long run. (4) Learning: experiences should be captured and reviewed in order to innovate in future.

Frank M. Hull and Joe Tidd (2003) delivered a framework called “A composite Framework of Concurrent Product Development” for new services development. This framework is composed of seven components namely (1) antecedents: providing educational training to staff and role of champions in adopting new practices (2) organic enablers of ESI (Early Simultaneous Influence): cross-functional teaming, collocations and group rewards (3) concurrent strategy: early simultaneous influence, in-process design controls and computer information technology (4) system integration: RIS (Reciprocal Integration Capacity) (5)

task: product novelty (6) context: environment, organization of product development and nation.

According to Besant et al (2005), organizations normally operate in a stable environment within described rules of the game. Occasionally an incident happens which disturbs the environment and changes the rules of the game. This change opens a number of opportunities and poses some threats. Thus, it requires a new way of managing discontinuous innovation. They identified an emerging good practice model for continuous innovation. This model is based on a number of following elements. (1) Triggering the process: bringing external and internal perspectives in idea generation. (2) Strategic choice and portfolio management: planning, budgeting and funding. (3) Implementation: building flexible project development organization. (4) Innovation strategy: building multiple parallel strategies. (5) Innovative organization: encouraging a culture of innovation. (6) Pro-active linkages: developing non committal relationships and weak ties. (7) Learning and capacity development: enhancing and encouraging heterogeneity and absorptive capacity.

2.7 The seven circles of innovation

This innovation management model provides a design based on seven circles. These circles represent the key elements that are necessary to achieve excellence in innovation. This model emphasises that innovation should be attached to the market that represents the largest of the circles. The central circle represents the innovation fundamentals surrounded by five developmental circles labelled as processes. The rational behind the selection of this model as a theoretical framework lies in its way of integration of a number of issues discussed in open innovation. These elements can provide me with an appropriate answer to the research questions asked in the first chapter. These elements have been defined in detail by keeping in

mind the importance they have been receiving in most of the innovation studies. Some of these elements are enjoying significant support among researchers conducting studies in relation to innovation at firm level.

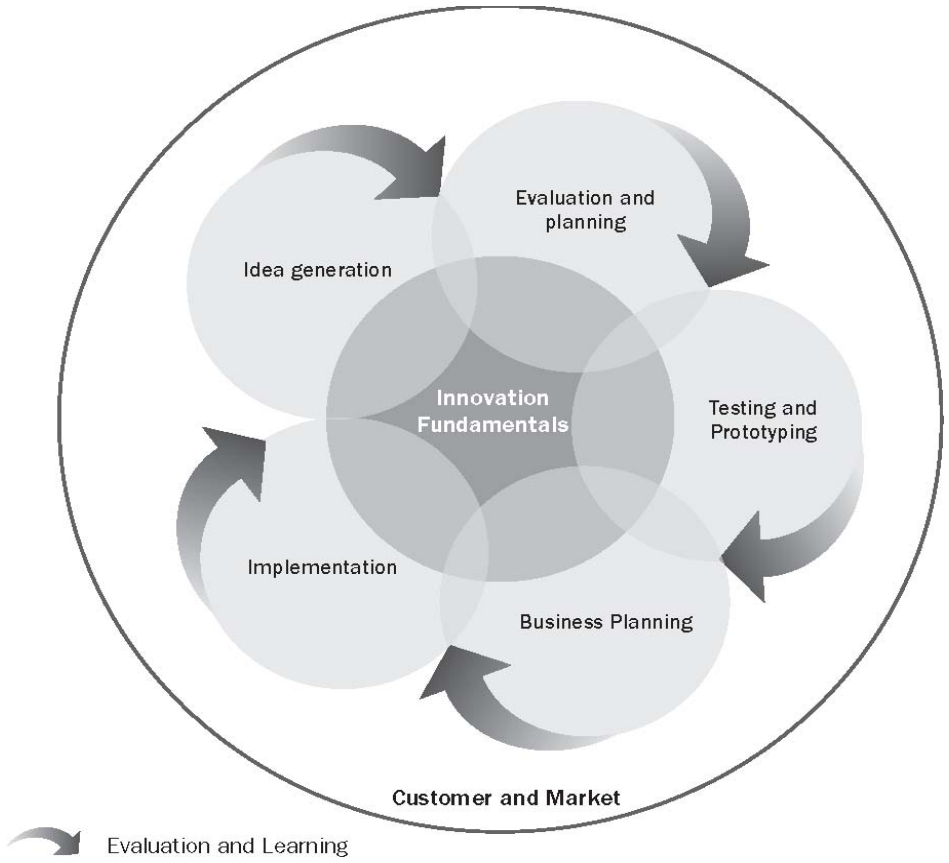

Figure 1: The seven circles of innovation management (Center for Ledelse og Fremtidstanken, 2005)

2.7.1 Market and customers

The role of customers and market in innovation generation has long been recognised by researchers (Von Hippel, 1976). The success of the Japanese automobile and electronics firms in the 1980s had been attributed among other things to the involvement of suppliers in the innovation process (Sako, 1994; Liker et al 1996). This inspired the firms to search for innovative ideas not only internally but externally as well. They have started assigning market and customer the central stage around which the whole process of innovation takes shape. This led to the so-called customer concept innovation which involves, “New ways of doing thing for and with customers” (Vandermerwe, 2003, p.58). In customer concept innovation, market and customers play a very significant role in setting the direction of innovation process. As innovation in firms is perceived as a business phenomenon where the growth and survival of the firms depends on customers and market, the satisfaction of the customers and fulfilment of the market demands is perceived as the most important task. Furthermore, the success of the innovation depends on its adaptation and acceptance by the customers. Interaction with the customers helps provide external input in the form of customers demand, priorities and affordability. Hence, firms anticipate the requirements and needs of the customers (Johne, 1999) at the forefront of the innovation process.

2.7.2 Fundamentals

Innovation fundamentals are the main building blocks of an organization. They provide the base of a collective effort with regards to innovation.

2.7.2.1 Team

Team building for different important tasks has long been emphasised to achieve success in innovation. According to Mohrman, Cohen and Mohrman (1995), a team can be characterise as “a group of individuals who work together to produce products or deliver services for which they are mutually accountable” (p.39). Team members share tasks, responsibilities and strive to achieve mutual goals. The environment in a team for generating innovation has been attained significance importance in innovative organizations. Amabile (1983) highlights the intrinsic motivation as a key factor for creativity and innovation. Studies conduced on hospitals show that clarity of team goals and commitment yielded innovation (West, 2002). Member’s motivation could be enhanced by encouraging and supporting innovative ideas. Financial or other rewarding mechanisms could help promote motivation, creativity, idea generation and commitment.

When it comes to the make up of the team, members of the team working for generating innovation are usually composed on professionals with diverse disciplinary backgrounds. Team composed of diversity in the form of different professions, knowledge, skills and abilities is comparatively innovative (West, 2002) than teams based on heterogeneity. According to Dunbar (1997), group with diverse and overlapping abilities are comparatively creative to those who are based on heterogeneity. Furthermore, helping behaviour due to the diversity of the team help create positive mood (George, 1991).

2.7.2.2 Empowerment

Empowerment of staff has remained a critical and debatable phenomenon in the community of organizational researchers. It has been defined in management sciences as a “granting of power, the delegation of authority” (Burke, 1986, p. 51), decentralization of decision making power (Blau & Alba, 1982), participative management (Lawler, 1988) and Job enrichment

(Hackmanand & Oldham, 1980). A lot of emphasis has been placed on delegating decision making power and authority to lower level of organization in order to enhance efficiency and effectiveness. Consequently, this debate led to the so called new public management which has been promoted by international financial institutions and policy researchers. For the last couple of years, empowerment has been emerging as a psychological phenomenon for researchers. The notion of empowerment has been perceived in the form of intrinsic motivation (Thomas & Velthouse, 1990). Empowerment is not something which is granted by somebody to someone, but it is organized through attitude.

A growing number of researchers have documented that organizational performance could be enhanced by empowering staff. According to a research study, empowerment is closely associated with innovation, influence and inspiration (Spreitzer & Cohen, 1999). Thus, staff should be designated empowerment in order to play greater role in innovation.

2.7.2.3 Culture

Organizations have their own distinct culture that differentiates them form other organizations and firms. Hofstede (1994) defines culture as a “collective programming of spirits which separates the members of a group or a category of persons from others” (p. 4). It is based on collectiveness in the form of values, routines and norms. Culture can be transformed, developed and learned. A culture of learning in an organization plays a significant role in developing innovative culture. Learning and knowledge creation take place due to the organizational capacity to transform individual capabilities to collective knowledge. According to Nonaka`s theory of organizational knowledge, collective learning lays the foundation of organizational knowledge creation (Nonaka, 1994). Organizational knowledge creation takes shape by mobilising tacit knowledge embedded in the persons. The significance

of tacit knowledge was first highlighted by Polanyi (1948). The acquiring of tacit knowledge takes place through “learning by using” (Rosenberg, 1982), through “learning by doing” (Arrow 1962), and through “learning by interaction” (Von Hippel, 1988). It can be concluded that tacit knowledge can only be produced in practice. Hence, it cannot be transferred across border while firms have been moving their production and services to low cast locations. This poses a great challenge to the globalization of economy due to the non tradability of tacit knowledge.

2.7.2.4 Strategy

The notion of corporate strategy has been discussed for the last couple of decades. Strategy usually depicts the key decision and actions undertaken by firms in order to move into competitive position. According to Tidd el al (2005), there are two most well know corporate strategies called “rationalist” proposed by Ansoff (1965) of the rationalist school of thought and “incrementalist” advocated by Mintzberg (1987) of the incrementalist school of thought. Rationalist strategy adopts the linear model approach based on three steps: “appraise, determine and act” (Tidd et al 2005, p. 112). This approach has been inspired to a large extent by military experiences. But according to critics like John Kay (1993), corporate sector is very different to military sector. In military operations, forces and resources are mobilised to destroy the power of the enemy while in corporate sector, it is considered very important to fulfil the requirements of the market and customers. In contrast, rationalist strategy approach highlights the complexity of the change and environment. Therefore, it is important for the firms to keep pace with the changing environment by obtaining and updating information. Hence, incremental strategy is more valuable in the era of continuous change (Tidd et al 2005).

