Title:

Innovation in Traditionally Monopolistic Firms: A Telco Case Study

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Table of Contents

List of Figures

List of Tables

Abstract

The telecom industry is moving from a stable environment to a very dynamic industry where the entrance of new players and the macro economic factors like crisis have been pushing it towards commoditization. In spite of the fact that the Telco consumer base is increasing the value generation capability of this industry has been challenged in the past years. The management is well aware of the situation but due to the traditionally monopolistic nature of these organizations finds it difficult to push any radical change.

The purpose of the study is to identifying those factors which contributed to the success of these firms in past and later identifying those elements which are needed for these organizations to foster an innovative culture capable of bringing the needed changes.

The major objectives of the research include identifying the main reason behind the need for innovation today and factors that have been hindering the innovation process in these firms. The next step was to study the best practices outside the Telcos industry which have helped other firms to be the Innovation leaders. Finally the study identifies those strategies and best practices which are viable in the Telecom industry.

It has been found that the size and political nature of these organizations makes it difficult to push ideas to reality. Therefore the first need is the need of a culture change and a separate path (apart from the traditional line management) for the escalation of ideas. Secondly the Telco industry is not able to keep pace with the innovation of its complementing industries and therefore there is a dire need make innovation a priority from exploring new revenue sources to the innovation of business models with its existing partners. In the past the industry has tried the industrial silos model by decentralizing and given complete autonomy to its major revenue generating services but now it needs to demolish these departmental silos and be open to provide services which cut across many of its existing services without thinking too much about cannibalization.

Acknowledgments

This work was made possible through the contribution of many people who were part of journey through the IMIM program. First of all I would like to thank the consortium of the IMIM (International Masters in Industrial Management) program which provided with the knowledge which this work is a culmination of. The professor who contributed with their insights and the IMIM staff who was always there to solve any organizational problems we had.

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The journey for the two years of IMIM would have not have been so interesting without my friends in the IMIM program. The time we spend has left all those cherish able memories which would always be a source of joy whenever recalled.

Lastly I would like to thank my parents who have been the source of inspiration for me and who’s enduring support could not be expressed in simple words.

List of Acronyms

KPI	Key Performance Indicators
M&A	Mergers and Acquisitions
OIBDA	Operating Income Before Depreciation And Amortization
OPEC	Organization of the Petroleum Exporting Countries
OTT	Over the Top
PTT	Postal Telegraph and Telephones
R&D	Research and Development

Chapter 1 Introduction

1.1) Background

Since the late 90`s we have seen a paradigm shift in the way innovation has been dealt with. The area of innovation once used to be isolated under the department of R&D .This department was present with some of the elites with magnificent resources dedicated to the purpose of long term visionaries. This is no more the case. Innovation is simply not limited to Tech R&D (Research and Development) and isolated to some specific departments but has now been becoming the blood of organizations to survive in the rapidly evolving market.

The term which aroused in the beginning of nineteenth century and was associated with people finding changes in the path of church is now being associated with being a driver of change in every positive way. In the context of economy the term innovation was involved with manufacturing innovation in the industrial revolution .This is where an agent (person or business) innovates in order to sell the innovation. Even a decade back the prime sources of innovation were R&D departments which created breakthrough Innovations. Bell Labs has been the prime example of such innovation .As Tim Wu quotes in his article Law and Technology: Bell Labs and Centralized Innovation:

"It is attractive to envision a planned, systematic means of finding the future, as directed by a great centralized intelligence."

These departments spur on patents and other scientific innovations that lead to productive growth in such areas as industry, medicine, engineering, and government. (Mark, M., Katz, B., Rahman, S., and Warren, D., 2008, Metro Policy: Shaping A New Federal Partnership for a Metropolitan Nation. Brookings Institution: Metropolitan Policy Program Report. Pp.4-103.). Recently there has been a focus on less formal innovation practices which include on-the-job modifications of practice, through exchange and combination of professional experience and by many other routes. A new paradigm of innovation these days is end user innovation where a great deal of innovation is done by those actually implementing and using technologies and products as part of their normal activities. These may also lead to revelation of innovation by using methods like open source. This evolution has brought huge changes in the way innovation is conceived and is practiced in big firms.

Today crowdsourcing is a hot topic in the Innovation arena. Crowdsourcing is a process that involves outsourcing tasks to a distributed group of people. (Jeff Howe, 2006, The Rise of Crowdsourcing.)This process can occur both online and offline .The difference between crowdsourcing and ordinary outsourcing is that a task or problem is outsourced to an undefined public rather than a specific body, such as paid employees. Although there are simple and cost effective ways to jumpstart your efforts – for

example, leveraging a company like InnoCentive to host prize-based challenges in order to rapidly find solutions to your most pressing problems, leading organizations that wish to truly embrace open innovation and crowdsourcing do so through careful planning.

1.1.1) Monopoly

A monopoly, from Greek monos (alone or single) + polein (to sell), exists when a specific person or enterprise is the only supplier of a particular commodity. (Milton Friedman, 2002. "VIII: Monopoly and the Social Responsibility of Business and Labor", Capitalism and Freedom, The University of Chicago Press. p. 208) .This contrasts with a monopsony which relates to a single entity's control of a market to purchase a good or service, and with oligopoly which consists of a few entities dominating an industry. By definition, monopoly is characterized by an absence of competition, which often results in high prices and inferior products. A monopolistic organization is characterized by high price levels, supply constraints and most importantly excessive barriers to entry. Because this type of organization would be comprised of one firm, consumers would have no choice but to purchase solely from this firm. Without proper legislation or controls, this firm possesses the power to raise prices without adversely affecting demand for its products/services.

In many jurisdictions, competition laws restrict monopolies. Holding a dominant position or a monopoly of a market is not illegal in itself, however certain categories of behavior can. A government-granted monopoly or legal monopoly, by contrast, is sanctioned by the state, often to provide an incentive to invest in a risky venture or enrich a domestic interest group. Patents, copyright, and trademarks are sometimes used as examples of government granted monopolies, but they rarely provide market power. The government may also reserve the venture for itself, thus forming a government monopoly.

1.1.2) Oligopoly

An oligopoly is a market form in which a market or industry is dominated by a small number of sellers (Oligopolists). Oligopoly is one of the common market forms. For example, as of fourth quarter 2008, Verizon, AT&T, Sprint, Nextel, and T-Mobile together control 89% of the US cellular phone market.

Oligopolistic competition can give rise to a wide range of different outcomes. In some situations, the firms may employ restrictive trade practices (collusion, market sharing etc.) to raise prices and restrict production in much the same way as a monopoly. Where there is a formal agreement for such collusion, this is known as a cartel. A primary example of such a cartel is OPEC (Organization of the Petroleum Exporting Countries) which has a profound influence on the international price of oil.

In other situations, competition between sellers in an oligopoly can be fierce, with relatively low prices and high production. This could lead to an efficient outcome approaching perfect competition. The competition in an oligopoly can be greater when

there are more firms in an industry than if; for example, the firms were only regionally based and did not compete directly with each other.

1.1.3) The end to Monopolies and the Birth of Oligopoly

The organizations studied (Telcos business being the prime industry used in this case) were primarily monopolistic in their operations and strategies, have seen a forced conversion into more segmented entities (not to be confused with market segmentation) and finally a market structure which seems more oligopolistic in nature.
A prime example in this case is the Bell Laboratories in US. This vertical integration was terminated in September 1995 into one company providing telecoms services (the new AT&T), one providing equipment (Lucent), and one providing computers and computer services (essentially the former NCR that had been acquired in a hostile take-over by AT&T in 1993).

Bell Laboratories was an example of such entities which have seen innovation flourishing within the banner of monopoly. From theoretical milestones such as the invention of information theory and cryptography, to concrete things like transistors, lasers, and cell phones, they invented things which became the forerunners of innovation in the years to follow after World War II. But these days the resources which were being committed to innovation under the banner of R&D (Research and Development) are no more a birth right of organizations. On the contrary the boundaries between R&D and daily operations of a company have been frequently blurring and this responsibility cuts across almost every department of an organization. In some way these monopolistic giants of past who with the beginning of segmentation started to outsource innovation to outsiders can no more afford to do. The prime reason being when every entity in the globally saturated Industry is trying to differentiate itself from the others, innovation seems to come at the top of the paradigm to make a firm stand out. By outsourcing, it no more remains a contributing factor to one's differentiation.

To study the effect of such changes over the years and how these big firms have been catching up the roller coaster of innovation the author has focused on the Telecommunication Industry. Using a Telecom Company as a case study the author has outlined various factors which have been contributive to promote innovation as a means of survival.

1.2) Reason for industry focus

The meaning of innovation within various industries has been quite diverse. Therefore to focus on the adopted best practices it is considered best to select an industry. In this way one could better differentiate between different settings which yield different results keeping the effect of other environmental factors being equal.

1.2.1) Industry vs. Sector

The terms industry and sector are often used interchangeably to describe a group of companies that operate in the same segment of the economy or share a similar business type. Although the terms are commonly used interchangeably, they do, in fact, have slightly different meanings. This difference pertains to their scope; a sector refers to a large segment of the economy, while the term industry describes a much more specific group of companies or businesses.

The selected Telecom industry has a great social, economic and cultural impact on the modern society. In 2008, telecommunication industry's revenue was estimated at $3.85 trillion or just fewer than 3 percent of the gross world product (Worldwide Telecommunications Industry Revenues, Internet Engineering Task Force, June 2008.). According to the new industry market study, telecommunications services revenue on a worldwide basis will grow from $2.1 trillion in 2012 to $2.7 trillion in 2017 at a combined average growth rate of 5.3 percent annually.

Fran Caulfield, Research Director for Insight Research said:

"Despite global economic uncertainty, the telecommunications industry is showing strong revenue growth, which is being driven by consumer Internet usage and business mobility solutions. These are enabling new applications. Even amidst so much economic uncertainty, the fact remains that telecommunications is a key factor in economic growth. Telecommunications facilitates socio-economic advancement and is a critical utility for economic development, much like water and energy."

If we take a retrospective view we can witness that this industry has evolved tremendously over the past years and has witnessed a great deal of innovation from its inception to provision. In spite of such a huge growth in the past year this industry has been destroying value for its shareholders.

As apparent from Figure 1, Telcos are not considered to be value creators today. Rather this has been taken over largely by Tech Bellwethers like Google, Microsoft, Social networking portals like Facebook, LinkedIn and others.

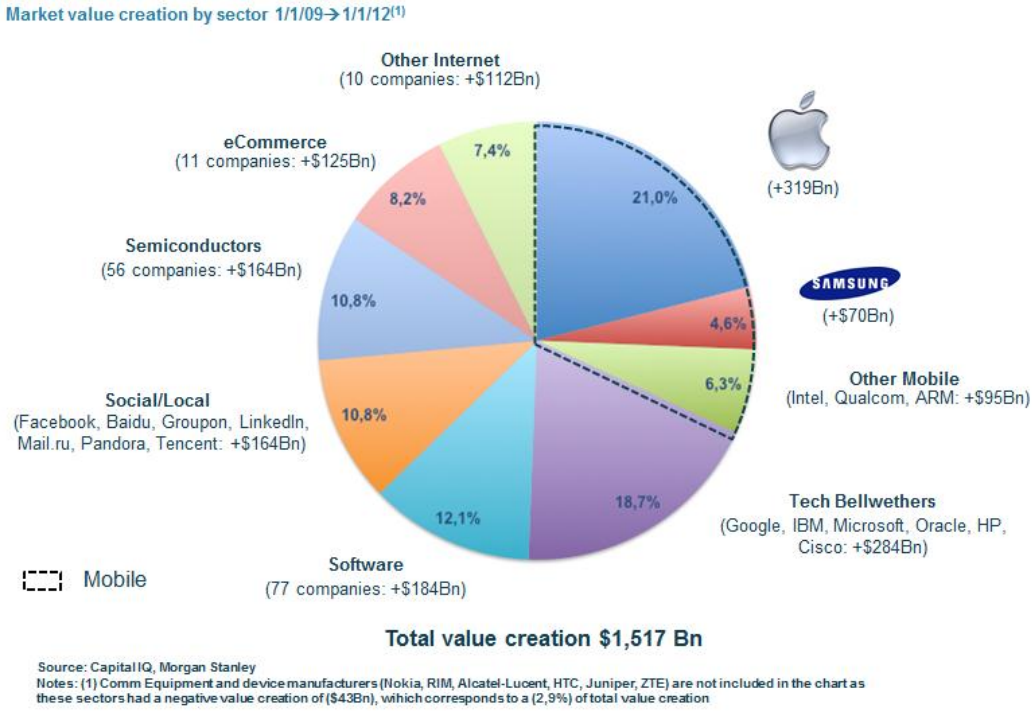
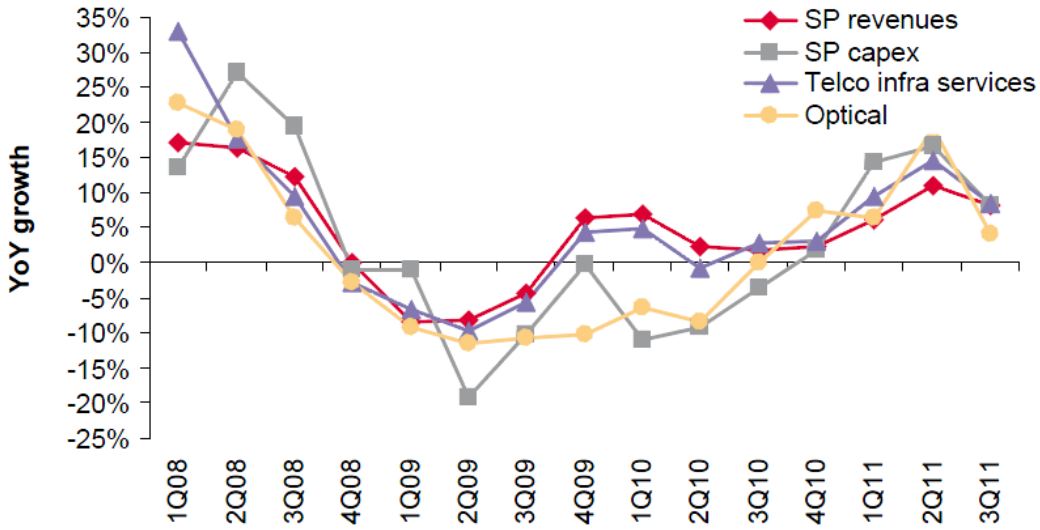


Figure 1.Market Value Creation by Sector (Capital IQ Morgan Stanley, 2012)

Moreover recently the Telecom market has been witnessing a decline in its growth as visible from the Figure 2.



Notes: (1) "Telco infra services" = ICT services revenues to the telecom SP vertical market. (2) "Optical" = optical networks equipment revenue

Figure 2.Year-over-year telecom market growth rates, 1Q08–3Q11 (Reinvigorating the Telco–IT alliance, 2012)

These were the main reason for the author to delve deeper in and explore what factors have been leading to such a decline for some firms while the others have been doing well in this regard.

1.2.2) The evolution of Telecom Industry (a brief overview)

In the early 70s and 80s the Telecom industry was dominated by regional monopolies for example Bell Telecom, TelcoA , Dutch Telecom , France telecom etc. It was mainly a regulations driven market where vertical integrations allowed these companies to cover front end to the terminals .In that time innovation was mainly driven by manufacturers/vendors for example Alcatel, Cisco, Ericsson, Lucent etc.

In the late 90s till 2004 came a forced end to monopolies in every part of the chain. During the same time internet was penetrating steadily in the veins of the telecom sector .That time is classified by everyone providing similar services and the competition based on

- Coverage / Reach
- Trust
- Price (an attractive door for new entrants)
- Customer Support

But still the industry was focused on the vertical delivery of services from terminals to front end.

From 2004 to 2009 started the separation between applications and infrastructure. This gave way to independent hardware vendors and the outsourcing of technology development to third parties by Telcos by focusing on their core competencies. During the same time Chinese vendors like Huawei and ZTE starting showing their prominence and forced lower margins with vendors and further consolidation of the Industry. Increased Commoditization, market fragmentation and regulatory pressure lead to lower margins and market shrink for both the vendors and Telcos. Even during this time innovation was the prime responsibility of the vendors (primarily Technology vendors).

From 2009 to 2012 it's been observed that instead of creating value both vendors and Telcos have been destroying value for the market which is increasingly getting more and more commoditized. There have been continues trend of consolidation and misalignment in the interests of Telcos and vendors. The so called innovation which is happening at the vendor's side is no more giving any competitive advantage to Telcos since its common for all. Moreover vendors want to push more iron (complicated equipment's) and more options which contribute to the complication of network not intelligence.

***The author talks later about the evolution of the Telecom sector and its nature of Innovation.**

Chapter 2 Research Objective

2.1) Prior Research

Recently the Telecom industry is not satisfied with the growth of its revenues. Although the market is growing but the piece of value generation has been shrinking lately for the Telecom companies. This means the shareholders are not satisfied with their investment in these industries which in spite of growing don't justify the investments and are ranking low in the financial returns. This has led to much work being done in this area over the past couple of years. But what these works focus on is on verification of individual elements that can be held responsible for the shrinking of this value generation activity.

One such factor is the new OTT (Over the Top) players in the market. OTT players are the ones who enjoy the benefits of the infrastructure and usually play on top of the infrastructure like Facebook, Google, and Skype without caring about what lies beneath .According to research these players have shown exponential growth .And in a way have the value generation has been shifted to them from the Telcos side (Muneer Zuhdi, Elisabeth T. Pereira and Antonio Teixeira, 2011, Impact of Internet Companies on Traditional Telcos' Business Model: A Global Research Study , World Review of Business Research, Vol. 1. No. 3. p. 102-112). According to this OTT pose the highest threat to the Telcos worldwide. Therefore the responsibility of companies is to look back their existing business models which need a change. Another aspect is more internally focused which outlines the monopolistic mindset of these big Telcos which still favors the innovation to be an outsourced activity (Henry W. Chesbrough and David J. Teece, 2002, Organizing for Innovation: When is Virtual Virtuous, Harvard Business Review). There has been research which proposes vertical integration and bundling of services; bundling vertically differentiated communications services to leverage market power.

But all these focus on much concentrated areas, some targeting the external new players in the market, some claiming the lack of internal innovative culture, some benchmarking the practices in the well-known innovative firms. So far there has not been a study which takes a step back and studies the genetic code of these firms and then moves towards how and why things are going on in the firms the way they area .

2.2) Research Question

The key question for this research is this:

A retrospective and prospective view on different factors which contribute towards innovation in traditionally monopolistic companies (with a focus on Telco Industry)

Telcos or Telecommunication Service Providers is a service provider of telecommunications services such as telephony and data communications access. Many were at one time nationalized or state-regulated monopolies. These monopolies are often referred to, primarily in Europe, as Postal Telegraph and Telephones (PTTs).

To cite the major Telcos worldwide, these include:

- China Mobile
- Vodafone Group
- China Unicorn
- TelcoA
- America Movil
- France Telecom
- Bharti+Zain
- AT&T
- Verizon Comm
- NTT Docomo

2.3) Research Objectives

The objectives of the research can be further refined to

- Identify the reasons behind the need for innovation today in the Telco industry.
- Determine the hurdles preventing Telcos from innovating.
- Pinpoint the differentiating features of the firms that are successful with innovation in the industry.
- Highlight the practices necessary to create an innovative culture in these traditionally monopolistic firms
- Propose strategies which are viable in the current industry

2.4) Delimitations

The following delimitations were considered by the author before taking the research:

- Considering the size of the telecom sectors and the different players involved in the value chain (small and big) the study has been focused on big firms who own the infrastructure from the content providers till the provisioning of services.

- Policy issues form a crucial part related to the innovation ecosystem but since the primary focus of the study is not public policy, this has been kept aside.
- The author has taken Telecom industry to develop a case study .Therefore the research can be generalized only to the Industries which are similar to it.
- The corporate venture management and different approaches taken to streamline the process within the organization has been a hot topic of discussion today. The author does not intend to propose any form of framework for this, since the firms not only vary widely on the quantum of need for but also the nature of innovation.
- Although the case study of the company is based on real situation, for privacy reasons the name of the company has been kept anonymous and a substitute name TelcoA has been used throughout.

2.5) Limitations

The main limitations of the study are:

- The Telcos industry is fast evolving industry .Although the authors also takes in account the resources which provide a futuristic viewpoint. The applicability of the research depends widely on the state of the industry and how the whole ecosystem evolves in future.
- Although the data collection techniques have been selected after proper consideration there exists the possibility of error. To minimize it author has used data triangulation techniques using several resources to reconfirm the facts about the current situation.
- The topic of strategy itself is very subjective in nature where individuals have different point of views. Although the author has tried to get as much diverse an objective as possible, there exist a possibility of personal error and confirmation bias.

2.6) Target Group

The study is intended to bring valuable insights to researchers in the field of Intrapreneurship and its applications in the big firms. For practitioners the final results of the study will help in the formulation of strategic and operational plan for the organizations with the similar settings. In the recent years many industries have seen similar changes in the environment and have been forced to go out of business or are striving in the current economy .The study reveals valuable insights on the nature of current innovation processes and best practices which could be benchmarked and used by other industries facing similar situations. The author has made some recommendation based on the case study of the company whose implementation would help the unit which was used for the research purpose. For students similar to the author the study helps to delve deeper and get a peek review of working in complex and large Telecom groups which consist of various companies, complex structures and often conflicting interests.

2.7) Research Settings

TelcoA is a privately-held Spanish telecommunications company headquartered in Madrid (Spain) and operating in more than 25 countries providing communication, information and entertainment solutions to its more than 287.6 million customers worldwide (TelcoA website, 2012). It is among the world's five largest telecom companies by market capitalization and has significant presence in Europe and the Americas with over 60% of its business outside of its home market TelcoA employees more than 285,000 professionals and has consolidated revenues of 62,837 million euros.

The Company comprises of 4 different units; TelcoA Latin America, TelcoA Europa, TelcoA Global Services (to provide synergies between different units) and recently TelcoA Digital (whose purpose is to seize the opportunities within the digital world).TelcoA Global Solutions was created as an instrumental company to help other TelcoA group achieve synergies in their operations.

"It is not a company which is well-known in the market"
(Director of Business Unit, TelcoA)

TelcoA IWS (International WholeSales) is the organization within the TelcoA Global Services that provides global telecommunication services for fixed and mobile carriers, ISPs and content providers. Its portfolio includes international Voice, IP, Capacity, Satellite, Mobility, Platform and International Services for Corporations. It has a Tier-1 Backbone that offers direct connectivity between Latin America, the USA and Europe through an extensive international fiber-optic network, which includes, among others, the SAm-1 submarine cable. It carries more than 20,000 million international voice minutes annually through its NGN (Next Generation Network), and has more than 300 direct routes with international providers. (TelcoA website, 2012)

The Author conducted his research at the Strategy and Innovation department at the TelcoA IWS (International WholeSales) unit. This is a special department dedicated to formulate strategic plans not only for TelcoA IWS but its activities cuts across many initiatives taken under TelcoA Corporate and TelcoA Digital (formerly TelcoA R&D).

2.8) Research Workflow and Report Outline

The Research work was carried out in the following six steps as mentioned in the Figure 3.The structure of the report is also consistent with the same workflow.

Figure 3.Structure of Report

Chapter 1

This chapter provides the background and the major reason for the research. The chapter also provides the reason for the selection of a particular industry as part of the case study for the research.

Chapter 2

This chapter sets the scope and the objectives for the research. The chapter also helps the reader to understand the context within which the research was carried out by introducing the company where the research was conducted.

Chapter 3

This chapter outlines the reason behind the specific methods chosen for the research. More over this chapter also explains about the validity and reliability of the research findings.

Chapter 4

This chapter sets the Theoretical background for various concepts that are explored as part of the research. In this context this chapter focusses on Innovation, Entrepreneurship, and Intrapreneurship and other form of Innovation within Corporations.

Chapter 5

This chapter provides detailed information about the innovation within the firm as well as within the industry. This chapter takes a retrospective approach and helps the reader to understand different factors which contributed towards innovation at different stages in the Telco industry.

Chapter 6

This chapter describes the current status of the Innovation within the firm. This chapter details the insights captured by the user during his work, the different perspectives by the Industry experts as well as the Individuals within the firm.

Chapter 7

This chapter provides the conclusion along with the Implication of the research for the Managers. In this sector the author provides his recommendations and the possible implications of the results for other companies.

Chapter 3 Methodology

This section is intended to describe the methodology adopted for the Thesis .It will firstly focus on the scientific approach (Positivism and Hermeneutics), Research Methods (Induction, Deduction & Abduction), Data Collection approaches, Qualitative vs. Quantitative research and finally the author's choice and the reasons of preferring one approach over other in his particular case.

3.1) Research Paradigm

There two basic types of approaching a scientific problem, Positivism and Hermeneutics.

3.1.1) Positivism

Positivism is a view that truth is truth no matter how you see it. In simple terms Positivism claims that if two independent persons are performing a study on facts, both should arrive on same results. A positivist takes data as objective and measureable thing and believes that researcher only have to collect and organize it and make a decision that how far the outcomes can be generalized. So researchers following this approach should stick to facts and should not allow their own impressions of reality to affect the outcome (Thuren, 1991).

Positivism, rooted in the traditional science school seeks to discover laws by the use of quantitative methods (Silverman, 1993). It assumes the existence of an objective truth in the world, and emphasis is put on the measurement of relationships between variables in order to reveal that truth. Moreover, the knowledge that is generated by the use of quantitative methods is objective and factual (McNeill, 1985). In other words, it is assumed that this knowledge is valid, independent of time and place, and will not be different according to the respective discoverer.

The positivists usually divide the object under scrutiny in to small parts and then try to observe their function, which they have and do while representing the whole. This is often referred as analyses.

3.1.2) Hermeneutics

Hermeneutics comes from Greek word "hermeneuo" which means "to infer or to interpret". In this approach questions are asked over and over again. The underlying theory of hermeneutics is that each person is different from the other. So each individual sees and interpret things in his own way. Therefore it is different from positivism as hermeneutist believes that if two independent persons are performing a study on facts, both can reach on different results. This kind of nature makes this approach highly dependent on person's ability to interpret things (Lundahl and Skarvard, 1999).

Hermeneutics has its roots in the Western world (Gummesson, 1991). It emphasizes constructivist approaches. That means there is no clear-cut objectivity or reality (Cassell and Symon, 1995) In addition, Clarke and Dawson (1999) pointed out that gaining insight and the development of understanding are the tasks of a hermeneutic researcher. Silverman (1993) argued that the interpretative social science deals with observation and descriptions and aims to generate hypotheses from field research, whereas positivism is concerned with testing correlation between variables.

Researchers following this approach don't divide the object into parts rather they try to examine it in its entirety so that generation of new ideas can be facilitated. Sometimes it is also referred as hermeneutic spiral as visible in Figure 4. In the spiral the researcher first develops a view of the object as a whole and then based on this he looks into the parts.

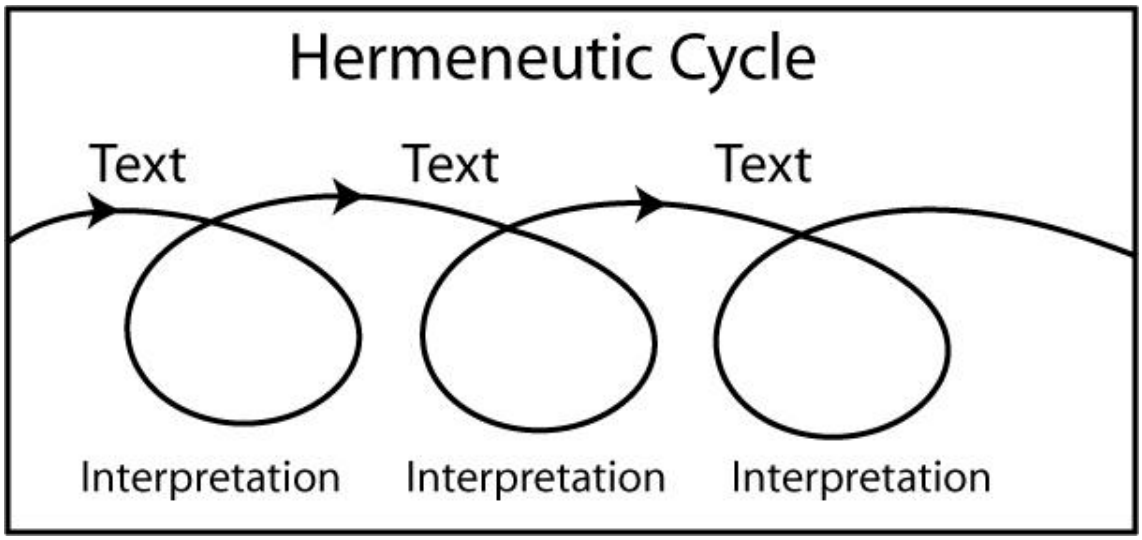


Figure 4.Hermeneutic Spiral

3.1.3) Authors Approach

The research for this Thesis was carried out with the Hermeneutic point of view. The reason being the problem in hand is highly dependent on context. Another reason is, Innovation and Strategic initiatives being more subjective then objective in nature. Thirdly the Methodology used was based on Interviews, Open discussion forums and consultancy reports by various organizations .Interviews and less formal open discussions contribute as a major source of information for this thesis which makes the research more vulnerable to different specific point of views. As we know each individual is different in its background, knowledge and understandings, so hermeneutic approach suits best the situation to bring various opinions and get a holistic point of view.

Lastly the work was supplemented with a case study, which is one of the methodologies used by interpretivists (Collis & Hussey, 2009, p. 64). A case study is a methodology used to explore a single phenomenon in a natural setting (Collis & Hussey, 2009, p. 82); however, it must be constructed to be sensitive to the context in which the management behavior takes place (Bonoma, 1985, p. 204).