From this strategy debate, it can be concluded that one particular approach does not fit all. For the firms operating in stable conditions and environment, the rationalist approach could best serve their purpose. In contrast, firms that are surrounded with unstable and changing market trends and conditions, incrementalist way of strategy making could provide competitive advantage over competitors. However, the role of innovation cannot be marginalized in strategy making. Firms should have an updated innovation strategy based on changing market opportunities and threats.

2.7.2.4 Co-operation/networking

Collaborative arrangements for pursuing the goal of innovation have always remained critical for the firms. Innovation studies have always pointed innovation as an interactive and distributed process (Lundvall, 1992). According to Oughton and Whittam (1997) innovation in a firm stems from interdependent activities and never takes place in a vacuum. Perez and Sanchez (2002) defined network as: “a firms set of relationships with other organizations” (p.261). But for the last couple of decades, collaboration and networking with external partners have not remained limited only to organizations. Firms have strong ties with suppliers and customers and they are assigned significant importance in the innovation process.

Networks have been classified according to four categories on the basis of kinds of governance. These categories include: informal networks, project networks, regional networks and business networks (Powell, 2005). These forms are not based on hard and fast rules and regulations but provide a preliminary preview of networks.

A number of reasons have been identified through empirical studies for the formation of networks. Firms collaborate due to unavailability of internal resources (financial, human, knowledge) (Tether 2002), to know competency of their competitors (Hamel et al 1989) and

to access new scientific knowledge (Lundvall, 2002). When it comes to networking and generation of innovation, R&D collaboration has remained the most important mechanism for companies especially in the pharmaceutical and chemical sectors (Arora & Gamberdella, 1994). According to a study by Godoe (2000) on Norwegian telecommunications organization, it has been concluded that long term collaboration might result to radical innovation.

2.7.2.5 Monitoring

Monitoring provides with the information about the overall situation and state of the art of the innovation process. It is not merely a mechanical supervision which is broadly used in corporate sector. Monitoring in innovation includes all the activities and procedures that make the innovation process smooth and accurate (Guangzhou, 2003). Innovation is a complex and uncertain process where step by step monitoring provides an overview of the progress whether process is taking place according to schedule, tasks are being met, funds are properly utilised, and progress is being made. According to Holstrom (1989), monitoring both innovation activities (hard-to-measure) and routine activities (easy-to-measure) is difficult and costly. As a result, agents may concentrate more on easy and less costly routine activities than complex and costly innovation activities. Hence, it is extremely valuable to monitor both innovation and routine activities. Innovative firms should have a monitoring mechanism to understand the effectiveness of the innovation process. But it should not create an administrative burden and time consuming activity. In addition, a bunch of financial and human resources should not be utilised on monitoring process.

2.7.2.6 Structure

For the last couple of years, organization and its role in the generation of innovation have received a significant level of attention. Most of the studies have been directed particularly to organizational structure (Wolfe 1994). A number of theories and organizational models have been proposed. The most influential theories are the classical theory of organizational design (Weber 1947) and contingency theory (Pugh et al 1969; Burns & Stalker, 1961; Woodward, 1965 in Lam, 2005). Advocates of classical theory emphasised on one fit for all model while contingency theory highlighted the importance of diversity in environment and technology.

When it comes to structure and innovation, Burns and Stalkers (1961) topologies of "mechanic" and "organic" organizations highlighted the importance of environment and technology that shapes the structure of the organizations. The mechanic organization has rigid structure and usually can be traced in predictable and stable environment. In contrast, the organic organization is more fluid and adaptive to changing environment (Lam, 2005). Another magnificent contribution made in relation to organizational structure is the work done by Mintzberg (1979). He presented a series of archetypes by taking into consideration the role of environments. These structural archetypes include: simple structure, machine bureaucracy, professional bureaucracy, divisionalised form and adhocracy.

It can be summarised that a specific organization structure may be suitable to a certain kind of environment. One model cannot be proposed or declared valuable for all kinds of situations and environments. But firms and organizations should have a structure with can anticipate the changes in the environment and can respond to these changes swiftly and effectively. Above all, it should facilitate the effective generation of innovation.

2.7.3 Idea generation

The process of innovation starts with idea creation and ends in the form of product or service. This idea can be a deliberated internal attempt or it can be picked externally. As far as the internal efforts of idea creation are concerned, idea is generated in groups or as a result of individual effort. The brain paradigm (Osborn, 1957) has been enjoying significant attention in the generation of ideas in groups. In this technique, group members are appreciated to come up with new ideas. In contrary, idea generation as an individual attribute has also been enjoying significant importance. Schumpeter who is considered to be the pioneer of innovation studies have also emphasised the role of individuals in innovation process rather than collective organizational effort (Fagerberg, 2005). However, new ideas can be generated internally or it can be gathered externally. There are a number of innovations which were the result of the ideas presented by users and customers. It is usually perceived that the idea needs the baking of a champion and without its support it gets nowhere (Van de Ven, 1986). The champion plays a significant role in pushing and riding the idea into final shape.

For companies, it is very important to be able to create an innovative environment which stimulates individual and group idea generation. Companies should also search for ideas from outside.

2.7.4 Evaluation and planning

At this stage of the innovation process, ideas are evaluated and screened on the basis of their quality and feasibility. According to Calantone et al (1999), "*The screening of new product ideas is perhaps the most critical new product development activity, yet it often is performed poorly*". Evaluation and screening process helps to identify feasible ideas and projects by neglecting the expensive and unfeasible ones. This process is normally labeled as portfolio

management. In portfolio management, a number of methods are applied from simple judgement to quantitative tolls derived from probability theory. According to Tidd et al (2005), there are three approaches of building a strategic portfolio – *benefit measurement techniques, economic models and portfolio models* (p.367). Benefit measurement technique consists on simple judgement technique or scoring and weighting of a project. In economic models, financial benefits of the projects are taken into account. The last group portfolio models develop a kind of matrix based on *risk versus reward or a cast of doing the project versus expected returns* (p.367).

It is also important to mention here that a preliminary planning and evaluation phase of the innovation process requires team formation. Team defines milestones and goals of the project by taking into consideration the future course of action. In addition, emphasis is placed on availability of human, technical and financial resources. A clear structure is defined to access step by step progress and changes in market and customer's needs.

2.7.5 Testing and prototyping

Testing and prototyping approaches are usually used to involve users during the innovation process. The prototyping technique implies physical representation of the product and service. According to Schrage (2000), a model can be described as "an approximation of reality that emphasises features at the expense of others" (p.7). A model can be a sketch on paper or complete version of a thing. But according to him it has become very difficult to draw a differentiation line between prototyping and simulation. Traditionally, prototyping has been attached to physical model of a product and simulation has been designated to the virtual model of a process. This has been changing due to fact that software provides the opportunity to create digital prototyping. Prototyping is increasingly being utilised in a number of firms. According to Peters and Austin (1985) leading edge firms develop relations with the

customers in order to test prototype models. When it comes to testing, concepts testing is particularly important if the service is new or technology is complicated. In addition, service innovation can best be tested in a real life situation through customer's participation (Bowen & Ford 2002). If innovation does not meet the expectations of the customers, it can be redefined and updated in order to satisfy the customer's needs (Thomke, 2003). Therefore, it is in the best interest of the firms to test service innovation before it is developed at a large scale.

2.7.6 Business planning

When it comes to planning, there are a number of steps or key elements which have been proposed and identified by the researchers. According to Feldman and Page (1984), innovation project planners should take into account three key steps. These include: 1) planning should be orderly, logical and sequential; 2) plans should be based strategically; 3) sophisticated management techniques should be applied (p.44). By taking into consideration these above mentioned points, planners usually set the direction of the future actions in line with the innovation project. They prepare a business case based on all necessary components like budgeting, monitoring and marketing. This process is aligned with the innovation strategy of the firm. Furthermore, it is being decided that the innovation project will be initiated through internal resources or it will be a joint venture as part of collaboration with other firms. From this whole debate, it can be summarised that firms should have a concrete business plan in line with the innovation strategy before implementing.

2.7.7 Implementation

At this stage, the innovation project is formally implemented. According to Voss, this stage is usually neglected in innovation studies regardless of the fact that implementation phase faces

a number of difficulties (Voss, 1986). Most of these difficulties arise from in side the firms or organizations. Hence, it is important to develop infrastructure and other structural elements (Tidd et al 2005) in order to implement innovation. If the innovation is a part of organization innovation, the participation of those who are presumed to be affected can reduce the problems. Commitment of the whole staff is considered to be the main factor in the success of the innovation implementation phase. Especially, the attention of the managerial staff can play a big role in the success of the innovation. Thus, firms should consider the importance of the implantation process by enhancing the commitment and reducing the resistance.

Chapter 3: Methodology

3.1 Case study

Both qualitative and quantitative approaches have been applied when it comes to case studies. However, qualitative case study approach has been enjoying sufficient acceptance among social scientists in exploring a variety of phenomena. This method has been broadly applied regardless of the number of cases, i.e., whether they are single or multiple (Creswell, 1998; Mariano, 2001). Yin (1994) explains that the need for the case study has emerged because it examines a contemporary phenomenon within its real life context. This study has been following the lines and research traditions of the qualitative research that is “grounded in a philosophical position which is broadly “interpretivist” in the sense that it is concerned with how the social world is interpreted, understood, experienced or produced ...in a complex – possibly multi-layered – social world” (Mason, 1996, p.4). According to Yin (1994, p.1), case studies are successful research strategies: “..when `how` or `why` questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real life context”. My study is based on the how question: How does innovation management process deal with the challenges of open innovation in the service sector? Therefore it has been assumed appropriate to apply the case study approach. Another reason behind this selection is the role of the researcher. I did not have any control over the innovation management process of the cases being studied. The third reason is due to the contemporary phenomenon of innovation management which has been regarded as an integral part of companies’ success.