The author was directly involved in various business activities for a period of about six months, and gained insights through direct first-hand experience and observation. Case studies are not without their share of limitations and criticisms. Yin (2009) lists and warns the researcher of these and also suggests ways to overcome them. On the part of the person carrying out a case study, he mentions the “Researcher Bias” which needs to be particularly addressed in order to have a fruitful research. Since this research was carried out in a setting where the author was not only an observer but also a part of the unit being analyzed, there might have been misunderstanding and overlooking due to rush of work, time limitations, etc.

3.2) Research Method

The second important decision after the choice of research approach is that how the data or information is going to be collected, structured and analyzed. This process is referred as research method. It explains how researcher is going to use the theoretical and empirical knowledge. There can be there kind of logics to solve the research question. It could be Induction, Deduction or Abduction (Collis & Hussey, 2009). Figure 5 explains these 3 approaches:

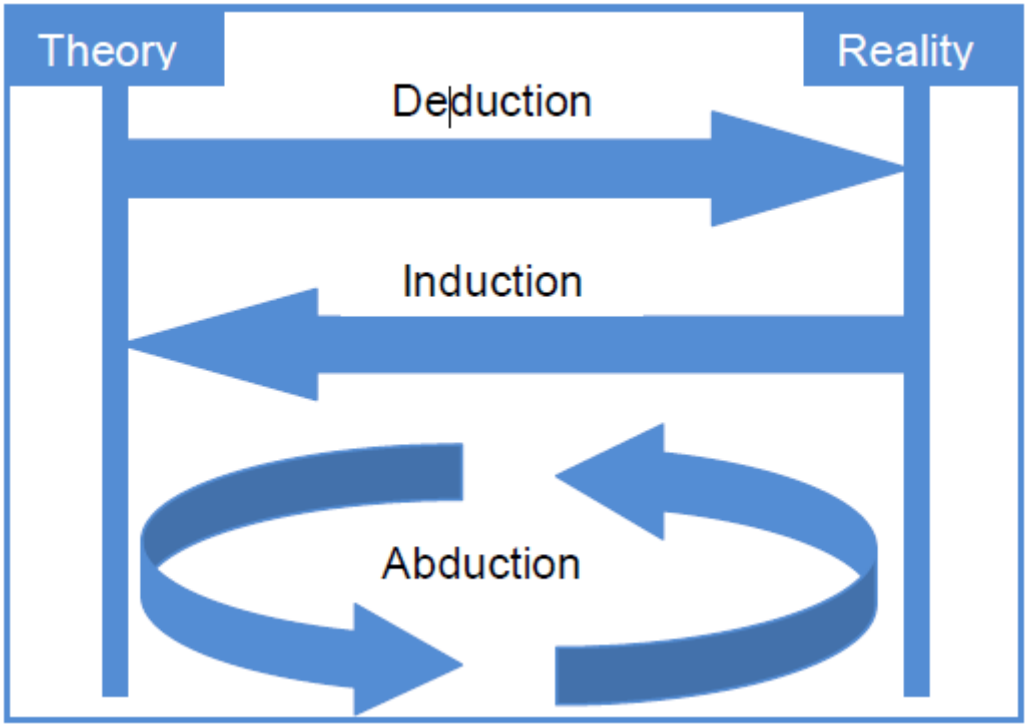


Figure 5.Deduction, Induction and Abduction

3.2.1) Induction

In the induction method the starting point for the researcher is the empirical data, the real situation in hand is analyzed and then conclusions are drawn from it. Also these Conclusions are linked with theory and it is not necessary that a relevant theory is

already there to be linked. The main idea is to explore how things are working in the real world. Since knowledge is collected form observation of reality and is of empirical nature, so there is always a chance of researchers influence on results due to his own view and judgment.

3.2.2) Deduction

On the other hand, in deduction method the starting point for the researcher is existing theoretical knowledge. The existing literature is extensively explored and assumptions made about how the reality will be or should be. These assumptions are called hypothesis. These hypotheses are than tested on the real situation and the ones which holds true are used to make some conclusions. The main idea here is to move from theory to empiric. Like the induction method, deduction also has some negatives which researchers should keep in mind. One drawback is that researchers are tempted to spend more effort in finding link between the theory and hypothesis and there is a probability that some useful available information get ignored.

3.2.3) Abduction

Abduction method is the combination of induction and deduction and is used by researchers when the situation does not purely fits with induction or deduction method. This approach moves to and fro between the theory and empiric.

3.2.4) Authors Choice

During the course of study Abduction method was followed as Inductive or Deductive methods were not alone enough to approach the problem. As mentioned earlier much literature could be found on generic theories of Innovation Management but to apply them in the specific context already establish business lines was not feasible . On the other hand use of existing theoretical knowledge to support the line of thinking for solution of a practical problem was also required.

As mentioned earlier, author was involved in different processes within the company under case study. Initially the interaction with the employees and existing documents were used to get the preliminary understanding of the organization and the industry in which it existed. This led to the exploration of theory as the next step to develop a solid base for the understanding of various forces influencing innovation within the organization. After understanding the scientific body of knowledge the focus was again shifted towards the empirical side (reality) within the company which was supplemented with further in-depth talks with the people responsible within organization and best practices carried out within and outside the specific industry. So overall it was an abduction approach where the focus shifted at many points between theory and empirics. This line of reasoning is also associated with the *Hermeneutics* paradigm as mentioned by Collis & Hussey (2009, p. 63).

3.3) Qualitative vs. Quantitative Research

One other important dimension of research is that whether the reality is treated in objective or subjective way giving rise to two possibilities namely quantitative and qualitative research. In Miles and Huberman's (1994) book Qualitative Data Analysis, quantitative researcher Fred Kerlinger is quoted as saying, *"There's no such thing as qualitative data. Everything is either 1 or 0"* (Miles and Huberman, 1994 p. 40). To this another researcher, D. T. Campbell, asserts *"all research ultimately has a qualitative grounding"* (Miles and Huberman, 1994 p. 40). This back and forth banter among qualitative and quantitative researchers is "essentially unproductive" according to Miles and Huberman.

3.3.1) Qualitative Research

Qualitative research is carried out to obtain a deep insight of the problem in hand and also suitable when it is not possible to show the collected data in numerical way. In qualitative research, researchers think in a subjective way and instead of just understanding the reality as it is, they are more inclined to explore the perception of it. Usually unstructured interviews are conducted and more importance is given to quotations and view of people involved than to numbers. The results are not predetermined and they even can be new dimensions of the problem itself. As the people's view is of great importance in qualitative research so it is considered to be more in line with hermeneutic scientific approach. Qualitative research has its own short comings. Qualitative research sometimes focuses too closely on individual results and fails to make connections to larger situations or possible causes of the results.

3.3.2) Quantitative Research

Research is said to be quantitative when the information collected is measured and treated in numerical way. Quantitative research is more in line with positivistic scientific approach. The researchers in this domain think more in an objective way and give no importance to historical connections and context of the problem. It is mainly suitable when there are questions like how many? Or how much? To carry out quantitative research instruments like surveys and questionnaires are used but careful attention is paid to avoid any subjective influence of the researcher on the results. Like Qualitative research quantitative research has its own shortcomings. Quantitative research often "forces" responses or people into categories that might not "fit" in order to make meaning.

3.3.3) Approach followed

Mainly qualitative approach was followed to get the information using interviews and informal discussions. But partly quantitative approach was also used to analyze scale of change and investment required for major changes. Another reason was that in quantitative research, the researcher is ideally an objective observer that neither participates in nor influences what is being studied. In qualitative research, however, it is thought that the researcher can learn the most about a situation by participating

and/or being immersed in it. Since the author was deeply involved in the processes he was able to gather much qualitative data from his surroundings.

3.4) Data Collection Methods

There are various data collection methods available for the researches. The methods of choice depend upon the type of problem being addressed and the approach being used (positivism or hermeneutic) and research methods (induction or deduction or abduction) areas.

3.4.1) Primary and Secondary Data Collection

Primary sources are original sources from which the researcher directly collects data that have not been previously collected. Whereas secondary data are sources containing data that have been collected and compiled for another purpose. The secondary sources consist of readily available compendia and already compiled statistical statements and reports whose data may be used by researches for their studies.

A summary of different primary data collection techniques is presented in Table 1.

Table 1: Primary data collection methods (Adapted by author with the prime source being Data Collection in Pragmatic Research by Gabriele Kasper)

Technique	Advantage	Disadvantages
Interviews	▪ Good response rate ▪ In depth exploration possible ▪ Suitable for understanding motives, attitudes and preferences.	▪ Time consuming ▪ Can be expensive ▪ Interviewer bias ▪ Actual behavior may differ from the responses.
Observations	▪ Deep insight ▪ Useable where data is not quantifiable	▪ Potential of ▪ biasness ▪ Different behavior under observation
Questionnaires	▪ Easy to execute ▪ Relatively cheap ▪ No interviewer bias	▪ Difficult to design ▪ Low response rate ▪ Actual Behavior may differ from what people say in the questionnaire. ▪ Might not accurately or comprehensively reflect the complexity and reality of the

		situation
Case Studies	▪ More focus on one specific unit	▪ Problem in generalization ▪ Can be time consuming
Critical Incidents	▪ More focused than diaries	▪ Need more time and effort ▪ Difficult to quantify
Diaries	▪ Alternative to direct observation ▪ Allows more reach in less time	▪ Difficult to organize the collected information. ▪ Confidentiality issues.

3.4.2) Authors Choice

3.4.2.1) Primary Sources

The Researchers own Experience: Since the author worked as an internee for six months within one of the firm, the data came from directly experiencing the management and the day to day activities and tasks assigned to the author.

In-depth Informal Discussion (within Company): It was best to obtain information through multiple sessions of informal discussions. This allowed the author to acquire detailed information and get the information which was present in between the lines .These face to face discussion allowed the interviewee to elaborate on the points and provide information in the most comfortable settings. In this regard several short discussions were made with 7 different people spanning across different departments of the firm.

Informal Discussion over Webinars by industry specialist: The author got the opportunity to attend various webinars related to his topic of research. This gave the author the more outward perspective about the industry trends and problems being faced in the current environment. The questions posed over the webinars provided a more diversified outlook of the industry and the best practices being adopted by similar players in the industry.

Semi-formal semi-structured open-ended interviews: Although a large portion of data came from in-depth informal discussions as mentioned above, some information was also collected using semi-formal open-ended interviews these interviews were mostly conducted with key people responsible for the strategic initiatives within the organization. In these interviews author posted question related to the historical perspective and the future plans for the group. The questions were left open ended so the interview can contribute as much as he can from his experience.

Primarily 3 detailed interviews ranging from 60 to 120 minutes were conducted with 3 key people responsible for Innovation and Strategy within the organization. The detailed profile has been provided later in the interview findings section. The

questionnaire used for these interviews can be found in the Appendix Section of the report.

3.4.2.2) Secondary Sources

The TelcoA Intranet: The TelcoA intranet was a crucial source of data collection which covers the industry news as well as the different initiatives being taken by sub companies of the group. This also provided information about different policies and events which were held to promote Entrepreneurial spirit within the company.

Manuals, Files, Repositories, Presentations: Some high-level strategy documents and presentations were available and were used to obtain information on the company and its strategic objectives. A special repository in this regard was shared with the author within the TelcoA IWS Strategy department which comprised of the recent data collected, analysis and presentations by key officials related to Innovation strategy.

Analyst Reports: Various external organizations that perform strategic surveys and publish their analysis in the form of white papers were analyzed to grab a hold of industry trends. These reports helped to get a more futuristic outlook of the industry.

3.5) Validity and Reliability

As far as the quality is concerned validity and reliability are the two major aspects of any research .In simple words validity means that the method is measuring the things which it should be and reliability refers to the dependability on the research.

3.5.1) Validity

3.5.1.1) Construct Validity

During the data collection, such factors which explain observable phenomenon were assumed to exist. Although the author tried to capture the manifestation of such hypothetical constructs, the sheer fact that such phenomenon cannot be tested or measured **brings down** (decreases) the construct validity of this research. However, the author had followed the suggestion of Yin (2009, p. 42) by using multiple sources of evidence during data collection.

3.5.1.2) Internal Validity

Validity is the extent to which the research findings accurately reflect the phenomenon under study (Collis & Hussey, 2009, p. 64). The data collected during the interviews and discussions was verified with other sources, like company portals, reports and shown to colleagues to ensure that the author was interpreting the findings correctly. The research was carried out in the IWS (International WholeSales) unit of the TelcoA. So it can be concluded that the internal validity of the research work is **high**.

3.5.1.3) External Validity

External validity is about defining the domain to which a study's findings can be generalized (Yin, 2009, p. 40). It is believed that those business units or organizations which have the similar history's and are striving to maintain the attractiveness as being value creators as in past and have similar complex structures of management as the one studied in this research work could benefit from the findings of this work. The external validity of this research work is **moderate.**

3.5.2) Reliability

Reliability refers to absence of differences in the results if the research was repeated (Collis & Hussey, 2009, p. 64).The author was well aware of the fact that the data should be obtained free of biases and errors like respondent inaccuracy. To cope up with these follow-up questions were asked and data triangulation (Collis & Hussey, 2009, p. 85) which involved collecting the same data from different sources was used to increase the reliability of the research.

Chapter 4 Literature Review

4.1) Innovation

The word innovation derives from the Latin word innovatus, which is the noun form of innovare "to renew or change," stemming from in "into" + novus "new".

The term innovation has been defined in a number of ways by different authors.

Innovation is the specific instrument of entrepreneurship... the act that endows resources with a new capacity to create wealth.
(Peter Drucker, 1985)

Innovation has been defined as the adoption of an internally generated or purchased device, system, policy, program, process, product or service that is new to the adapting organization.
(Daft, 1982)

Literature on adoption of innovations has concentrated on individual variables affecting the process of adoption by way of bivariate relationships both at individual and organizational level.
(Dobni, 2006)

4.1.1) What Is NOT Innovation?

"Invention is the mother of necessity."
Thorstein Veblen

It is important to be clear as to what innovation is not. Innovation is NOT invention, even if invention is the mother of necessity. These two words are sometimes used interchangeably, but although connected they are not the same. An innovation is the extension of an invention.

If an inventor discovers the "next big thing," but is unable to find anyone to produce it, then the next big thing remains undiscovered to the world. For this invention to become an innovation, a public needs to be introduced to the invention and have said invention improve their lives in some way. This may happen behind the scenes (e.g., streamlined processes that lower costs to the customer) or be clearly visible (e.g., the flexibility of a laptop vs. a desktop).

4.1.2) Incremental vs. Radical Innovation

There are two dimensions that we can use to separate an incremental from a radical innovation:

The first is an internal dimension, based on the knowledge and resources involved. An incremental innovation will build upon existing knowledge and resources within a certain company, meaning it will be competence-enhancing. A radical innovation, on the other hand, will require completely new knowledge and/or resources and will be, therefore, competence-destroying.