3.2 Selection of cases

There are many modes of case selection but the qualitative case selection has been very popular among researchers. In qualitative case selection samples are more purposive rather than random (Miles & Huberman, 1994). This method of selection provides an opportunity of analytical generalization. Analytical generalization is a method of generalization in which results illustrates, represents and generalize on theory (Yin, 1998), instead of overall population from which the cases are being picked. In qualitative sampling, the cases are selected according to their availability and accessibility. Thus, the selection of cases has been done by keeping in mind the operational areas of the companies. Both of our selected cases belong to the knowledge-intensive service industries and have been operating in a number of countries. These two cases are Det Norke Veritas (maritime) and TrygVesta.

3.3 Data collection

The collection of material for the study has usually been determined on the basis of the research, whether it is quantitative or qualitative. Our study is based on qualitative case study approach, where soft data i.e. interviews has been used. As the study deals with innovation management and its surroundings, I have tried to stick to the purpose and not to pose questions irrelevant to the study. Maximum information has been gained by asking a number of relevant questions.

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3.3.2 In-depth interviews

In-depth interviews have remained the most widely applied approach of data collection in qualitative research. A qualitative in-depth interview can be described as “a conversation with purpose” **(**Kahn & Cannell 1957, p.149). In such a conversation, the researcher tries to

explore the participant's point of view and perspective on a specific phenomenon or topic. A very important aspect of an in-depth interview is the interviewer's approach of conveying an attitude of acceptance that the participant's information is valuable and useful (Marshal & Rossman, 1995). In-depth interviews are more like a conversation in which the interviewer strives to get relevant information. In some cases the impressions of the interviewee about a certain phenomenon play a critical role. Certain expressions about a phenomenon could give an insight to the interviewer about a topic where the interviewee's view point does not match with the expression. There are different ways to conduct an interview. Gall et al (1996, p.289) explains that: "Interviews typically involve individual respondents…(who) typically speak in their own words, and their response are recorded by the interviewer, either verbatim on audiotape or videotape, through hand written or computer-generated notes, or in short term memory for later note taking".

Face to face interviews have been selected because of high probability of reaching all the interviewees, high control over sample selection and a high response rate (Dillman, 2000). Interview design has been based on open-ended questions where the researcher has the possibility of going deep in some of the issues when further clearance is needed. But, special consideration has been taken to avoid the possibility of bias and pre-planned answers to the questions.

A total of 4 interviews have been carried in two companies. Two interviews have been conducted at each company. The interviews have been conducted on the basis of a prepared interview guide, which is attached as an appendix at the end of this study. This interview guide is based on main question and sub questions in order to get maximum relevant information. The interviews have been conducted on the basis of an inter-view approach, i.e. "an inter-change of views between two persons covering about a theme of mutual interest" (Kvale, 1996, p.14). This approach allowed me to cover some of the issues that came up

during the conversation. The interviewees have been holding the managerial level positions in the area of innovation and their main responsibilities have been the generation of innovation and especially new service development. They have professional background in the respective area and have remained familiar with the field of innovation studies and the changes happening in this field. The main rationale behind the selection of these professionals has been to get valid, relevant and up to date knowledge of the issues my study has been dealing with. These interviews have been carried out at a quite place (meeting room or respondent's offices) which lasted between 45 to 60 minutes. Interviews have been recorded by the most effective and multifunctional digital Voice recorder in addition to the notes taken during the interview.

3.4 Data management and analysis

There are many ways of analysing data and different writers apply different terms and approaches (Creswell, 1998; Mariano, 2001) depending on the particular purpose and research questions being addressed. In qualitative research, analysis of data depends how it best can answer the research questions. Merriam (1988) describes that analysis is a continuous process, where "analysis begins with the first interview, the first observation, and the first document read". According to this point of view data collection and analysis are interconnected and the process of analysis begins side by side with the process of data collection.

In our current qualitative case study, the framework approach has been chosen because it seems to be a systematic way of analysing qualitative research. For the study, we have already developed an analytical framework called seven circles of innovation management in our theoretical chapter which has been applied in analysing the data. Data collected through the interviews has been transformed into written form. It has been picked and placed into different relevant categories of the framework. Each category has been divided into two

sections because of the two cases selected for the study. Each section has been further divided into two sections in order to accommodate two interviews undertaken in each case. Analysis has initiated on the basis of mean response of the interviewees in each single case.

3.5 Study validity and reliability

Qualitative researchers have no single mode, stance and consensus on addressing traditional topics such as validity and reliability in qualitative studies (Creswell, 1994). Usually they present a variety of approaches and methods in order to address the validity and reliability issues. Like many other phenomena, there are different ways to address the issue of validity and reliability.

3.5.1 Validity

In qualitative research, the use and nature of validity have not been described in a comprehensive way. Hammersley (1992, p.69) explains the validity in the following way: “an account is valid or true if it represents accurately those features of the phenomena that it is intended to describe, explain or theorise. In this definition it is emphasised that validity deals with the appropriate method to address the research questions. We can say whether the methods measure or explain what they are supposed to measure or explain. The validity debate has been implied as the justification of the method. Kvale (1989) argues that the validity can be justified on the basis of three criteria: “The criterium of correspondence is concerned with whether what is described corresponds to the real world. The criterium of coherence deals with whether the results are logical and consistent. Finally, the criterium of pragmatics/utility deals with applicability and contingent possibilities for generalizing the

study" (Stensaker, 2004, p.88). In validity debate, first two criteria are called internal validity and the third is described as external validity (Østerud, 1995).

3.5.1.1 Internal validity

Necessary steps have been taken to secure the internal validity. Informants have been selected by keeping in mind their role in the companies. They have diverse professional background and played a leading role in innovation activities. Their sound professional background has been providing them the possibility to actively participate in innovation management process.

3.5.1.2 External validity

The criterium of pragmatics/utility or external validity relates with the applicability generalization of study. One of the critical phenomena attached to case studies is to what extent the results can be generalized in the broader context. According to some researchers, case studies can be generalized both statistically and analytically. But Yin (1998) thinks that In case studies, generalization is not usually about statistical generalization (from a sample to a large numbers) but instead analytical generalization (using single or multiple cases to illustrate, represent, or generalize to a theory). In our study, we don't want to statistically generalize the results. As far as the question of analytical generalization is concerned, our study serves the purpose.

3.5.2 Reliability

Reliability has been defined by researchers in a number of ways. Black and Champion (1976) highlighted reliability as an ability to measure consistently. The well known and mostly viewed explanation to reliability relates with the method of data collection which should be standardized, neutral and not biased (Mason, 1996). In Mason's view, methods of data

collection should be the same for all respondents and cases. The role of the researcher should be the impartial one. In our study, in-dept interviews have been used as a method of data collection form both companies. The main framework for these interviews has remained the same in all the four interviews. The role of the researcher has been impartial and neutral.

Chapter 4: Introduction of case studies

4.1 Det Norske Veritas

Det Norske Veritas (DNV) was established in 1864 in Norway with the aim to inspect and assess the technical conditions of Norwegian merchant vessels. Since then, it has been operating as an independent organization with the major objectives to protect life, property and environment. It has been working in 100 different countries with approximately 300 offices. Its journey of internationalization started in 1867 and continuous to move forward. It is not only international in the geographic sense, but also equipped with multinational labour force. The total staffs consist of around 7000 employees from more than 85 different countries. Most of the staff is equipped with a higher education degree because it is a knowledge intensive service company. The company provides certification, classification, consulting, fuel testing, it, operations excellence, qualification and verification, and testing services. Det Norske Veritas provides services to a number of industries like maritime, energy, aviation, automotive, defence, finance, food and beverage, health care, it and telecom, and public sector. The Board of Directors is consists of a chairman and eight members of whom five are selected from different sectors, while other three are elected from the employees. The main headquarter of the company is situated in Oslo Norway.

Det Norske Veritas started its journey of innovation in 1954 by establishing R&D department. The development of DNV as an organization could be divided into four main innovation phases the shipping, the offshore, internationalisation and diversification. In the shipping phase, the main research concentration was centred towards developing classification rules for ships and tankers. The research department actively participated in troubleshooting of accidents and damage. The offshore phase started with the discovery of oil in the Ekofisk field in 1967 which opened the possibility of applying tools and knowledge

developed for the shipping. The research staff grew significantly during this phase. The oil crisis of 1973 resulted to downturn and DNV decided to move to internationalization phase. Local centres were established around the world. The fourth phase called diversification emerged around 1990 with the provision of services to a wide spectrum of industries. During these four phases, the prime objective of the company safeguarding life, property and environment remained unchanged except for including the environment in 1985. For more details about company, see its website www.dnv.no.

4.2 TrygVesta

TrygVesta group was established in 2002 as a result of acquisition by Tryg in Denmark. But Vesta had a long history and was established in Bergen Norway in 1880. It had passed through changes and finally was bought by Vest in 1999. TrygVesta is the second largest group in the Nordic countries when it comes to providing general insurance. The group is consists of Tryg, Denmark's largest general insurance company, TrygVesta, the third largest in Norway, and Enter (Norway). The group has been operating in Denmark, Norway, Sweden and Finland. The insurance services of the group provide protection to around two million persons. The group is equipped with around 3700 employees. It has been collaborating with the Nordea bank which sells groups insurance services through its branch offices. In return, Tryg (Denmark) and TrygVesta (Norway) sell Nordea's pension services.