The second dimension, the external one, differentiates the innovation based on the technological changes and on the impact upon the market competitiveness. An incremental innovation will involve modest technological changes and the existing products on the market will remain competitive. A radical innovation will instead involve large technological advancements, rendering the existing products non-competitive and obsolete.

4.1.3) Inter Disciplinary Views of Innovation

4.1.3.1) Society

Due to its widespread effect, innovation is an important topic in the study of economics, business, entrepreneurship, design, technology, sociology, and engineering. In society, innovation aids in comfort, convenience, and efficiency in everyday life. For instance, the benchmarks in railroad equipment and infrastructure added to greater safety, maintenance, speed, and weight capacity for passenger services. These innovations included wood to steel cars, iron to steel rails, stove-heated to steam-heated cars, gas lighting to electric lighting, diesel-powered to electric-diesel locomotives And these days shortening the travel time from hours to minutes through locomotives like high speed bullet trains. These and almost all conveniences in society can be attributed to innovation in a way.

4.1.3.2) Business and Economics

In business and economics, innovation is the catalyst to growth. With rapid advancements in transportation and communications over the past few decades, the old world concepts of factor endowments and comparative advantage which focused on an area's unique inputs are outmoded for today's global economy. Economist Joseph Schumpeter who contributed greatly to the study of innovation argued that industries must incessantly revolutionize the economic structure from within, that is innovate with better or more effective processes and products, such as the shift from the craft shop to factory. He asserted that "creative destruction is the essential fact about capitalism. (Schumpeter, J. A.,1943, Capitalism, Socialism, and Democracy, 6 ed, Routledge. p. 81–84.) In addition, entrepreneurs continuously look for better ways to satisfy their consumer base with improved quality, durability, service, and price which come to fruition in innovation with advanced technologies and organizational strategies. (Heyne, P., Boettke, P. J., and Prychitko, D. L.,2010, The Economic Way of Thinking. Prentice Hall, 12th ed. p. 163, 317–318).One prime example is the explosive boom of Silicon Valley startups out of the Stanford Industrial Park.

4.1.3.3) Organizations

"Innovation has nothing to do with how many R&D dollars you have... It's not about money. It's about the people you have, how you're led, and how much you get it." Steve Jobs

In the organizational context, innovation may be linked to positive changes in efficiency, productivity, quality, competitiveness, market share, and others. All organizations can innovate, including for example hospitals, universities and local governments. For instance, former Mayor Martin O'Malley pushed the City of Baltimore to use CitiStat, a performance-measurement data and management system that allows city officials to maintain statistics on crime trends to condition of potholes. This system aids in better evaluation of policies and procedures with accountability and efficiency in terms of time and money.

In the context of an Organization Innovation can be classified as

4.1.3.3.1) Structured Innovation

This type of innovation starts top-down. At Apple, innovation looks like a structured and methodical process. Their model is repeated in their journey from iPod to the iPhone to the iPad. They have a single (arguable, but not defendable) visionary, few strategists and several focused people who execute. The hiring policy is based on those people who can execute well. Only a limited amount of people (visionaries, strategists) know all aspects of the thrilling project. With this kind of model, communication tends to be controlled. In this type of innovation one tends to stray not too far from the core market.

4.1.3.3.2) Unstructured Innovation

This type of company begins by taking look at large green-field areas where disruption is possible and has multiple visionaries in each field. At Amazon one could see such model of innovation .One could argue that there's a single visionary (Jeff Bezos), but could easily counter that they have many more visionaries than Apple based on the sheer number of new areas they pursue for innovation. The market approach is much broader and tends to look with approach to take systematic experiments. The responsibility of vision is more shared then the structured approach and this is visible in the hiring process. Therefore these organizations tend to hire more visionaries and strategist in each field and empower them to execute their vision.

4.1.4) Open Innovation

Although the idea and discussion about some consequences (especially the inter-firm cooperation in R&D) date back at least to the 60s, open innovation is a term promoted by Henry Chesbrough, (Chesbrough, H.W. ,2003, Open Innovation: The new imperative for creating and profiting from technology. Boston: Harvard Business School Press)

"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. [This paradigm] assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as they look to advance their technology."

(Henry Chesbrough, Open Innovation: Researching a New Paradigm)

"Open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology".

(Chesbrough, H.W. ,2003, Open Innovation: The new imperative for creating and profiting from technology. Boston: Harvard Business School Press)

This model is the new era of innovation. Here the approach is much more chaotic. The organization has a plethora of projects in the pipeline. A good example is Google whose hiring policy is also pretty consistent with this approach. Therefore they look for people can be visionaries, strategist and executors all in one. Getting these ¨Rock stars¨ is not only difficult but also to keep them working towards their vision with a large framework of those visions not being aligned is a great challenge for a company.

4.1.4.1) Reason for Open Innovation

Several factors have led to the focus towards Open Innovation. First of all, the mobility and availability of highly educated people has increased over the years. This has resulted in large amounts of knowledge which exist outside the research laboratories of large companies. In addition to that, when employees change jobs they take their knowledge with them, resulting in knowledge flows between firms. Secondly the availability of venture capital has increased significantly recently, which makes it possible for good and promising ideas and technologies to be further developed outside the firm, for instance in the form entrepreneurial firms. Finally other companies in the supply chain for example suppliers; play an increasingly important role in the innovation process. Another important aspect is out-licensing of ideas and technologies that do not fit the strategy of the company. For example, ASML, which is a Philips spin-off.

The following two Figures Explain the difference as explained by Chesbrough where he explains Open innovation as combining Internal and External paths to speed innovation (Chesbrough H. ,2003, *Open Innovation: The New Imperative for Creating and Profiting from Technology*, Harvard Business School Press.).

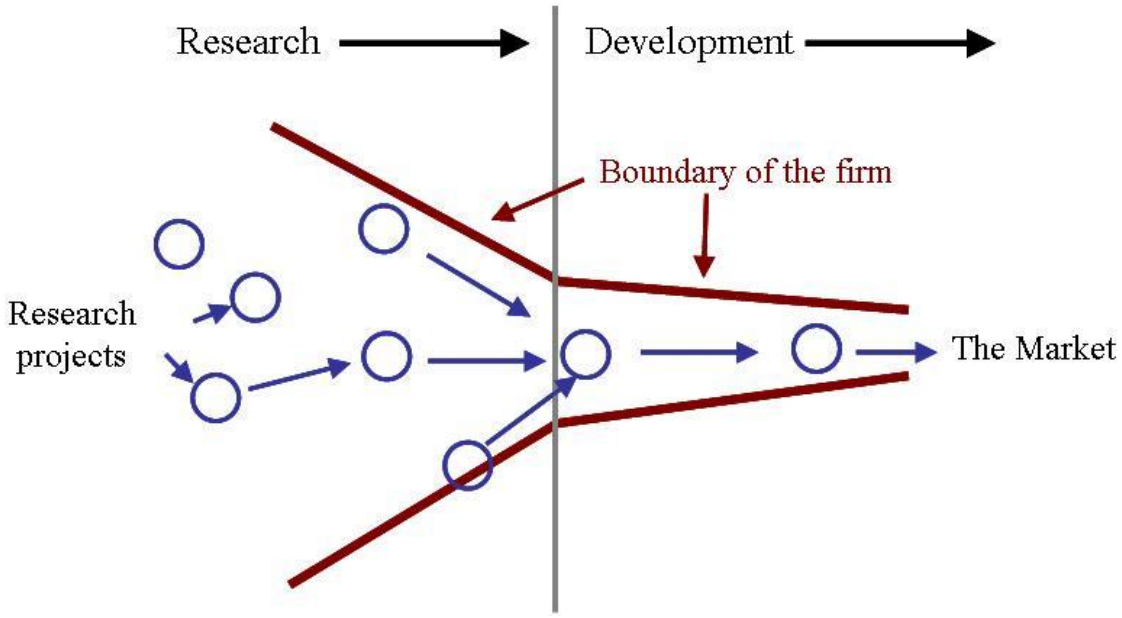


Figure 6.Closed Innovation (Chesbrough, 2003)

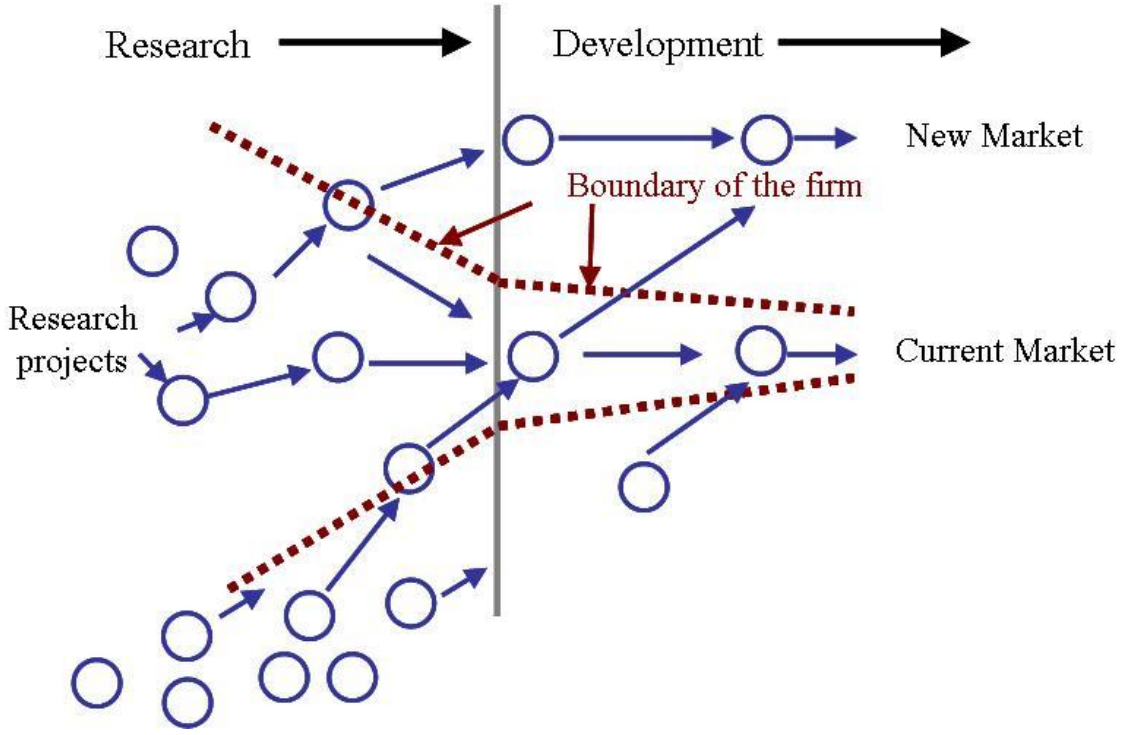


Figure 7.Open Innovation (Source Chesbrough, 2003)

4.2) Entrepreneurship and the Entrepreneur

As innovation is a crucial tool utilized by Entrepreneurs. Later the author discusses the practitioners of these tools and the organizations.

The word Entrepreneur originates from the French word entreprendre which means “to undertake”. The definition of Entrepreneurs has evolved incrementally from Cantillon’s salient contribution in the 17th century and its mainstream development and contemporary impact owes a great deal to leading twentieth century economic theorists such as Knight (1921), Schumpeter (1934), von Hayek (1937), Drucker (1970),Kirzner (1973), Casson (1982) and Baumol (1993).

According to Casson (2003)

. . . a modern synthesis defines the entrepreneur as someone who specializes in taking judgmental decisions about the coordination of scarce resources.

According to Stevenson (1983)

… entrepreneurship may be defined as the pursuit of opportunity without regard to resources currently controlled …

According to Peter Drucker (1970)

…entrepreneurship is about taking risk. The behavior of the entrepreneur reflects a kind of person willing to put his or her career and financial security on the line and take risks in the name of an idea, spending much time as well as capital on an uncertain venture….

This definition explicitly emphasizes the responsibility of the entrepreneur as the decision maker as well as identifying him/her as the basic unit of analysis. In contrast, however, a focus on entrepreneurship would typically encompass both internal capacities of an entrepreneurial firm and its competitive externalities. This perspective does not negate the crucial role of the entrepreneur in relation to firm formation, development and growth. On the contrary, it complements it by contextualizing relevant entrepreneurial decision making processes and related outcomes within the firm (internally) and in relation to its wider environment (externally).

It is generally agreed that entrepreneurs can be subjected to both “push” and “pull” influences that ultimately determine and shape their chosen entrepreneurial paths (Matlay and Storey, 2003). Some entrepreneurs claim to have been “pushed” by positive and negative factors affecting their personal or professional circumstances. It appears, however, that most entrepreneurs choose to pursue an entrepreneurial career in response to pull factors, in order to fulfill their personal need for change, growth and development (OECD, 1998).

Entrepreneurship can take a variety of forms, in new or established firms of all sizes (micro, small, medium and large businesses), as self-employment or as membership of virtual teams of e-entrepreneurs (Matlay and Westhead, 2005). It is important that entrepreneurship should not be perceived as a single action or event and also to recognize that entrepreneurs are not a homogeneous entity (Westhead and Wright, 2000). For instance, Reynolds (1994) argued that entrepreneurship mostly involves the creation of new businesses but entrepreneurial outlets can also be inherited or purchased "off the shelf" (Westhead and Cowling, 1998).

Westhead and Wright (1998) divide entrepreneurs into three broad categories:

1. Novice entrepreneurs: inexperienced individuals with no prior business ownership interests, and who currently own an equity stake in an economically active firm.

2. Serial entrepreneurs: currently own an equity stake in a single economically active firm, and had previously sold or closed down similarly owned businesses.

3. Portfolio entrepreneurs: simultaneously own equity stakes in two or more economically active firms.

4.2.1) Social Entrepreneurship

In recent years social entrepreneurship, a discipline within the field of entrepreneurship, has gained increasing attention from entrepreneurship scholars. Social entrepreneurship involves the recognition, evaluation, and exploitation of opportunities that result in social value – the basic and long-standing needs of society – as opposed to personal or shareholder wealth (Austin, Stevenson, & Wei-Skillern, 2006). Social value has little to do with profits but instead involves the fulfillment of basic and long-standing needs of the society such as providing food, water, shelter, education, and medical services to those members of society who are in need.

As example, the Manhattan Institute Award for Social Entrepreneurship honors leaders who develop solutions for pressing social problems. Similar initiatives include the Legatum Fellowship to pursue social entrepreneurial ideas during the studies at MIT. Another example shows how the renowned capitalists have embraced, and served as champions for, social entrepreneurship. The most notable example involves Bill Gates, the founder of Microsoft. In a recent speech at the World Economic Forum in Switzerland, Mr. Gates championed a new form of capitalism*: "Such a system would have a twin mission: making profits and also improving lives for those who don't fully benefit from market forces."* (Guth, 2008, p. A1)

4.3) Intrapreneurship

Intrapreneurship, first termed by Pinchot (1985), and is defined as an attempt to take the mindset and behaviors that external entrepreneurs have, and inculcate these characteristics into their employees. We have to note that the initial definition of

Intrapreneurship by Pinchot included the competitive aspect i.e. people competing within the company for resources. But later on now it's more focused upon the team, to award in a way so not to show just one winner. Pinchot quotes on that "

…It is too hard to be a leader if you can't say, "Hey we are all in this together. There may be more in this for me than there is for you, but a rising tide raises all ships and a falling tide is going to end us all up on the rocks". You have got somehow to be able to say that, and the systems need to be taken into account, or the intrapreneur will not be able to pull the loyalty of the team….