TrygVesta has a very strong emphasis on innovation. Innovation has been perceived as a path to development. It has plans to become a leading insurance service company in the Nordic countries. This leadership position would be achieved through innovation. It has established a special department for innovation related activities called "BusinessLab". This department has been playing a key role in the development and growth of the company. BusinessLab is the major body that works for the generation of innovation and business development related activities. It has materialised its own routines from idea generation to new service development. Every new idea is received and analysed by BusinessLab. Fruitful ideas are selected for the next phase which is called concept development. The company has developed an innovation management model which can be viewed by everybody through internet. The company is explicitly inviting the individuals and other companies to form joint ventures if they have any idea or plan. This fact shed light on the openness of the company to external sources of resources. For more details about company, see its website www.trygvesta.no

Chapter 5: Empirical work

To be able to address the research problem a theoretical framework has been selected and explained in chapter two. The framework is based on seven categories (circles) and some of the categories have more than one element. These categories and elements represent my research intentions and questions developed with regard to the current study. The analysis has been undertaken by means analysis of data collected from two companies. It is necessary to mention here that case results are here presented together with the analysis of the relationship of the empirical results and the existing literature on the topic. Since the issues within the categories were rather diverse and, in some instances, varied substantially between the two cases, it has been decided to present the empirical results along with literature in order to provide the reader with a better understanding of all the issues (old and new) at stake. This approach of presenting the results has provided the current author with the possibility of elaborating on some of the aspects highlighted by the interviewees. It has also helped to clarify or highlight some of the issues arising from each individual category (or case) by elaborating on the existing literature. Since manufacturing industries have remained the main subject of innovation management, it has been decided to include literature from manufacturing industries too. Due to the fact that some of the information gathered is considered strategically important for the companies involved, their real names have not been specified, referring instead to Company A and Company B. But in some instances, the companies have not been mentioned like A and B in order to keep anonymity. It is important to note that in some cases, the quotations were slightly modified in order to ease interpretations and protect the anonymity of the respondents.

5.1 Market and customers

Both company A and Company B have been assigning significant importance to customers` choices and priorities and work closely with them. Interaction with the customers has been taking place regularly in order to understand their needs and demands. Assessing market trends and customers' requirements has been the most important part of the new service development. One of the emerging issues for the customers and market has been the phenomenon of the environment. The latter is likely to create new challenges, opportunities, as well as threats for both companies. Environmental changes could bring natural catastrophes and disasters that could result in huge property and human loses. This changing situation has brought to the fore a number of challenges and opportunities for one of our case-companies a player in the business of providing insurance services. At the other company, which has been providing consultancy services in a number of areas directly related with the environment, customers have been demanding environmentally-friendly solutions for the problems they are facing. Both companies have been taping customers' perceptions by becoming keen observers of the services utilised by their customers. Employees of one company have a dual role, on the one hand as employees and, on the other, as customers; by utilising the company's own services. This role has provided them with a valuable opportunity to get acquainted with customers' requirements/concerns and market trends. For example, Harley Davidson motorcycles, a recognised brand in their industry, regularly send their own developing teams and executives (who are customers themselves) to attend motorcycle rallies around the world, in a bid to understand customers` choice.

According to Company A, its frontline personnel with direct contact with customers have been tapping the latter's perspectives when it comes to future (customer-) needs and the changes they want to have in the current services being offered. In addition to this, Company

A has embraced seminars and workshops as a strategy to understand customer requirements. The participation of users and customers in the innovation process has been emphasised in the research conducted by, for example, von Hippel (1986, 1988, 2005). The latter has introduced the term “lead-users”, i.e. users who identified the importance of products and services long before they appeared in the market. The company has been recognising the value and importance of lead-users due to the positive (and successful) experience in collaborating with them. This process has lead to the development of services that have resulted in major market successes.

Company B on the other hand, has been flooded with abstract ideas from customers due to the global political and economical changes in the external environment where they operate. Some industrial and service sectors have been growing with a tremendous pace and customers have been demanding innovative solutions for some of their immediate and emerging problems. Company B carefully listens to customers’ concerns, needs and requirements. There has been a general consensus, among its staff, that the company has been operating in a rather competitive environment. Therefore, it has been striving to provide swift, appropriate, and concrete (innovative) solutions to its customers. It has also been organizing seminars and workshops where customers formally take part in the development of new services/marketable solutions. As such, customers’ participation has remained very popular in other organisational settings like, e.g. Siemens Medical. The latter is famous for establishing close links with its customers, by involving health-care professionals such as doctors, administrators, nurses, and patients in the development process. Siemens Medical organizes seminars, training programs and symposiums in an effort to provide up-to-date information regarding current and new products. This interaction with customers provides Siemens Medical with access to new ideas as well as constant feedback, help improving current

products and services, and leveraging the development of new innovations (Riederer et al 2005). At company B collaboration with customers, and their participation in the innovation process, has been recognised as the best mechanism to meet customers' demands and launch new innovations.

5.2 Innovation fundamentals

5.2.1 Team

The idea of team formation, when it comes to the development of new services, has been given significant importance at Company A and Company B. Cross-functional teams (CFTs) attracting people from a number of scientific disciplines have been formed in order to develop new services. In such teams, experts are selected from different sections within the company. These possess diverse disciplinary and professional backgrounds like project management, marketing, technical, and business-development skills. Being the same has not been considered good if they have created a good functional team. According to one of the respondents, "We have a project team that might be working in various departments. It is based on different professions from different departments. We detach good ideas from the rest of the organization. Once we are done with the job, we attach it again with the organization". Instinctive motivation and interest in the particular area have been the major characteristics required to join a team. Different studies also show that new product- or service-development teams are more likely to be successful if members posses the right skill-mix (Cooper and Kleinschmidt, 1987; Henke et al. 1993). A report by Riederer et al (2005) provides a good example of cross-functional teams formation at Clariant GmbH, Nokia Corporation and W.L. Gore & Associates, all considered to be leaders in innovation within their respective industries. Nokia is an important example in promoting cross-functional and multicultural

teams based on experts with diverse disciplinary and professional backgrounds. It is accredited as the first Finnish company hiring a foreign workforce, and it gives considerable importance to team-work whilst hiring and promoting employees.

At Company A, external partners (professionals and clients) have also been included in the team during the early phases of the service development. For example, a journalist who has seen and written about a particular incident has been included in one of the teams as to share his/her experiences. In another case, two clients with relevant experience in specific sectors have also been given the chance to share their experiences as part of the team. Including external persons in internal (development) teams has remained a permanent practice over the years. This strategy has enjoyed significant importance at Siemens Medical, famous for including medical staff in its (internal) development process.

When it comes to rewarding team members, either individually or collectively, the mechanism, as such, has not been given any importance at both case-companies. Earlier research in this areas shows that, rewards for the successful completion of projects have a positive impact on team performance (Sarin & Mahajan, 2001). The most effective firms use both financial and non-financial awards whilst successfully launching new products or

5.2.2 Empowerment

At both case-companies employees are assigned considerable responsibility over individual decisions. They are encouraged to take individual decisions in their respective areas within the framework prescribed by the company. Since the two case-companies operate in different corners of the world the concept of “frontline” decision-making, which allocates power (i.e. the right to decide) to those who are knowledgeable and close to the situation at hand, has been given strong internal support. It is generally believed that those close to the market/customers have the adequate knowledge about the local environment, therefore are

able to take the most suitable decisions according to the situation. But, when it comes to the bigger projects and decisions, those are exercised at the central level at both companies Employees at both companies are also allowed to initiate projects of their own personal interest by obtaining approval from management, but, according to the respondents, this situation does not take place on a regular basis. One of the respondents explained: “In theory, employees can launch their own projects, but in practice, it does not take place often. We are open to accept the projects, but they [employees] do not make their mind. There are some [internal] groups who work on new ideas”.

On the basis of our empirical material, it can be concluded that the practice of allocating a proportion of time on personal projects has not been institutionalized as of yet at both companies. The existing literature on the subject reveals that innovative firms allow utilizing a proportion of their work time to follow ideas, research and projects of personal interest. The idea behind this strategy is to utilise and manage time without continuous surveillance and supervision. Amabile et al (2002) highlights the role of surveillance and expected evaluation as ‘creativity killers’. As such, the authors advocate for a strategy termed “smart management” where employees are; valued, recognised, and given sufficient autonomy and encouragement to gain ownership over their work. There are numerous examples of such firms, e.g. the likes of Nokia, W.L. Gore & Associates, 3M, Clariant GmbH, Toyota and Google. As an example, 3M is generally recognised in the industry has being able to introduce new products on the market place rather quickly. Its success can be attributed to the “15 percent” policy where employees are encouraged to work 15 % of their working-time on curiosity-driven projects and personal experiments (Gundling, 2000). Over the years, a number of inventions (at 3M) have emerged due to individual initiatives, including the famous ‘Post-IT’ tm (3M, 2002).

In our view, both case-companies should allow a proportion of work time to start projects of personal interest. This practice could be regulated and institutionalized in order to promote (enhance a climate/culture of) innovation. The process can also help create instinct motivation which could result in valuable curiosity-driven innovation. Since both case-companies operate in knowledge-intensive service industries, the costs incurred by this endeavour would be much smaller than firms with costly resource materials such as laboratories, sophisticated machinery, etc. We also argue that both case-companies should develop firm-specific internal routines, where the cost of experimenting would eventually be quite low but with a high potential return (e.g. in the form of new products/services, increased market-share, additional revenue streams, etc.). These projects however should be small in scale and scope, as to protect the future financial health of the company.

5.2.3 Culture

Both case-companies have a general recognition of the role of learning in innovation. They organize seminars and training-programs to prepare employees for the changing demands and threats. There is a general perception that equipping staff with the latest knowledge on technology and market enhances the possibilities of new innovations. The collective learning capability of a given organization determines its overall level of innovation. This process includes, but is not limted to, such key elements or conditions as; knowledge- acquisition, sharing, and utilization. Organizational knowledge-creation takes shape by mobilising tacit-knowledge which is embedded in personnel with both implicit (i.e. tacit) and explicit (codifiable) knowledge about the organization and its environment. Tacit knowledge is acquired by; doing, learning, and practicing. Both Company A and Company B have both been emphasising creativity by encouraging their employees to question existing routines and norms. As such, risk-taking behaviour has been appreciated at both companies so that

everybody could present ideas without any fear of the consequences. One of the respondents said: “Those who will make mistakes honestly will get a new chance. We are willing to give chances to those who are willing to participate in the innovation process. We will treat them with honour”. Innovative companies have explicit and implicit rules as well as norms guiding peoples’ behaviour to; take risks, work towards change, and support those ready to take important decision. As an example, Coca Cola Corp. introduced a “New Cola” in the North American market. Despite the fact that this new product could not succeed in the market, the managers at Coca Cola responsible for taking the decision were not fired. Roger Enrico who was serving as a Vice President of Pepsi USA argued that if the managers at Coca Cola had been fired, everybody in the company would have viewed that risk-taking was being discouraged and, Enrico claims, work performance would have dropped (Bastedo & Davis, 1993). Another company, W. L. Gore & Associates has a culture of tolerating mistakes and even celebrating failures (e.g. with champagne or beer) as they do in case of a market success, thus encouraging its associates to continuously take risks (Riederer et al 2005). Risk-taking behaviour should be encouraged despite frequent failures.

Whereas Company B has largely been satisfied with the internal organization environment and its culture, Company A, on the other hand, has been particularly anxious to develop a culture of innovation by equipping its employees with the required knowledge about innovations and by promoting ‘breakthrough-thinking’. The company has been providing the opportunity to its employees to get knowledge and training related with innovation studies. In order to develop a culture of innovation and learning Company A has plans to train “innovation coaches”. These coaches will be assigned the responsibility for encouraging employees to come-up with new ideas and leverage an innovative environment. These future intensions and plans show that there is a great realization of the importance of establishing an internal culture or climate of innovation. Nonetheless, the current internal

environment and culture (at Company A) have been unable, until now, to break barriers in the way of breakthrough-thinking. One of the respondents admitted that employees at the company have a traditional way of thinking as followers rather than initiative takers. As such, they have failed to develop a habit of questioning existing internal routines, norms and practices. These facts elaborate on some of the hurdles Company A has been facing in the light of establishing a new innovative culture. Innovative organizations build certain routines that facilitate and support innovation and they know when and how to abolish them and create an environment which allows new ones to emerge (Tidd et al 2005). They establish a continuous process of what Schumpeter (1912) calls, “creative destruction”.

5.2.4 Structure

Both case-companies have been operating with a top-down hierarchical (organization) structure. They have been driven centrally with some differences in some countries. This difference has been attributed to local needs, historical difference and market requirements. There have also been differences across business areas. Both, Company A and Company B have established feasible paths in order to facilitate communication. When somebody diagnoses a problem or finds a new opportunity, there is often a person available to listen and help. Communication flows have been allowed freely without creating any barriers by the chain of command or hierarchy. There has been no communication barriers and everybody can communicate by telephone, email or personally. Everybody listens if he/she has an idea or suggestion without caring for one’s professional status and/or formal post at the company. Many large companies keep on developing because of their recognition of young people and their innovative ideas. They know that these young talents have many ideas that can be successfully exploited. One of the reasons for the success of Silicon Valley (California) as a

centre for innovation and entrepreneurship is its structure, where young people with valuable ideas can simply form their own companies

The open communication approach provides the two case-companies with an upper hand over the strictly (centrally) controlled organizations, where someone has to cross a number of bureaucratic hurdles in order to present his/her innovative idea or for discussing an emerging problem. According to Wilbert L. Gore, who decided to leave DuPont in order to launch W. L. Gore & Associates; “communication really happens in the car pool”. In his view, in a hierarchical organizational structure where communication is barely allowed, car poll is the only place where everybody is free to talk to each other without caring for the chain of command (Riederer et al 2005).

On the basis of the elements exposed above, it can be concluded that both case-companies have flexible organisational structures and can be classified as “organic” because of their structure and adoptability to the external environment. As such, there is sufficient room for acceptability and adaptability to changing market needs and customer requirements. Because both case-companies have been centrally controlled, one may think that it is a tightly controlled hierarchical structure when every decision is taken and implemented on the basis of a top-down approach. Rather, it is a flexible hierarchical structure where decisions are taken through democratic decision making process. One of the respondents said: “It is a democratic process and every body has the same saying”. Democratic decision-making is a particular characteristic of the Scandinavian decision-making approach.

5.2.5 Strategy

Company A has been preparing a short-term strategy covering three years. The vision of innovation has been embedded in the strategy in addition to the goals and milestones for the development of new services. Company B's corporate strategy (short and long-term) puts a strong emphasis on innovation. Incremental innovation has been part of short term strategy and could be persuaded in some cases locally if there have been minor changes to the existing services. Radical innovation at Company B has traditionally been linked with the R&D department and it usually composed the company's long-term strategy. Both case-companies have been following the incremental approach of strategy formulation. The latter approach is better suited to emerging or volatile economic circumstances due to the important role of services and information and communication technologies (ICT). For example, the environment and high energy prices have become very important issues demanding new products and services. As such, companies are searching for more fuel efficient and environmental friendly products and services. The largest car manufacturer in the world, General Motors, has lost billion of dollars in the last two years due to making vehicles that consume a considerable amount of gasoline. In contrast, profits and production at the Japanese car maker Toyota surged, making the company the number one car maker in the world; due to the production of fuel-efficient vehicles. In these types of volatile environments (with their opportunities and threats), incremental strategies provide an efficient way of taping on emerging opportunities and minimising threats. One of the case-companies used in this study has already started to introduce services that can cope with emerging environmental and energy problems. Business managers usually follow incremental strategies by keeping in mind the changing realities in the outside world. They are ready to adapt to the changing environment in the light of new information and changes. Companies pursuing a rational strategy approach could not succeed due to their inability to adapt to the changing situation.

According to a study by Sapsed (2001) that looked at entry strategies in the digital media industry the rationalist approach of strategy in emerging industries is vulnerable to threats and failures due to the intrinsic uncertainty in this area. For example, in response to opportunities in the digital media, the media company Pearson undertook a SWOT analysis (identification of internal strengths/weaknesses, and external opportunities/threats) in response to developments in digital media. The SWOT analysis identified strong assets (to be explored) in printing and broadcasting and identified weaknesses (to be tackled) in the area of new media. In order to fill this (weak) gap, Pearson acquired a small company, Mindscape. Pearson's rational strategy failed due to the unfamiliarity with market requirements related with the new technology as well as the lack of internal capacity in multimedia activities. Sapsed (2001) argues that rational strategising provides a form of 'therapy' to the executive management working under uncertain circumstances and volatile conditions. This strategy helps companies focusing on products/services, financial conditions, and possible options in case of an emerging crisis or unexpected market growth. It can also prepare firms to anticipate future changes in the market place and preparing them for taking future courses of action.

When it comes to the adequate strategy in relation to the timing of entry into the market, first-to-market strategy has been assigned sufficient attention. As such, companies aspire to play the role of industry leaders instead of being early followers. In order to achieve a leader position, firms usually invest a considerable amount of financial resources and human competency (skills). But if the product or service is successfully launched it provides a sustainable 'competitive advantage' over other firms within the industry. Nonetheless, in a number of cases, early followers acquired a bigger share of the market than leaders. For example, Apple Corp. was the first company to introduce a graphical user-interface in the market place. But, through cooperation with hardware device manufacturers Microsoft Corp. successfully introduced the now popular windows standard into the market (Vahs &

Burmester 2005 in Riederer et al 2005). Both companies don't have the second-to-market strategy (early follower) and late-to-market strategy (late follower). But one of our respondents indicated that;" if one firm introduces a new service, it takes three months and the others have the same. This happens frequently". Services sector general has a dilemma of patenting. It is not an easy task to protect services under the current patenting system which has loop holes that provide the firms with the possibility to imitate easily.

5.2.6 Co-operation/networking

Both companies have been recognising and understanding the importance of networking as a significant factor in the innovation process. Collaboration with other companies, customers, suppliers and educational institutions has been rooted in the companies' innovation strategies. The companies have been engaged with the research institutions that have high quality research and training related activities. Company A has been closely working with the higher education institutions. The span of this collaboration has not been confined to a one particular country, but it has been extended to a number of higher education institutions in different countries. This collaboration ranges from professional training to research. The company has been utilising this opportunity to equip their staff with the relevant knowledge. Research (R) collaboration has also been taking place regularly and company has been fulfilling most of its research requirements from external sources particularly from higher education institutions. In contrast, Development (D) has taken place internally. The company has been fulfilling it technology related requirements from other companies. It has been buying technology from other companies. In addition to this, it has been collaborating with consultancy companies in technical and business development related areas. Company B has also had a history of working closely with the research institutions. But most of its partners have been based in one particular country while company has been operating in different countries. When it comes to

the collaboration in R&D, the company has been acquiring 30 to 40% of it R&D from external sources. This university industry collaboration is not a new phenomenon. Universities have long been providing the industry with basic research and trained labour force.

Another very important form of collaborative mechanism has been join venturing with other companies. Both the companies have been collaborating with other companies which they call joint venturing in order to maintain a superior competitive position. The main rationales behind the joint venturing mechanism have been the non availability of in-house resources and access to market. Join venturing has been growing in world due to a number of reasons. Companies have a number of motives for an alliance ranging from technology to market access and reducing risk. Companies try to extend their assert capabilities though alliances and acquisitions. These alliances and acquisitions have been contributing significantly in enhancing the firms` capabilities in developing new products and services. Alliances and acquisitions are the quickest sources to inter into the market than building the required capabilities internally. For example, Digital developments in the world inspired Kodak to inter in the new market. But Kodak did not have the required technology to launch new business. In order to fill this gap, the company acquired a number of digital technology firms including Imation Corporation and started new Digital and Applied Imaging division. The division was made independent in 1997 due to organizational especially cultural problems. In 1998, the division formed a joint venture with Intel. Previously Intel developed cameras that failed to meet the technological and market demands. This joint venture developed a number of successful products and Kodak occupied 20% of global market share in digital cameras by 2004 (Jeffrey & Barak, 2004). Regardless of the fact that the number of

joint ventures and acquisitions are growing by each passing day, these are not a firm guarantee to succeed.