(Giffot Pinchot, 1986, Intrapreneurship Revisited, European Management Journal 4 No 2)

Intrapreneurship is the act of behaving like an entrepreneur, except within a large organization rather than a market as a whole. In 1992, The American Heritage Dictionary acknowledged the word entrepreneur, to mean

A person within a large corporation who takes direct responsibility for turning an idea into a profitable finished product through assertive risk-taking and innovation.

Sometimes the company wants every employee to act like an entrepreneur, but a more typical approach involves the targeting of a subset of managers to act as corporate entrepreneurs. These companies are looking for innovations in current businesses that can lead to substantial growth opportunities or to create an environment where more innovation and entrepreneurial behavior is visible and widely practiced.

Many companies are famous for setting up internal organizations whose purpose is to promote innovation within their ranks. An example could be 3M, who encourage many projects within the company. They give certain freedom to employees to create their own projects, and they even give them funds to use for these projects.

4.3.1) Examples of Intrapreneurship

Intrapreneurs, like their entrepreneurial counterparts need to envision and create an idea. But instead of convincing outside investors or risking their own personal capital, the Intrapreneurs need to create the right team within the company he/she works for to successfully launch a new product. The intrapreneur needs to convince some "mover and shaker" in senior management to approve a new product concept and then to invest the company's time, money, and other resources.

Many of the products we buy today are the result of Intrapreneurs e.g., Sony PlayStation and the Post-it Note. Some organizations such as Google and 3M strongly encourage Intrapreneurship amongst their employees. Google allows their employees to spend 20% of their time on their own personal projects.

3M a Trend Setter

"You have an idea, you take this idea and you pull all the things that need to come together and it's called 'believing.' Innovation boils down to conceive it, believe it, and achieve it."

Leon Royer
Retired executive director, 3M Leadership Development Center, Human Resources, formerly a technical director

3M is a company well known for its Intrapreneurship initiatives. It's not one of the companies visible to the end customers but many breakthrough innovations in the last 5 decades have disrupted through it. Indeed, 3M is third in this year's *BusinessWeek* ranking of the world's most innovative companies, based on a global survey of top executives. A lot of products that we use in our daily life owe their birth to 3M. With over 84,000 employees, they produce more than 55,000 products, including: adhesives, abrasives, laminates, passive fire protection, dental products, electronic materials, medical products, car care products (such as sun films, polish, wax, car shampoo, treatment for the exterior, interior and the under chassis rust protection), electronic circuits and optical films. (Source: Solutions.3m.com. Retrieved March 29, 2012)

Arthur Fry, a 3M chemical engineer, used to get annoyed at how pieces of paper that marked his church hymnal always fell out when he stood up to sing. He knew that Spencer Silver, a scientist at 3M, had accidentally discovered an adhesive that had very low sticking power. Normally that would be bad, but for Fry it was good. He figured that markers made with the adhesive might stick lightly to something and would come off easily. Since 3M allows employees to spend 15% of their office time on independent projects, he began working on the idea. Fry made samples and then distributed the small yellow pads to company secretaries. They were delighted with the product. 3M eventually began selling it under the name Post-it. Sales last year were more than $100 million.

4.3.2) It's about Strategy Linked to Operations

In Innovative companies it's not only about strategies it's about operations. Strategies poorly executed don't yield the desired results. The following example used by the author sheds light on the operations expect of Innovation:

From top to bottom, 3M's management provides active, spirited encouragement for new venture generation.
Harvard Business Review, 1980

3M Case Continuity: Intrapreneurship coupled with Open Innovation

At 3M it's a popular quote *"It's better to seek forgiveness than to ask for permission."* This relationship between managers and developers has resulted in the creation of a

long line of profitable products, from waterproof sandpaper and Scotchtape in the 1920s to Post-it Notes and Thinsulate in the 1970s.

But this Innovation is not limited to internal ventures .In the following example taken by the author one could witness **how external sources of innovation can contributes towards the Entrepreneurial ventures taken within the company .**

By the mid 1990 the 3M managers were concerned that a lot of company's growth was coming from the change to existing products. Breakthrough products were very few.
For the company to meet that goal, people at 3M-senior managers, marketers, product developers, scientists-thought to change their work approach. Accordingly, some Employees started becoming acquainted with a new method for developing breakthrough products: the lead user process. The process – which makes the generation of breakthrough strategies, products, and services systematic-is based on two major findings by innovation researchers.

Firstly, the researchers found that many commercially important products are initially thought of and even prototyped by users rather than manufacturers. Second, they discovered that such products tend to be developed by **"lead users"-** companies, organizations, or individuals that are well ahead of market trends and have needs that go far beyond those of the average user.

Those discoveries transformed the difficult job of creating breakthroughs from scratch into a systematic task of identifying lead users-companies or people that have already developed elements of commercially attractive breakthroughs-and learning from them.

In September 1996, a product development team in 3M's Medical- Surgical Markets Division became one of the first groups in the company to test the merits of the lead user process. The team was charged with creating a breakthrough in the area of surgical drapes-the material that prevents infections from spreading during surgery. By November 1997, the team had come up with a proposal for three major new product lines as well as a new strategy that would take a revolutionary approach to treating infection.

The team at 3M assumed that the savvy users outside the company have already generated innovations; their job was to track down especially promising lead users and adapt their ideas to the business's needs. Team members begin by briefly explaining their problem to individuals who have apparent expertise on the subject-for example, research professionals in a field, or people who have written about the topic and have much practical work in this area. They then asked for referrals of one who has even more relevant knowledge.

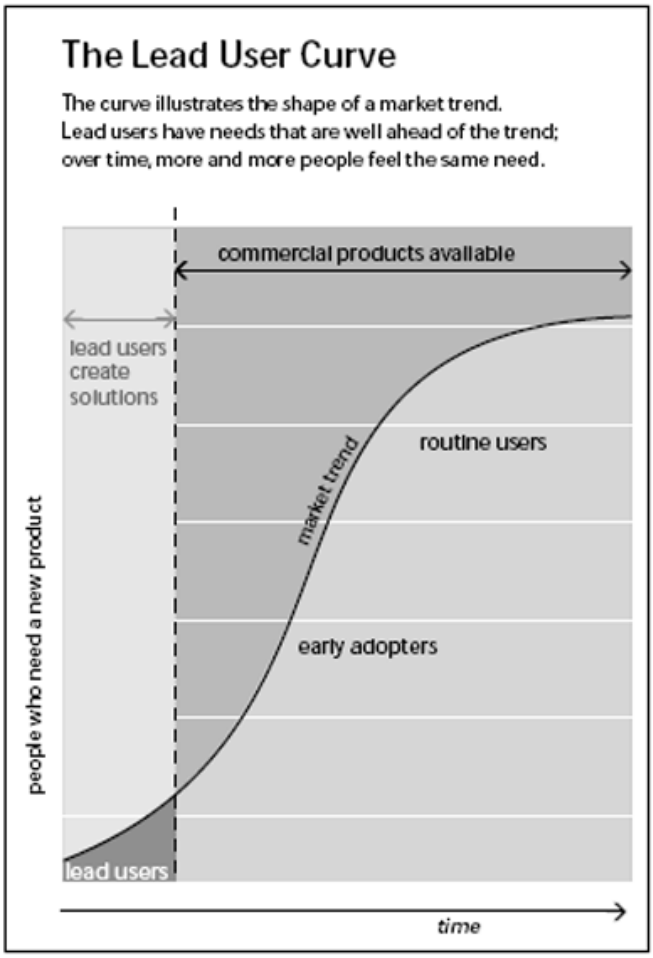


Figure 8.The Lead User Curve (Hippel, Thomke, and Sonnack, 1999)

For example Lead users in the area of pattern recognition proved especially valuable to the team. Specialists in the military had long worked on computerized pattern recognition methods.It is rare for a manufacturer to simply adopt a lead user innovation "as is." Instead, a new product concept that suits a manufacturer's needs and market is most often based on information gained from a number of lead users and in-house developers. This project gave birth to another approach to innovation called Lead User approach (see Figure 8) which is widely practiced by firms who want to go for disruptive innovation and want to instill this approach into their operations.

4.3.3) Why Intrapreneurship

A steep graph of value creation

"Big organizations are in dire need of Intrapreneurship because they are not getting the continual innovation, growth, and value creation that they once had in past" (Hamel, 1999). Unfortunately, many CEOs look around their own company, and see very few entrepreneurially-minded folks. Perhaps they never showed up to work because of their dislike of large company bureaucracy and politics. Or the other reason could be that those who did show up were either pushed out or learned to stop pushing.

Avoidance of risk (a natural trait)

Another reason is the environment that we exist in .It is apparent in large companies most managers are rewarded for minimizing risk, following the rules, and performing their functional roles to the best of their abilities. They look forward to a predictable paycheck and a fairly predictable bonus. Most big company managers would be hard pressed to call themselves value creators. They are quota and budget watchers. They are suppressed by stakeholders. They are planners and organizers and more rule adherents than rule breakers. Big companies have gone after waste and redundancy with, sometimes, spectacular success. But these machinations rarely create long-term sustainable value for the shareholders. It helps the bottom line, but not necessarily the top line.
This raises another critical question of sustaining vs. disruptive (incremental vs. radical innovation). The author has previously mentioned it and plans to shed light on this subject later.

4.4) Other Forms of Positive Organizational Change

In the article Corporate Entrepreneurship: Antidote or Oxymoron by Neal Thornberry, he has described 4 forms of Corporate Entrepreneurship published in 2001. To this the author has added one more type of Corporate Entrepreneurship which is Business Model Innovation .The following section describes these areas of Entrepreneurship.

4.4.1) Corporate Venturing

Corporate venturing involves starting a business within a business, usually emanating from a core competency or process. A bank, for example, which has a core competency in transaction processing, turns this into a separate business and offers transaction processing to other companies who need mass processing of information. Similarly big firms which have developed a huge network of logistics for its products or services might try to sell this service and start a new business out of it.

Unlike simple line extensions, ventures require vast amounts of new learning on the part of the organization. Ventures usually involve the creation, nurturing, and development of a new business that comes from within the old business, but represents a significantly new product or market opportunity. New, but not totally foreign competencies are required, or current competencies are leveraged in a completely new way.

Skunk Works is one example of Corporate venturing, which has built a strong foundation of achievement in aerospace by creating breakthrough technologies and landmark aircraft. Skunk Works is responsible for a number of famous aircraft designs, including the U-2, the SR-71 Blackbird, the F-117 Nighthawk, and the F-22 Raptor. Its largest current project is the F-35 Lightning II, which will be used in the air forces of several countries around the world. The projects have been such a success that the

designation "skunk works", or "skunkworks", is widely used in business, engineering, and technical fields to describe a group within an organization given a high degree of autonomy and unhampered by bureaucracy, tasked with working on advanced or secret projects

4.4.2) Organizational Transformation

Another form of Corporate Entrepreneurship is Organizational Transformation especially if the transformation results in the development of new business opportunities. This type of entrepreneurship only fits the original Schumpeterian definition if the transformation involves innovation, a new arrangement or combination of resources, and results in the creation of sustainable economic value. Clearly, some transformations meet these requirements, while others do not. Transforming an organization by cost cutting, re-engineering, de-layering, downsizing, and using the latest technology could not guarantee that the organization will recognize or capture new opportunities.

For Example Sun Financial Group, a large international insurance/financial services organization, found itself under increasing pressure to cut costs and improve profitability. Their utmost requirement was not to strive for entrepreneurship per se, only creative cost cutting. Ian Kennedy, a middle manager at their Annuity Service Center, was told to do more with less. He put a design team together who came up with a new way of re-arranging his department and resources into cross trained, self-directed work teams so in that way they could more effectively and efficiently serve their agents and the end customer. It was not an entrepreneurial venture but his rearrangement of resources in a new and different pattern resulted in the ability of the company to process significantly more business while at the same time, drastically reduce the cost per policy. It now gave them a competitive edge, a new core capability resulting in significantly more business. Thus, the manager changed an internal process that resulted in a new value proposition for the agent and the end customer.

This form of Corporate Entrepreneurship is closely related to Organizational Change, which is a crucial part of Corporate Entrepreneurship but is outside the scope of the research.

4.4.3) Industry Rule-Bending

Industry Rule-Bending focuses on changing the rules of competitive engagement. Stopford and Baden-Fuller (1993) label this behavior as *"frame-breaking change"*. Toyota is a fore runner in this area who changed the rules of the game in the automobile industry by producing low cost automobiles with exceptionally high quality. As a result USA and European auto manufacturers were forced by Toyota and other Japanese automakers to follow suit. Thus, Toyota not only transformed itself, but also helped to start a wholesale transformation of the industry.

Many new e-commerce companies have earned dizzying market capitalizations in the same way and have transformed the industry as never before. Amazon.com changed the way books are sold. These are examples of changing the former rules of

competition. In many cases they have cut out an entire segment of the typical industry business system or model.

4.4.4) Business Model Innovation

Not a very new but a successful and needed Innovation technique for many organizations today is the Business Model Innovation.

4.4.4.1) Business Model

A business model describes the rationale of how an organization creates, delivers, and captures value (economic, social, or other forms of value). (*Business Model Generation*, A. Osterwalder, Yves Pigneur, Alan Smith, and 470 practitioners from 45 countries, self-published, 2010)

In theory and practice the term business model is used for a broad range of informal and formal descriptions. Instead several authors have provided useful frameworks for analyzing businesses, such as profit models (Slywotzky and Morrison, 1997) and strategy maps (Kaplan and Norton, 2004). Most of the academic research on business models was done in the context of e-business.

Timmer's definition does not limit the notion of a business model to e-commerce, he applies business models to that domain, using two dimensions 1) functional integration (number of functions integrated) and 2) degree of innovation (ranging from simply translating a traditional business to the Internet, to creating completely new ways of doing business) resulting in eleven distinct Internet business models. Other definitions of business models emphasize the design of the transactions of a firm in creating value (Amit and Zott, 2001). Porter (2001) described the emphasis in business models on generating revenues as "a far cry from creating economic value".

Simply Defined Business Model consists of two elements:

(a) What the business does.
(b) How the business makes money doing these things.

4.4.4.2) Why is Business Model Important?

The capacity of a firm to capture value will be deeply compromised unless the capacity exists to create new business models. As noted, even an Entrepreneur as celebrated as Thomas Edison had a questionable track record in terms of business model innovation, abandoning the recording business and also failing to get direct (rather than alternating) current adopted as the industry standard for electricity generation and transmission. History shows that, unless they can offer compelling value propositions to consumers and set up (profitable) business systems to satisfy them with the requisite quality at acceptable price points, the innovator will fail, even if the innovation itself is remarkable, and goes on to be widely adopted by society. Of course, this makes management, entrepreneurship and business model design and implementation as important to economic growth as is technological innovation itself. Technological

creativity that is not matched by business resourcefulness and creativity (in designing business models) may not yield value to the inventor or even to their society.