5.2.7 Monitoring

The company A has not developed monitoring related routines when it comes to new service development. It has not developed a proper system in order to evaluate the progress of a project. One of the respondents has highlighted this as “there is no practice of evaluating service development specially. Everybody in the firm has a contract with his boss how he/she shall develop something”. Monitoring provides the company with more accurate information regarding the progress of the project. It helps utilise resources effectively by slashing the unproductive and costly activities. Furthermore, it allows for adjustments to certain elements if it is necessary. Studies show that involvement of upper management in setting goals and procedures for monitoring and evaluating the project was positively related to the project performance (Bonner et al 2002). Monitoring helps in judging the effectiveness of the program especially to what extent it met its objectives. In many cases, projects are abandoned in the half way due to the lack of funding and unavailability of human and technological resources. Therefore, it is important to install a monitoring mechanism in order to assess the progress and shortcomings in the innovation process.

The company B has formed explicit routines to monitor the step by step progress of the projects related to new service development. Monitoring has formally been a part of innovation process and has been institutionalised. Milestones have been set and progress related to these milestones has been evaluated. It has been organizing meetings regularly and progress has been reported to the central units every month in the form of written reports. This entire process has been taking place in a systemic way by keeping in mind the

importance of the project. This shows that the company has been assigning sufficient importance to monitoring process while a number of studies underscore that the innovation process has not been formally monitored. In successful companies like ConsumerCo, most of the management staff has remained involved in innovation related projects in their professional carrier. This experience helps them to give advice and monitor the ongoing projects (Christiansen, 2000).

5.3 Idea generation

The company A has a formal and institutionalised way of collecting ideas from the customers, professionals, employees and other companies. The company has a system of idea collection which is more like a “suggestion box”. The first suggestion box in corporate sector was introduced in 1886 by Scottish ship builder William Denny. The company A has no barriers which could pave the way for the blockage of the ideas due to the “Not Invented Here” behaviour (Katz & Allen 1982). Customers have been one of the biggest sources of ideas when it comes to the sources of idea from outside. The company has developed multiple links with customers in order to assess their current and future needs. In addition to customers, professionals like journalists and sportsmen have also been viewed as a potential source of ideas. Their ideas have been assigned significant weight due to their professional interest and experience in the relevant fields. Other firms have also been proposing changes and have been coming up with new ideas. Internal idea collection system has been put in place in a bid to tape the ideas from the employees. Employees have joined forces and formed groups in order to generate ideas. Once, it organized a competition called “idea cup” in a bid to secure valuable ideas. The winners had been selected on the basis of the fruitfulness of their ideas and had been rewarded with a financial award and coverage in print media and internet. An appreciating fact of the company has been the formation of “idea bank. The company has not

thrown any idea even it has not been fruitful or applicable for the time being and have placed them in “idea bank” for future use. It has even delivered its ideas to other companies if they have not been feasible for the company. It can be conclude that idea generation and collecting process has not been limited only to the R&D department, but the employees from the whole organization have been taking part in the idea generation process. Car maker Toyota has placed a system of collecting and implementing employee’s suggestions. Meetings are organised at least twice annually where employees and managers participate and assess the methods of the working areas. This process of sharing ideas has resulted into cost savings. Since the 1970s, Toyota has been successful in receiving over one million suggestions per year. 80% of the ideas presented by the employees are implemented and those who submit ideas are awarded by publishing a story in newsletter, by granting certificates or small non monetary awards (Riederer et al 2005).

The company B have not established a concrete and systematic mechanism of collecting ideas. However, the company have been taping the customers’ ideas. In response to a question about idea generation, one of the respondents replied, “We just start with good ideas. Sometimes we get them from the clients and sometimes we develop them internally”. Ideas presented by the customers have been seriously considered in new service development process. Though most of the ideas have been presented by customers, around twenty percent of the ideas have been coming from the other companies especially in joint ventures. Employees have also been delivering different ideas with regards to changes in current services and new service development. But the whole internal and external idea generation process is unofficial and non systematic. Above all, the company have not formed a mechanism to store the ideas that have not been valuable right now and might become productive in future. The company could store the ideas that have not been applicable for the time being and could use them in future if the environment, market, customers` demand or the

company’s capabilities change. The company 3M gives importance to ideas even though they are not feasible right now. Post-It tm notes had been developed from the idea that was considered as failure. The glue had remained in the company for the five years before one of the employee proposed the idea to develop removable self-adhesive not pads (Riederer et al 2005).

5.4 Evaluation and planning

In both companies, ideas have been evaluated and analysed in order to know the workability of the ideas. The companies have established innovation management practices to evaluate ideas by forming a team. Team’s members have a clearly described criterion which should be met for an idea to be accepted (Cooper & Kleinschmidt, 1993). The most common practice being applied in this regards in both the companies has been the portfolio management criterion which has been emerging as the best practice approach in different companies. This criterion has been playing a helping role in order to assess idea or suggestion rationally. Potential capabilities of the company to undertake a task have been considered to be among the most important criteria to launch a new project. In addition to this the project should fit into the strategy and business areas where the companies have a capability. The current technological base of the firms and the fitness of the new project into companies` strategies have also been the key factors in the selection process. In a number of cases, new products and services development usually fail due to the fact that they do not match with the competence base of the firm. The oil company Gulf in the 1960s outlined it capabilities of producing energy and acquired a nuclear energy firm in order to enhance its span. This venture did not succeed because of the distinctive competencies. It had the knowledge and technology of searching, extracting and refining the oil. But it lacked the relevant nuclear related capabilities like electro mechanical technologies (Tidd et al 2005). In both companies,

customers and market have also been the most influential factors which have been effecting the decision making process. Customers present and future needs and market conditions have been assessed before taking a decision to launch a new service development project. This shows that both companies have a formal idea selection process compare to managerial decision making practice where projects are selected on the basis of individual guts. Innovative companies always have a formal method or developed criterion of idea evaluation. For example, Core Media is a medium-sized company which provides consulting services, software licensing and training. It brings high quality products and services to the market quickly based on innovative ideas. Ideas submitted by the employees are analysed by using concrete decision criteria based on clearly defined process (Riederer et al 2005).

5.5 Testing and prototyping

Both company A and B have developed a formal structure of testing the services in collaboration with their customers. It has been believed that testing with the customers provide them with a valuable opportunity to improve an innovation. Testing the service with the customers has been considered to be one of the important elements of the innovation process. Once they have found some sort of need for improvement, they have gone back and tried to find a solution. The rational behind the testing with the customers has been to make sure that new service would fit with customers` needs and requirements. The customers who would first be provided with the service have been assigned priority in the testing phase. Innovation companies take strategic advantage over its competitors because of customers' participation in the testing phase. Customers are not only a source of diagnosing shortcomings, but also a fruitful mechanism of reaping knowledge intensive and financial benefits. According to Schrage (2000), Microsoft circulated around 400,000 beta version copies of Window 1995 to thousand of beta sites around the globe. A beta version is a

prototype of final product which is subject to modification in order to enhance features and correct possible errors. Beta sites are the lead users composed of organizations and individuals who contribute to diagnose bugs and flaws and help enhance product features in exchange for getting product or service on priority basis or free after sale facilities. Microsoft got feed back and discovered errors which saved the company around 1 billion dollars due to the customers without selling a single copy of its Windows 95 software. In every industry whether it is manufacturing or services, prototyping, simulation and modelling are gaining significant support. Computer has revolutionised the industrial sector like other sectors by providing an effective and fast track of testing the products and services. Computer programs CAD and CAM have changed the landscape of testing due to cheap, swift and efficient way of prototyping and simulation. In both companies, Information Technology (IT) has also been utilised in the testing process.

5.6 Business planning

Both case-companies have been undertaking detailed homework which they name as business case. In business case, funding of the project has been outlined by keeping in mind the availability of funds. Furthermore, both-case companies have been doing their level best to reduce and minimise the cast of new service development. The project has been carefully inspected in order to determine whether all the activities were needed. The detailed analysis of the proposed service has been incorporated into the business plan. These include, budgeting, marketing and resources. The companies have been outlining a complete list of resources in order to avoid possible failure. According to a respondent, “we do homework on marketing, budgeting, resources and what type of capabilities we need for that. We have very much business oriented innovation”. In many companies, business planning is formally included in the product or service development process. Business planning is extremely important due to

the fact that only in high-tech companies alone, around one third of new projects are scraped which costs around 80 billion dollars annually (King 1997). In innovative companies, analysis are performed like applied assets, contribution of product and service to the company and market and pay back from the sale of new product or service. Since innovation in the economical sense is the commercial success of the new products and services, the companies formally assessed and analysed the possible return and profit from an innovation. The success of the innovation is usually determined on the basis of market value created by the new product and service. Therefore, the companies include marketing strategies especially the cost related to marketing of a product or service. New and complex innovations demand extra effort and resources especially selling after-sale support and services. There are researchers who observe successful companies like Intel, Yahoo (Rindova & Kotha, 2001), and Del (Yao & Liu, 2003) develop empirically oriented concept of business models. Keeping this into consideration, Chesbrough and Rosenbaum studied 35 cases and discovered that business model is based on value proposition, target markets, internal value chain structure, cost structure and profit model, value network and competitive strategy (Chesbrough & Rosenbaum, 2002).

5.7 Implementation

Implementation of the new service project takes place when both case-companies have made sure that all the necessary components have been properly placed. They have been trying to remove all the hurdles before the implementation in order to avoid delay. The development team has been keeping a close eye in order to solve a possible emerging problem. Once the development of the new service has been completed, preparations have been made to launch the service into the market. Once of the respondents explained the launching as following “We enter into market in a structure way. Priority clients are given priority. We use our

organization to select these clients. How important that particular client is a local decision. Local managers take the ultimate decision for the market". Employees of the companies have been formally informed about the new service. They have been the main players of the game and success of the new service depends largely on their personal commitment and motivation. Companies have been recognising the role of the press as the most important one when it comes to publicity. Press has been especially invited in order to introduce the service to the general public and clients. Since internet has been emerging as one of the biggest source of information, the companies have been utilising this important source as a mean for advertising. Innovative companies develop a solid marketing plan based on targeted selling approach and after-sale services which is considered to be the central to the successful launch of the new product of service (Cooper & Kleinschmidt, 1986). They regard the market launch plan as integral part of the new product or service development process. Entire staff specifically technical and front-line personnel have been informed and engaged in the launching phase. This shows that launching phase should be considered as the important component of the new product or service development process as it plays a critical role in the success of the innovation which is a business phenomenon rather than technical one.

Table (1) on next page shows an overview of open innovation practices.

Name of companies	Positive open innovation practices	Practices negative to open innovation
Company A	• Systematic and institutionalised method of internal and external idea collection. • External professionals as valuable source of ideas. • An idea storage system. • Joint venturing with other companies. • Research and training collaboration with higher education institutions. • Fulfilment of technological requirements from other companies. • Participation of whole staff in the innovation process.	• Weak customers` participation in innovation process. • A very few ideas come from other companies.
Company B	• Customers as important source of ideas. • Joint venturing with other companies. • Research and training collaboration with higher education institutions. • Participation of whole staff in the innovation process.	• Unsystematic and non institutionalised method of internal and external idea collection. • Non participation of external professionals in the innovation process. • No idea storage system. • No source of external technology.

Chapter 6: Discussion and conclusion

Service industries have been facing the challenges of open innovation. The intangibility and non-storage characteristics of services demand a close collaboration between producers and consumers. As a result, consumers have usually been included in the production and consumption phases. Their ideas and close cooperation are the most valuable contributions for the companies` innovation processes. In addition, the service sector relies a great deal on research institutions and other companies for both knowledge as well as technology. In realisation of these challenges, at the start of the study (chapter 1) I presented my main research problem as being:

How does the innovation management process deal with the challenges of open innovation in the service sector?

The following three sub-questions were formulated to analyse the above problem:

1) What are the major sources of ideas for the development of new services?

2) How have the companies been collaborating with the external partners in the innovation generation process?
3) To what extent are employees assigned responsibility to take individual decisions?

Knowledge intensive service-companies have also established best practices innovation management models similar to those of manufacturing industries. However, these models have not been applied as a permanent mechanism (or framework) to manage innovation. Rather, they have remained subject to change in light of the external environment or internal

capabilities of the companies. Our inquiry shows that there has been a slight difference between the management practices of the two case-companies used in here. The difference might be attributed to such contextual elements as; customer/market requirements, working areas, organizational culture, and the broad external environment. These management practices incorporate some of the open innovation elements highlighted in literature (chapter 2).

Table (2) below highlights external open innovation elements and sources of attaining these elements across my two studied cases:

Open innovation elements	Sources of open innovation elements
External Ideas	Customers, external professionals, other companies
External Knowledge	Higher education institutions, research institutes, consultancy companies
External R&D	Higher education institutions, research institutes, other companies
External Technology	Other companies

This study reveals that knowledge intensive firms like the one studied here have been increasingly utilising both internal and external resources in generating innovation (i.e. new ideas. knowledge, technology, R&D). When it comes to major sources of ideas, the companies have been increasingly drawing upon ideas from the external sources, an approach in line with the “open innovation” perspective (Chesbrough, 2003a). The data gather also shows that there has been a slight difference in the ways way Company A and Company B gain access to new ideas. In company A, the idea collection system has been formally established and institutionalised (i.e. via formal rules and procedures). Everybody can

contribute by presenting an idea or suggestion. In contrast, at company B, idea collection process has been an unofficial (informal) and non-institutionalised (i.e. ad-hoc) process. The empirical data also discloses that there have also been variations in the sources of ideas. Professionals, with significant knowledge and experience, have been thoroughly and regularly approached by Company A. It is important to mention here that these professionals have been an external inclusion and they have never worked at the company. This inclusion in the innovation process, and particularly in the idea generation process, can be regarded as a significant contribution to the on-going open innovation process; an aspect that has not been identified in previous open innovation practices. It could set an example for the other companies and they could follow the same course. Inclusion of external professionals could provide the companies with additional resources since inter-organizational movement of labour force has been one of the big concerns for both the manufacturing and the service companies. When employees move to another company, they take with them crucial tacit knowledge which is embedded in people, i.e. cannot be codified and transferred to others easily. . In contrast to Company A, which uses external professionals in a rather innovative way, Company B places customers on the top of its priority while accessing/developing new ideas. It has established strong ties with the customers and their ideas have been valuable in the past in the development of new services. But, in both companies, the ratio of ideas presented by other companies has not been looming too large, with most ideas presented during processes of join ventures. It is not surprising in the sense that joint ventures are usually formed with the mechanism of accessing external resources. Our data reveals that there have been very few occasions when other companies were considered an important source of new ideas. This fact highlights the reality that companies only share their ideas when they perceive a common opportunity or benefit. The practice of buying and selling ideas has not been enjoying widespread support at companies, as initially emphasised by the

advocates of the open innovation model. When it comes to the internal idea collection and generation, the entire staff at both cases has been contributing to the idea generation process. More interestingly, the R&D department, traditionally the stronghold for idea generation and innovation, has been loosing its privileged position as the sole actor in the innovation process. There has been a change in the perception that the knowledge intensive service companies have been equipped with the best available brains; therefore there has been no need to look else where for the new ideas.

This study has also found that knowledge intensive service companies whose staff possesses some type of a higher education degree have not been innovating in isolation. As such, they have been closely engaged with higher education institutions in order to equip their staff with the necessary skills and gain access to the latest knowledge. Companies have also been increasingly collaborating with higher education institutions in a bid to access external (scientific/technical) knowledge and R&D. When it comes to the selection of these types of partners, the companies have used formal agreements with the higher education institutions with which, over time, they might have develop trusty relations. These partners are often very close to companies' main headquarters. This is the same in other areas like Silicon Valley, Boston and Seattle and points to the importance of "location". This shows that knowledge intensive companies like the ones studied in here have not expanded their span of collaboration in line with the geographical expansion of their business activities. In short, they have been extending their business activities to a number of countries but their research and training activities have not expanded at the same pace. But the companies have no longer been relying exclusively on their traditional partners like higher education institutions. Knowledge intensive companies have been participating in the joint ventures which have been the most common trend for the companies in the manufacturing sector. This factor alone sheds light on the fact that, the case-companies have not been sceptical to knowledge spill-

overs to the extent they used to be in the past. As such, companies have been sharing their human and financial resources, and innovation has not remained an “in-house” process confined to the internal R&D department. The rationale behind the logic of joint venturing could be attributed to the nature of innovation. Innovation is not an easy and ultimate path to innovation and market success therefore companies are trying to lower the risk of failure. Knowledge intensive service companies have been joining forces in their bid to reap the benefits of growing markets and increasingly challenging customer demands. Nonetheless, they have wanted to retain and develop internal capabilities as the major source of radical innovation. In spite of the market and resources related advantages of strategic alliances and joint ventures these strategies are still considered as second option when compared to the development of internal capabilities and the external acquisitions of knowledge and technology.

Knowledge intensive services companies have been struggling to promote an internal culture of innovation. Their staffs have not generally developed a keen habit of initiating a curiosity and interest- driven project. Employees at both cases have not been encouraged to take the ownership of their work, by providing them with resources and moral support for the pursuit of their own ideas. Starting of a new project has been linked to prior approval from management while in a number of successful companies, a proportion of working time is reserved for curiosity driven projects. This practice of obtaining prior permission may make the idea generation process harder. Since the development of new ideas (innovations) is a lengthy process, employees at the two case-companies might fear that failure of a project could result in bad reputation and punishment. An innovative corporate culture minimises the negative impression of failure. This encourages employees to explore new ideas and develop with innovation solutions. The staff could not make any difference by just following the orders and instructions (top-down approach) given by a special department or internal section.

These findings have been interesting in the sense that, both companies have been providing services which demand a very close interaction with different actors. Their organizational structure and culture have not provided them with the environment that promote breakthrough- and challenging thinking. This is a worrying fact in the sense that their organizational structure has not been strictly hierarchical, as some of the companies in the world where every new idea, suggestion and decision comes from the top. Nonetheless, these (2) knowledge intensive service companies have established feasible paths for communication where everyone within the company is listened to, regardless of his/her professional position. The data indicates that the personnel have been treated fairly.

On the basis of the empirical findings from this study, it is concluded that knowledge intensive companies have been pursuing a more “open innovation” approach as it was described by Chesbrough (2003a). The results of this study highlight the changing trend in the way innovation is generated and managed. Innovation is no more confined only to the internal R&D department as it had been considered in the past. However, both companies have not been pursuing an open innovation approach where the role of R&D has been considered less relevant. Rather they have been looking to open innovation as an additional opportunity to exploit new resources. There has been a general perception that internal R&D has been the main source of radical innovation. Knowledge intensive service companies have been utilising both internal and external resources like ideas, knowledge and technology to achieve the broader goals of innovation. It has been a transformation from close and established practices of in-house innovation initiated by R&D departments to open approach where both external and internal forces and actors have been playing their role. There has been a realisation that the strategic processes of idea generation and collection should increasingly be embedded in the organizational culture in the form of routines, norms and rules. It highlights

the significance and importance of tacit knowledge that has been attaining significant importance by researchers and managers alike. For the two cases used, recurring to the open innovation approach has not only been a matter of resources, but it has also been perceived as a solid mechanism to access both, customers and market. As service industries have a tendency to work closely with customers, open innovation has been the right and timely choice to meet their goals and visions. This emphasises that, all in all, open innovation has been the best available choice to the two knowledge intensive companies that composed this study.