4.4.4.3) What Does Business Model Do?

According to Richard Rosenbloom a business model fulfills the following functions:
(H. Chesbrough and R. S. Rosenbloom, 2002, The role of the business model in capturing value from innovation: evidence from Xerox corporation's technology spin-off companies, Industrial and Corporate Change)

- Articulates the value proposition (i.e., the value created for users by an offering)
- Identifies a market segment and specify the revenue generation mechanism (i.e., users to whom technology is useful and for what purpose)
- Defines the structure of the value chain required to create and distribute the offering and complementary assets needed to support position in the chain
- Details the revenue mechanism(s) by which the firm will be paid for the offering
- Estimates the cost structure and profit potential (given value proposition and value chain structure)
- Describes the position of the firm within the value network linking suppliers and customers (including identifying potential complementors and competitors)
- Formulates the competitive strategy by which the innovating firm will gain and hold advantage over rivals.

4.4.4.4) Business Model Innovation

Business model innovations have reshaped entire .Retail discounters such as Wal-Mart and Target, which entered the market with pioneering business models, now account for 75% of the total valuation of the retail sector. Low-cost U.S. airlines grew from a blip on the radar screen to 55% of the market value of all carriers. (Raphael Amit and Christoph Zott, 2012, Creating Value Through Business Model Innovation).

A recent global survey of more than 4,000 senior managers by the Economist Intelligence Unit found that the majority (54%) favored new business models over new products and services as a source of future competitive advantage. EIU analysts concluded *that "the overall message is clear: how companies do business will often be as, or more, important than what they do."(*Business 2010: Embracing the Challenge of Change, February 2005, white paper, Economist Intelligence Unit, New York, p. 9.)

A recent global study conducted by IBM, in which over 750 corporate and public sector leaders were interviewed on the subject of innovation, researchers found that *"competitive pressures have pushed business model innovation much higher than expected on CEOs' priority lists."* (G. Pohle and M. Chapman, 2006, IBM's Global CEO Report 2006: Business Model Innovation Matters, Strategy & Leadership 34, no. 5 , p. 34-40.)

Business model innovation can also help companies stay ahead in the product innovation game. One CEO from another study explained, *"you're always one innovation away from getting wiped out by a new competing innovation that eliminates the need for your product."*
(Business 2010, Economist Intelligence Unit, 10)

To understand the concept the author takes the example of one of the most successful Business Model Innovation in the past decade.

4.4.4.4.1) Apple: An Example of Successful Business Model Innovation:

Apple is popular as a company with innovative hardware and software, mostly personal computers. This has been the core attraction of Apple for a long time .By creating the iPod and the associated iTunes, a legal online music download service, Apple introduced a radical innovation of its business model. Apple was not the first company to distribute music but the first to include music distribution as an activity, linking it to the development of the iPod hardware and software. By adding this new activity to its business model, which links the music label owners with end users, Apple transformed music distribution. These were coupled with the innovation in Technology and Business Model. Rather than growing by simply bringing innovative new hardware to the market, Apple transformed its business model to encompass an ongoing relationship with its customers. This enabled Apple, and its business model partners, to extract ongoing value from the use of the Apple hardware and software. In this way, Apple expanded the locus of its innovation from the product space to the business model and its revenues, profit and stock price change have reflected that successful business model innovation. As being visible from Figure 9, Apple has seen a spike of share value since the introduction of this new Business model and still continuing to reap Benefits from it.

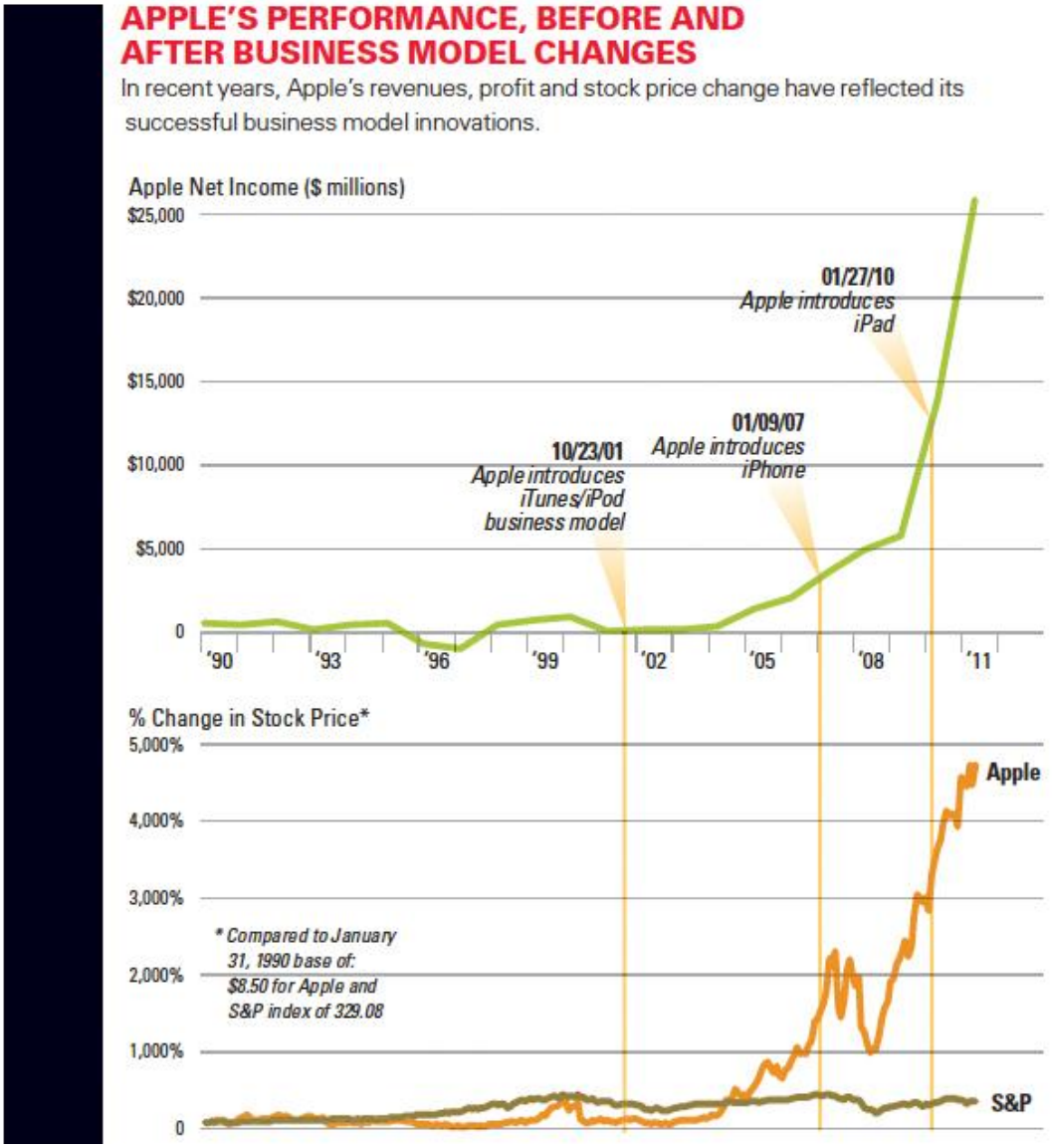


Figure 9.Apple's Performance, Before and After Business Model Changes (Raphael Amit and Christoph Zott , 2012, Creating Value Through Business Model Innovation)

Today there are various examples of Business Model innovation, Apples iPod and iTunes being one of the notable few .But the commitment to Business model and its benefits dates back to early 80s. To understand the concept the authors takes an example of Xerox

4.4.4.4.2) Xerox: A case for Lack of Business Model Innovation:

(Source: Henry Chesbrough in his article Business Model Innovation: Opportunities and Barriers)

In the 1980s, Xerox was known as 'the copier company' .It made industry leading copiers and printers. While these products were profitable in their own right, the really big money was in the consumables (especially toner and paper) they required. Therefore, the higher the copy or print volumes of each machine sold, the greater the

returns for Xerox. So Xerox's business model searched widely for technologies that would enable more copies, faster. Xerox's business model motivated them to develop ever-faster machines that could handle very high copy volumes, and had maximum machine uptime and availability. This resulted in a strong cognitive bias within Xerox whose business model discouraged the development of low-speed personal copiers. As Xerox's CEO at the time observed later *".our profits came from how many copies were made on those machines. If a copier was slow in generating copies, that was money plucked out of our pocket"* (D. Kearns and D. Nadler, 1992, Prophets in the Dark: How Xerox Reinvented Itself and Beat Back the Japanese, Harper Business, New York, NY, p. 88.)

At that same time, however, Xerox was funding significant industrial research activity in the domains of man-machine interfaces and other key building blocks of what would go on to become the personal computer industry. Some of this work, such as semiconductor diode lasers, and the technologies that assisted Long Range Planning, In identifying the source of a copier malfunction so the user could fix the copier without calling in an outside service technician, did assist the copier and printer business. But much of the work developed at this time which later gave rise to the point-and-click user interface as well as Ethernet, Postscript, and many other technologies - lacked any obvious way to increase the volume or quality of copies made by a Xerox copier.

In fact, Xerox literally did not know what to do with these technologies, which became 'orphans' within the company. While the research was solid, and was publicized quite effectively, the sales and marketing executives at Xerox could see no clear way to profit from them. 35 of these projects were either shown the door, or the scientists working on the projects got fed up with the internal delays, and took the project to the outside world on their own. Although my research found that most of them were ultimately not successful outside Xerox, a few subsequently became very valuable. Significantly, none of the valuable projects employed a business model similar that of the Xerox copier or printer - their journey to success involved each of them identifying very different business models.

According to Henry, a company has at least as much value to gain from developing an innovative new business model as from developing an innovative new technology.
Like Xerox, however, companies have many more processes, and a much stronger shared sense of how to innovate technology, than they do about how to innovate business models. Companies need to develop the capability to innovate their business models, as well as their ideas and technologies.

According to Henry:

….a mediocre technology pursued within a great business model may be more valuable that a great technology exploited via a mediocre business model…

4.4.4.4.3) Xerox Case continued: External Commercialization around Home Grown Innovation from Xerox by 3Com (A success case)

3Com commercialized the Ethernet networking protocol created at PARC (Which was the research division under Xerox). While it proved quite valuable later for computers, offered real and immediate benefits to copiers as well, by enabling Xerox to use a single wiring harness to support a variety of equipment configurations in its copiers and printers and connect its proprietary devices and options. Xerox sought to reduce its cost, and leased the Ethernet technology in 1979 to a former PARC employee, Robert Metcalfe, who had invented it while on its staff, for a one-time payment of $1,000, Metcalfe, in turn, worked with DEC and Intel to create a standard around the Ethernet protocol.

Although this approach benefited Xerox, the technology proved in time to hold a much greater opportunity for creating value: in developing and controlling an important industry standard for networking computers, printers, and file servers. This opportunity was grabbed by Metcalfe. Armed with his license from Xerox, and with the Ethernet standard that was supported by DEC and Intel, he raised venture capital and started 3Com. He initially targeted the Unix workstation market, with the intention of utilizing his own direct sales force, using the business model of a systems company with its own distribution organization: not too dissimilar from that of Xerox itself. But that is not how matters ended up. His work on the Ethernet standard made Metcalfe known to a small but ardent group of people in the emerging Local Area Networking (LAN) market and among his activities he compiled (with his wife) a directory of LAN dealers and resellers, which sold for $125 a copy.

As a result of these and other experiments, Metcalfe changed his business model. As he was establishing 3Com, the IBM PC was launched, and opened up a new market area which quickly eclipsed the originally targeted Unix market. So he went after the IBM PC market, initially intending to Ethernet turned out to be far more valuable as an independent product and standard for local area networking than as an internal Xerox component for copier wiring harnesses. Instead of designing, manufacturing, and marketing entire computer systems (as Xerox did) 3Com limited its business to designing add-in boards to provide networking capabilities to IBM compatible personal computers and shared laser printers. 3Com went public in 1984 and has continued to operate for many years as a public company. Neither the many experiments Metcalfe conducted on his business model, nor the resulting model he deployed, would likely have happened inside Xerox's business model.

4.4.4.5) The Barriers to Business Model Innovation

One of the best studies done in this regard are by Amit and Zott (R. Amit and C. Zott, 2001, Value creation in e-business, Strategic Management Journal 22, p.493-520). They identified novelty, lock-in complementarities and efficiency as key aspects of business model innovation. These may often conflict with the more traditional configurations of firm assets, whose managers are likely to resist experiments that might threaten their ongoing value to the company. A vice president of a field sales

organization, for example, might take strong exception to experiments with online sales of the same products, whether they are successful or not. The author has mentioned this in the case of Avoidance of Risk under the Intrapreneurship challenge.

Clayton Christensen's, concepts of **'disruptive technology'** is also noteworthy in this regard, and especially the later notion of 'disruptive innovation' - call attention to similar barriers to business model experimentation. (C. Christensen,1997 , The Innovator's Dilemma,Harvard Business School Press,Cambridge,MA; C.Christensen and M. Raynor,2003, The Innovator's Solution, Harvard Business School Press, Cambridge, MA.)

Just like Amit and Zott, Clayton identifies the root of the tension in disruptive innovation as the conflict between the business model already established for the existing technology, and that which may be required to exploit the emerging, disruptive technology. The distribution channels might differ, as well as the end customers. As the firm allocates its capital to the most profitable uses, the established technology will be disproportionately favored and the disruptive technology starved of resources.
Christensen quotes Andy Grove, former CEO of Intel,

"Disruptive technologies is a misnomer. What it is, is trivial technology that screws up your business model".

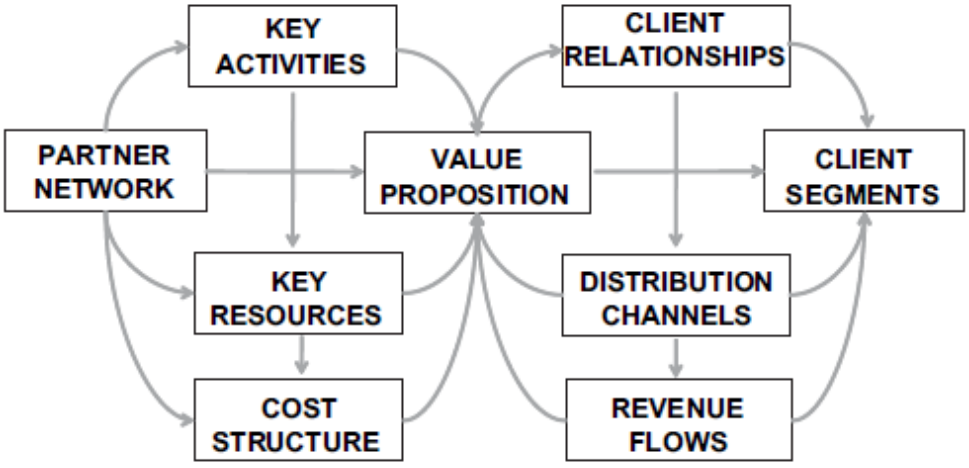
(Source: Christensen's course review slides for his Harvard Business School class, Building Sustainably Successful Enterprises, at HBS, December 2002.)