6.1 New model of innovation management for knowledge intensive service companies

In light of the findings and discussions presented in the current study, it has been learned that there is a great need for an innovation management model that incorporates both, elements of open innovation with different aspects and issues related with the broad process of innovation, in a more comprehensive way. Therefore, a new model based on the interactive and open innovation approaches has been developed by the author in the context of knowledge intensive service companies. The model stresses that it is not only customers, but also other actors like higher education and research institutions, professionals, and companies which play an important role in the innovation process. These external actors could be valuable sources of ideas, knowledge, technology, research, training and R&D. The purpose of the new product or service is not only to fulfil the needs and demands of the customers, but also to create or explore new market opportunities. Therefore companies should create feasible paths of communication with relevant external actors in order to innovate successfully. Furthermore, innovation fundamentals that help generate and manage the innovation process

have a major role to play. The new (proposed) model is further explained and visualised in the following section.

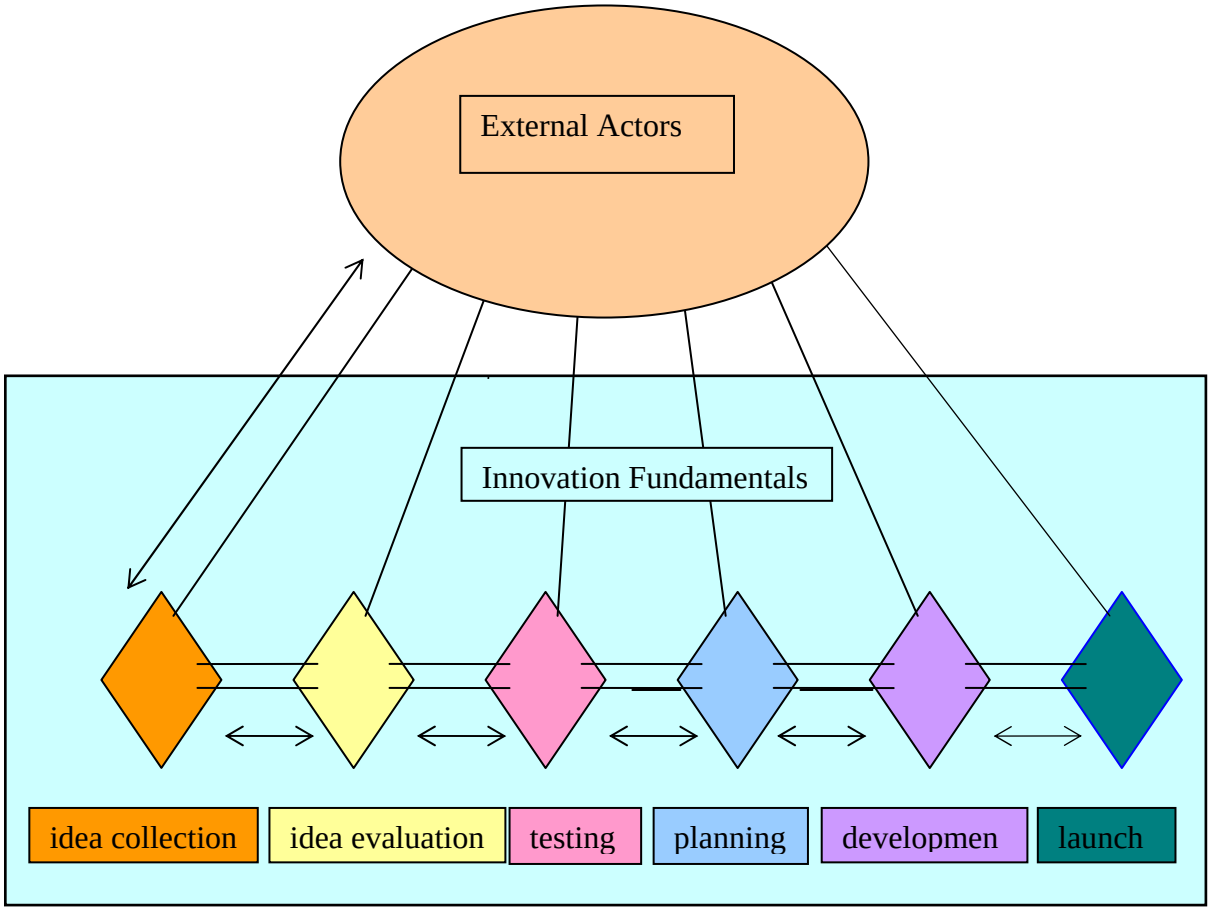

Figure 2: New Model of Innovation Management for Knowledge Intensive Service Companies.

In this new model of innovation management, external actors (customers and market, higher education and research institutions, professionals, companies) interact with innovation fundamentals (team, empowerment, culture, structure, strategy, creativity, networking, monitoring). However, these fundamentals perform valuable role not only in the collaboration process but also in the management of the entire innovation process. The entire innovation process including practical aspects (idea collection, ideal evaluation, testing, planning,

developing, and launch) depends on these fundamentals. When it comes to the participation of external actors, their contribution is not limited to a few practical aspects of innovation process as it has remained in a number of innovation management models. They could be included in any of the practical phases (aspects) of innovation process if there is a need to do so.

6.2 Future research

Follow up study using both qualitative and quantitative methods should be undertaken. However the study sample should be expanded to accommodate a great number of companies that share certain characteristics and belong to a certain group of services like knowledge intensive services, retail services, tourism services, knowledge intensive business services, etc. The classification on the basis of characterises should be made due to a huge difference between different services. In such a innovation management study, special focus should be placed on a number of issues like motives of open innovation practices especially the rationales which are providing the companies with food for thought for using the open innovation approach, the percentage of their usage of internal and external R&D and ideas, barriers in the way of using open innovation, problems in managing the open innovation process.

6.3 Suggestions to knowledge intensive service companies

- A long term collaboration plan with the research and higher education institutions could be materialised in order to access to research and trained labours force. The span of collaboration should be extended to the foreign higher education institutions. This

collaboration should not only be restricted to research and training, but researchers should also be approached for new ideas.

- The companies should store the ideas that have not been applicable for the time being and could use them in future. An “idea bank” could be created especially for this purpose. All the ideas should be given importance even though they are not feasible for the companies. Ideas could be shared with other companies that could open up doors to a number of networking and joint venturing opportunities.
- A formal idea collection system like “suggestion box” should be established in order to tape ideas from the customers, professionals, academics, companies and internal staff.
- A culture of innovation should be created where every body should be valued on equal basis. This approach would enhance the idea sharing process which could lead to equip the staff with the problem solving skills. Furthermore, a reward scheme could be introduced in order to encourage the internal staff and external stakeholders for providing with new ideas. This reward could be financial or a story in the company’s newsletter.
- The companies could allow a proportion of work time to start projects of personal interest. The process can help create instinct motivation that could result to curiosity driven projects and promote creative thinking among the staff.
- Idea- generation technique like “Brainstorming” could be introduced. In such a technique individuals or group of people generate ideas without being constrained by the usability of ideas. The ideas generated by some groups or individuals could be utilised by others to stimulate their own thinking.
- Special seminars and coursed should be organised for the staff in order to equip them with the knowledge about innovation and its importance for the performance of the

company. Leaders should develop right conditions that promote organizational attitudes towards creativity and breakthrough ideas.

- A well defined innovation management framework or model should be build on the basis of organizational requirements.
- Internet could also be used as a new idea searching mechanism which could result to multiple benefits.

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Interview Guide

1) What sort of role do customers and market play in the innovation process?
    i) Do you have prior knowledge of customers demand before developing a new service?
    ii) To what extent do employees utilise or observe the services themselves?
2) How do you characterise a team or is there a particular criteria for the selection of a team?
    i) What types of professions are preferred in the formation of team?
3) To what extent are employees assigned responsibility to take individual decisions?
    i) Are employees encouraged to pursue their own projects?
    ii) How is the progress of the employees evaluated?
    iii) Who takes the decision if any problem or opportunity appears?
4) Are employees encouraged to participate in training programs, and is questioning the existing routines and practices allowed?
    i) Is their any reward offered to team members after completing a project?
    ii) How do employees share their thoughts or ideas?
5) What type of innovation strategy is developed in the company, short or long term?
    i) Do you follow rational or incremental approach of study making?
    ii) To what extent does the company try to introduce new service before its competitors?
6) To what extent do you cooperate with universities and companies in research and new service development?

i) Do you perform R&D internally or do you collaborate with other organizations?

ii) To what extent do you develop a service as a joint venture?

7) Are there any fixed procedures for monitoring the innovation projects and step by step progress and development?

8) How is the staff encouraged and supported to participate in company's improvement activities?

i) Are you operating with same organizational structure in all countries of the world?

9) Do you have a procedure to generate ideas?

i) Are ideas generated/collected internally or externally?

ii) Do you collect ideas from your customers?

iii) How do employees participate in the idea generation process?

10) How are feasible ideas selected and evaluated for further planning?

i) Is there a specific method to select feasible ideas?

11) Is there a formal method to test innovation before full scale development?

i) Do customers participate in the testing process?

ii) Is there a specific tool which is applied in testing?

12) Is there a procedure to develop business plan during the innovation process?

i) What type of steps are taken in business planning?

13) To what extent is the whole staff briefed and taken into consideration before launching a new innovation?