4.4.4.6) How to Overcome these Barriers

Different accounts according to accounts Christensen, and in Amit and Zott highlight different barriers: managers readily recognize the right business model, but its development is resisted due to its conflicts with the prevailing business model, or with the underlying configuration of assets that support that prevailing model. The work in this regard by Henry Chesbrough, by contrast, has seemed to show that, in fact, it is far from clear to them even what the right business model ought to be.

In either case - whether the barrier is confusion or obstruction, the way forward is via a commitment to experimentation. Undertaking active tests to probe nascent markets with new potential configurations of the elements of a business model can allow a firm to learn ahead of the rest of the market, and to begin to generate the new data that can power its change process.

The next question is how to conduct these experiments to reach a suitable Business Model. One example of this mapping approach has comes from Alex Osterwalder who, following his dissertation at Lausanne, has consulted and spoken widely on business models and business model innovation. His empirical focus utilizes a 9 point decomposition that characterizes a business model, which illustrated in Figure 10.



Source:http://bussiness-model-design.blog-spot.com/2005/11/what-is-bussiness-model.html

Figure 10.Osterwalder's 9 point decomposition of a Business Model (Osterwalder 2004)

Tools such as Osterwalder's 9 are helpful but they cannot themselves promote experimentation and innovation. Managers in this regard need to make experimentations and then take actions according to that experimentation.

Osterwalder points out that 'the relationship between business models and time is little discussed' and the dynamic perspective has only recently been incorporated into research on this topic. Chesbrough and Rosenbloom note that successful businesses alter the initial models created during their start-up phases, while Linder and Cantrell describe four different categories of 'change models' depending on the degree to which a firm's core logic changes, suggesting firms should adopt a very active approach in pursuing business model changes. Similarly, Morris, Schindehutte and Allen envision 'a business model life cycle involving periods of specification, refinement, adaptation, revision, and reformulation. An initial period during which the model is fairly informal or implicit is followed by a process of trial-and-error, and a number of core decisions are made that delimit the directions in which the firm can evolve.' Baden-Fuller and Stopford find that making progress along a successful business rejuvenation path requires managers to experiment to discover what can work and what fails, and communicate and institutionalize learning mechanisms (incorporating new knowledge and skills) into systems, procedures and structures across all echelons of the organization.

One set of processes relate to experimentation. Thomke provides a useful summary of principles and parameters for effective experimentation. (S. Thomke, 2002, Experimentation Matters, Harvard Business School Press, Cambridge, MA)
While his concepts are focused on new product and process innovation, they apply equally to business models. Trying out an alternative business model on real customers paying real money in real economic transactions provides the highest fidelity.

Important parameters include the cost of conducting the test. This is both in terms of the direct cost and in the cost of failure if the experiment does not yield the hoped-for learning, the time required obtaining feedback from the experiment and the amount of information learned from the test. Here Theme is clear about distinguishing 'failures' from 'mistakes'. He refers former a natural outcome of the experimentation process and can be quite useful; the latter are experiments that are too poorly designed to yield any new learning. So companies should strive to develop processes that provide high fidelity as quickly and cheaply as possible, aiming to gain cumulative learning from (perhaps) a series of 'failures' before discovering a viable alternative business models.

4.4.4.7) When to Navigate to the New Business Model?

Another problems involved is that the organizations needs to continue to perform well in their current business (and business model), while at the same time undertaking the experiments necessary to nurture a new model. Indeed, this is part of the organizational problem as the search for a new business model often requires an extended period of co-existence between the current and new models. Knowing when to shift resources from the former to the latter is a delicate balancing act, and rife with possible career consequences for the managers involved. This usually doesn't not require to declare a flag day, but to gradually experiments and move step by step into the suitable business model. It takes a strong organizational culture to navigate through these treacherous shoals, so that the local objectives of individual middle managers give way to the imperatives of the larger whole.

4.5) Who should be Responsible for Innovation?

A crucial question here is who should be Responsible for this innovation? Functional heads will lack authority over the whole organization: but business models will require testing aspects and interactions between operations, engineering, marketing, sales, human resource and finance and business model experimentation may well involve conflicts with some or all of these functions.

The best candidate for it seem to be the CEO of the organization but the problem is that these CEOs might have reached the position going through the traditional business models and right now they might feel really comfortable with these models .Another good candidate are the line managers but in most big organizations these managers go through a job rotation every 2 or 3 years. Therefore they might lack the time frame to formulate the experiments, conduct them, develop inferences and interpretations of that data, and then reframe the analysis in ways that are sufficiently persuasive to guide the transformation to a new business model.

4.6) Success and Failure of Innovation

4.6.1) Common Pitfalls of Innovation

"Hoping for more of the entrepreneurial magic is not the same as getting it"

Neal Thornberry in his article Corporate Entrepreneurship: Antidote or Oxymoron? (European Management Journal, 2001, Vol. 19, No. 5, p. 526–533) has summarized these pitfalls as:

Don't be easily seduced

Intrapreneurship seems sexy. It seems like a wonderful remedy for a struggling large corporation .But embarking on it requires creating an entrepreneurial culture which is always much more difficult in reality than what an organization realizes in the start, which requires challenging traditional rewards and schemes.

Leadership at the top is often seduced by the concept, but unwilling to walk the talk

A lot of CEO`s hire entrepreneurial minds but can't allow them make mistakes and take risks. Failure must be part of the learning process and if continues learning is not part of your culture it's not Intrapreneurship. One should know the value of both mistakes and failures. Former GE (General Electric) CEO Jack Welch is rumored to have promoted a middle manager two levels for losing a lot of money in a new venture because he wanted to get the message out that GE has to make mistakes if it is to venture into new and un-chartered waters.

Not knowing what the company really wants when it talks about corporate entrepreneurship

A lot of times the executives themselves don't know what do they mean from corporate Intrapreneurship. Many a times they are looking for a quick fix or just thinking of Corporate Intrapreneurship as a magic bullet which would foster creativity. The very first things is the executives commitment and understanding of what they want from it and do they really like travelling on this road.

The wrong people

The companies should be looking for people who are willing to go out of their comfortable limits. These people are also willing to step out of their career ladder and leave the typical career path behind. These are the folks who usually jump at the chance to create something new. It's always good to train the existing talent but still hiring entrepreneurial minds could help shaking things up.

Upper middle managers

People at this level are considered to be least entrepreneurial. Executive board level and first line managers are found to be more entrepreneurially oriented than the upper middle management of a company. The reason being the people at these level have played the political game really well on their way to the top .They are almost there and much agitation won't be favored by them .According to a research in a well-known big firm in the packaged goods industry the highest potential functional managers in the course, several of whom had MBA's from prestigious business schools, were the most threatened about trying to be corporate entrepreneurs. They were the first to sign up for the program, they were the first to leave when they found out that they might have to step out of their well-planned and pruned career track to start-up a new venture which appeared to be uncertain.

Being a part-time entrepreneur

Most of the big firms expect their newly minded entrepreneurs to do the daily job and then identify, develop, and capture a new business opportunity. It gives clear message that we are not serious about it. The companies are afraid that if the venture is not successful what will they do with the employee who goes out of his track to pursue the opportunity .There are very few companies like Intel doing this job where an employee gets a full time opportunity to pursue the venture .If the company believes in the opportunity it should not be shy persuading it, dedicating it its due amount of time, a full team on full time basis.

Skills

Creativity is a generic human trait .One can find numerous creative people in a big organization .In big corporations the ideation (idea generation) process is found to be easy .You get the smart people interact, get them the insights about the trends and they start. In fact most of the entrepreneurs borrow the idea from others. What a company has to do is to well manage the process of bringing this idea to reality and business. This requires skills that are different than ideation. It requires an understanding of markets and marketing, finances, systems, people management, and most importantly, an understanding of one's own strengths and weaknesses. A common message we get from successful entrepreneurs is that they were successful enough to hire the right people. What an organization has to do is to get the rightly orchestrated team to develop the opportunity.

Funding

Companies who do not think like venture capitalist when pursuing new ventures inside do a great mistake .The some dire mistake is the venture capitalist group being run under the executive committee and the CFOs .One has to understand that these guys have huge political baggage along with them. It's recommended that these should be managed from people outside in the venture capital community. They understand the mindsets of entrepreneurs and would be able to seed many projects out of which a few hopefully succeed .The idea of seeding many projects and the one who get traction

are promoted with finance and the others are slowed and eventually killed helps to bring successful ideas to life. Venture capitalists know that great opportunities are generally not known until they are developed to a point where serious funding makes sense. CFOs however are trained to avoid risk rather than encourage it.

Chapter 5 Research Program

5.1) Company Background

TelcoA is one of the world leaders' integrated operators in the telecommunication sector, providing communication, information and entertainment solutions, with presence in Europe, Africa and Latin America. It operates in 25 countries. As of December 2011, TelcoA total number of customers amounted to 306.6 million. (TelcoA Website, 2012)

TelcoA is a Spanish broadband and Telecommunication service provider and Europe, United States and Latin America. Operating globally it is the sixth largest Telecommunication Service Provider in the world. The company is the former public monopoly of the Telecommunication in Spain.

TelcoA is a 100% listed company. It has more than 1.5 million direct shareholders. Its capital traded on the continuous market on the Spanish Stock Exchanges (Madrid, Barcelona, Bilbao and Valencia) and on those of London, New York, Lima and Buenos Aires.

5.1.1) History

TelcoA was created in 1924, until the liberalization of the telecom market in 1997; TelcoA was the only telephone operator in Spain and still holds a dominant position (over 75% in 2004). Since 1997, the Spanish government has privatized its interest in the company.

For a history spanning to almost a century, TelcoA has gone through various changes .The following is a quick overview of the companies Evolution and growth over the years (both organic and inorganic)

(Source TelcoA website, 2012)

1924 – 1964

- CTNE is set up in Madrid; ITT is one of its initial shareholders (1924)
- The Spanish government takes 79.6% of CTNE shares (1945)
- CTNE becomes the #1 Spanish enterprise (100,000 shareholders, 32,000 employees) (1960)

1965 – 1989

- Satellite communications are initiated (1967)
- Starts operations of the 1st European Data Transmission Special Network (1971)
- Installs the 10 millionth phone (1978)

- Begins trading at the New York Stock Exchange (1987)
- Takes part in Hispasat constitution (1989)

1990 – 1994

- Enters in Chile (CTC) and in Argentina (TASA) (1990)
- Launches MoviLine (1990), the analogue mobile service, reaching a geographic coverage of 98% in three years.
- Enters in Peru (TdP) (1994)
- Launches digital mobile telephony (1994)

1995 – 1999

- Commercial Internet is being born. TelcoA launches Infovía (1995)
- First partial sale of the Spanish government's stake (1995)
- Wins the tender for Telesp in Brazil (1998)
- TelcoA becomes fully public again (1999)
- Launches fixed broadband access service ADSL (1999)

2000 – 2004

- Veronica tender offers: TelcoA de Argentina; TelcoA del Perú; Telesp and Tele Sudeste in Brazil (2000)
- New strategic focus on profitable growth (2002)
- Joint venture of TelcoA and Portugal Telecom in Brazil: Vivo (2003)
- Launches Imagenio (2003)
- Acquisition of BellSouth's assets in Latin America (2004)

2005 – 2008

- Acquisition of Cesky Telecom (2005)
- Acquisition of the O2 assets in the UK, Germany and Ireland (2006)
- Mobile license awarded in Slovakia (2006)
- 51% stake taken in Colombia Telecom (2006)
- Industrial alliance with Telecom Italia (10.49% of the voting rights) (2007)
- Acquisition of Telemig by Vivo in Brazil (2008)
- Takes a 5% stake in China Netcom (2005) and reaches a 5.38% participation in China Unicom (2008), after the CU-CNC merger
- Stake in TelcoA CTC Chile increased to 97.89% (2008)

2009 – 2011

- Acquisition of Hansenet in Germany, Jajah in Israel and Tuenti in Spain (2010)
- Control of Vivo obtained by buying PT stake out of Brasilcel (2010)
- Mobile license awarded in Costa Rica (2011)
- Strengthening of the strategic alliance with China Unicom (2009) and increase of the share exchange (2011)

5.1.2) Today:

Today TelcoA is one of the biggest Telecom players in the industry has seen huge growth since its inception in 1924:

	1989	2000	2011	1989 - 2011
Customers (Mill.)	12	68	307	x26
Countries	1	16	25	+24
Team ('000)	71	149	286	x4
Revenues (Mill. €)	4,273	28,482	62,837	x15

Figure 11.TelcoA Growth (Source TelcoA Website, 2012)

Present in 25 countries and an average of 285,000 professionals. Consolidated revenues of 62,837 million euros and more than 306 million customers at December 2011: more than 238 million mobile phones accesses; more than 40 million fixed telephony accesses; more than 19 million Internet and data accesses and 3.3 million pay TV accesses (Source TelcoA website, 2012)

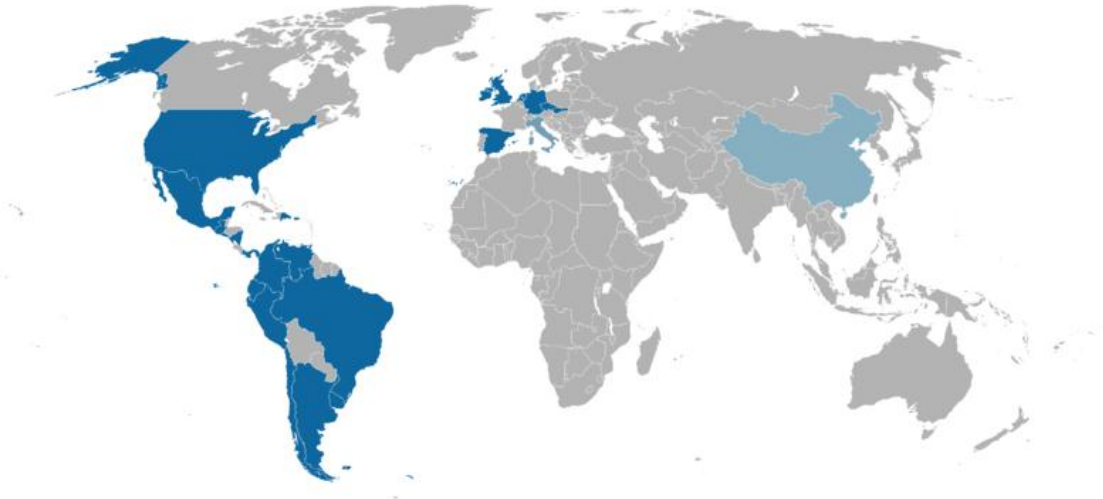


Figure 12.TelcoA global Presence (Source TelcoA Website, 2012)

5.1.3) Organizational Structure:

The company has recently gone through a reorganization process to improve its operations and global outlook exploring new paths for future. The company has seen four big restructuring events in the past 2 years.

The New organizational structure is summarized by the figure 13:

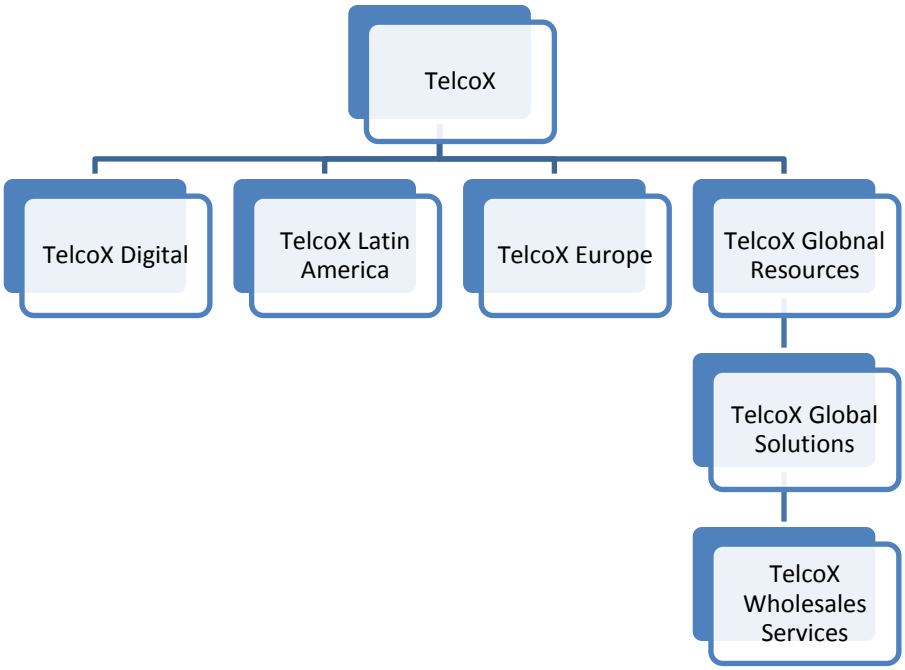


Figure 13.TelcoA Organization Map (TelcoA Organization Chart, 2012)

TelcoA Latin America and TelcoA Europe are two regional units focusing on the major business activities in those regions. TelcoA Digital has been recently added in the group to size new business opportunities in the Digital arena.

TelcoA Global Resources is the unit to achieve synergies between the different units. Within TelcoA Global Services is TelcoA WholeSales who owns the underlying network owned by TelcoA. In this way TelcoA Wholesales Services does not directly deal with end customers but provides services to the other units of TelcoA and other global Telco Operators. A few quick facts about the TelcoA

TelcoA Wholesale Services designs and manages the international communications infrastructure of the TelcoA Group.

It deals with integrated voice, capacity and data network that currently has more than 100 points of presence distributed in more than 60 cities and 40 countries, with a focus

on the regions of Europe, United States and Latin America. Its points of presence are interconnected through multiple and diverse fiber optical infrastructures, including more than 20,000 km of SAm-1 underwater cable that guarantees optimal sturdiness and reliability in the communications that cross the network.

Its network, Tier-1 for Internet service, delivers more than 1.3 Tbps of data traffic daily at times of peak demand and transports more than 20,000 million international voice minutes a year, thus permanently maintaining an activated IP capacity that exceeds a total of 6 Tbps.

(Source TelcoA Wholesales Services website, 2012)

An organization cannot exist in solidarity. To understand the different action reaction forces it's a must to understand the industry and other environmental factors in which it exist. In the following section the author provides an overview of the telecom industry and its evolution.

5.2) Evolution of Industry

The Telecom industry has witnessed a great deal of innovation and growth since its inception. The world's effective capacity to exchange information through two-way telecommunication networks grew from 281 petabytes of (optimally compressed) information in 1986, to 471 petabytes in 1993, to 2.2 (optimally compressed) Exabyte's in 2000, and to 65 (optimally compressed) Exabyte in 2007. (Martin Hilbert and Priscila López , 2011,The World's Technological Capacity to Store, Communicate, and Compute Information, Science, 332(6025), p. 60-65 .)This is the informational equivalent of 2 newspaper pages per person per day in 1986, and 6 entire newspapers per person per day by 2007. Given this growth, telecommunications play an increasingly important role in the world economy. According to the report, *"The 2012 Telecommunications Industry Review: An Anthology of Market Facts and Forecasts,"* telecommunications services revenue on a worldwide basis will grow from $2.1 trillion in 2012 to $2.7 trillion in 2017 at a combined average growth rate of 5.3%.

The Telecom industry has witnessed a great deal of innovation since its inception. The demise of the Old Telecoms Industry began in the mid-1980s when, due to different combinations of political-economic circumstances, the monopoly of telecoms was ended in Japan, the UK and the US. By the late-1990s, with the agreement of the European Union to fully liberalize its telecoms markets and the similar agreement of the WTO, there was a widespread consensus that the liberalization of telecoms is essential.

5.2.1) The Technology and Learning Regimes

The concept of technological regime used here is similar to that used in Nelson and Winter (1974, 1978 and 1982) and in Winter (1984), although it is broader.

Technological regime is defined by the conditions under which technological knowledge is created - which determine the rate of technical change and the kinds of technologies that are created - and the opportunities and constraints that exist in the use of that knowledge. The technological regime, in turn, defines the *learning regime* that determines the kinds of learning paths and patterns in which the firms and other organizations involved in the industry will engage.

In order to understand the Telecom industry it is essential to understand the Technological regime (Martin Fransman, 2001, Evolution of the Telecommunication Industry into the Internet Age).

5.2.1.1) The Telecom Industry till mid-1980s

A simplified model of the old Telecom industry can be seen in Table 2

Table 2.Layers Of the Old Telecoms Industry (Martin Fransman, 2001, Evolution of the Telecommunication Industry into the Internet Age)

LAYER 3: SERVICES LAYER (voice, fax, 0800 services)
LAYER 2: NETWORK LAYER (circuit-switched network)
LAYER 1: EQUIPMENT LAYER (switches, transmission systems, customer premises equipment)

5.2.1.1.1) Monopoly, Vertical Integration and Quasi-Vertical Integration

In the old days Telecom was an example of **"natural monopoly",** that is due to increasing returns to scale telecoms services could only be provided efficiently by a monopoly provider. Accordingly, in most industrialized countries (Finland being a notable exception) Layer 2, the network layer, was dominated by a monopoly network operator.

The natural monopoly was also extended to Layer 1, the equipment layer. In different countries the production of telecoms equipment was organized in different ways. At the one extreme was the US where a pattern of vertical integration emerged almost from the birth of the Telecoms Industry.

USA

A prime example in this case is the Bell Laboratories in US. This vertical integration was terminated in September 1995 into one company providing telecoms services (the new AT&T), providing equipment (Lucent), and one providing computers and computer services, essentially the former NCR that had been acquired in a hostile take-over by AT&T in 1993.

At the other end were different small industrialized countries (with Sweden's Ericson being an exception) where the national telecom operators have dedicated equipment manufacturers which have long term relationships with the monopolistic network operators. But on the other hand these equipment manufacturers have to compete internationally where the other telecom equipment markets were not locked up similarly.

In the middle were different industrialized countries where the domestic market was so large to support the domestic equipment manufacturers. The economic organization of layer 1 and layer 2 services differed significantly in these countries.

Japan

In Japan, for example, from the late Nineteenth Century, the responsibility was taken by the Ministry of Communications for the development of the new telecoms infrastructure. The decision was made for several competing companies to produce the telecoms equipment required for the Japanese telecoms network. In this way a family of four specialist telecoms equipment suppliers emerged to supply the Ministry under a form of economic organization that has been referred to as **"controlled competition"**.(Fransman, 1995, p.27-41.) The lead company was NEC, founded in 1899 as a majority-owned subsidiary of Western Electric, the equipment supplying subsidiary of AT&T. The other three members of the family were Fujitsu, which had an ownership link with Siemens, Hitachi, the only independent Japanese telecoms equipment supplier, and Oki. This family of suppliers continued to supply NTT, the national monopoly operator, after it was separated from the Ministry in 1952 as an independent state-owned company.

In France and Germany the monopoly network operator France Telecom and Deutsche Telecom respectively also co-operated closely with national equipment suppliers. In France a complex process of government-inspired re-organizations and mergers, largely between the subsidiaries of the American company ITT and French electronics companies, resulted in the birth of the major French specialist telecoms equipment company, Alcatel.(Fransman ,1995, p.87-89)

In Britain the Post Office which had responsibility for telecoms (later separated as BT) also co-operated closely with national telecoms suppliers that included GEC, Plessey, and STC (a subsidiary of the US firm ITT).

5.2.1.1.2) Innovation Systems in the Old Telecom Industry

In the old Telecom industry the ¨Engine of Innovation¨ was located in the central research laboratories of the monopolistic telecom operators such as AT&T's Bell Laboratories, BT's Martlesham Laboratories, France Telecoms's CNET Laboratories, or NTT's Electrical Engineering Laboratories. Many of the key technologies still driving the Infocomunication industry were developed in these laboratories such as the transistor, the laser, the design of cellular mobile systems, and the software language C, that all emanated from Bell Laboratories.

Typically, after the central research laboratory did the initial research and developed and tested the initial prototypes the task of further development and mass manufacture was handed on to the specialist equipment suppliers such as Western Electric in AT&T's case or NEC, Fujitsu, Hitachi and Oki for NTT. As the time passed, however, these specialist equipment suppliers increased their own R&D capabilities with the result that they eventually took over many of the innovative tasks that in the Old Telecoms Industry were performed by the central research laboratories of the monopoly telecoms operators. This created a fundamental change in the technological and learning regimes that was to profoundly change the entire structure of the Telecoms Industry.

5.2.1.1.3) Effectiveness of such Innovation

Despite the monopolistic nature of innovation system at that time we can't deny that the innovation during those times was remarkably well. This conclusion comes from the impressive stream of both radical and incremental innovations that emerged from the central research laboratories of the monopoly operators. One performance benchmark comes from the fact that in the US the price of a local phone call remained constant in money terms for about one hundred years.

5.2.1.1.4) Reason of such Innovation

The reason for such innovation can be explained by the non-market incentives for innovation that nevertheless existed in the Old Telecoms Industry. First of these incentives come from the cop-operative competition that existed between nation al systems to be the first to introduce the next generation of services and products. The second major non-market incentive came in the form of political incentives and pressures to improve telecoms services for both residential and business users who together constituted the bulk of the population and therefore wielded political muscle.

5.2.1.1.5) Characteristics of such Innovation

Despite of the impressive performance of the telecom industry at that time the characteristic of such innovation actually hinder the innovation process as outlined in Table 3

Table 3.Characteristics of the Innovation System in the Old Telecoms Industry (Martin Fransman, 2001, Evolution of the Telecommunication Industry into the Internet Age)

Closed innovation system
High entry barriers
Few innovators
Fragmented knowledge base
Medium-powered incentives
Slow, sequential, innovation process: Research – prototype – trials – cutover

5.2.1.2) The Transition Telecom Industry

In the mid-1980s the Telecom industry saw a big change. For different political-economic reasons, Japan, the UK and US decided to end the monopolies of their monopoly network operators. The result was the birth of the original new entrants.

5.2.1.2.1) The Birth of the Original New Entrants

The end to monopolies resulted in the birth of new entrants in the industry. In Japan three long-distance competitors were given regulatory permission to compete with NTT, namely DDI, Japan Telecom, and Teleway Japan. NTT was only partially privatized, with the Japanese Government continuing to own approximately two-thirds of the company. The UK government, on the other hand, soon sold off the majority of BT's shares. In the US, AT&T was divested with the new AT&T inheriting the former company's long-lines business (i.e. long-distance) while seven regional companies – the Baby Bells – retained the de facto monopoly of local telecoms services in their regions. MCI and Sprint were the two long-distance companies allowed to compete with AT&T.

Equally important were low technological barriers to entry into the telecoms services markets (in Layer 2) created by the existence of specialist telecoms equipment suppliers. These specialist technology suppliers provided the 'black-boxed' technologies that the Original New Entrants needed to construct and run their own networks. An important example is Nortel that seized the new opportunities presented by liberalization with both hands. Because of this beating AT&T into this segment of the switching market Nortel was able to gain a foothold in the US, its first major breakthrough outside Canada. (Fransman, 1995, p. 55-61)

5.2.1.3) The New Telecom Industry from the Early 1990s

5.2.1.3.1) The Next New Entrants

The most evident sign of change was the rise of the next new entrants who quickly eclipsed the original new entrants and went on to pose the most significant threat to the incumbents.

Most popular of this is the WorldCom, a company that was born in 1984 in the inauspicious location of Hattiesburg, Mississippi, and began life as a reseller of the newly-divested AT&T's capacity before making the key strategic decision to become a facilities-based operator. By the end of the millennium not only had WorldCom capped a string of mergers and acquisitions with the takeover of MCI and Sprint, the two main long-distance competitors to AT&T, it also boasted the world's best global telecoms network making this company the most serious threat to the Big Five Incumbents – AT&T, BT, Deutsche Telecom, France Telecom, and NTT. Present Situation:

Although they emerged later than WorldCom and were not as large in terms of revenue and market capitalization, several other next new entrants replicated essentially the same growth process. These companies included Qwest, Level 3, Global Crossing, Williams, and Viatel. Unlike the original new entrants, the next new entrants were far more aggressive in their competition. It was only in Japan that by the end of the millennium next new entrants had not displaced the original new entrants.

5.2.1.3.2) Major Engines of Innovation

By the end of 1995 the incumbent network operators made the decision to leave more and more of the R&D related to the network and its elements to the specialist equipment suppliers. At the same time the incumbents decided to open their procurement, agreeing to buy from new suppliers in addition to their traditional suppliers. We have to note that the Innovation at that time was analogous to what was going on at the R&D departments.

5.2.1.3.3) The Changing Location of R&D in the New Telecoms Industry

One of the best indicators of change in technological regime as the Old Telecoms Industry gave way to the New Telecoms Industry is provided by data on the changing location of R&D. This data is summarized in the Table 4.

Table 4.The Location of R&D in the New Telecoms Industry, 1999- Firm/Industry R&D % Sales (Financial Times, 1999, R&D Scoreboard)

FIRM / INDUSTRY	R&D % SALES
NTT	3.7%
BT	1.9%
AT&T	1.6%
Cisco	18.7%
Ericcson	14.5%
Nortel	13.9%
Lucent	11.5%
Nokia	10.4%
WordCom	~ 0%
Qwest	~ 0%
Level3	~ 0%
Global Crossing	~ 0%
Roche	15.5%
Glaxo Welcome	14.4%
Smithkline Beecham	10.8%
Vehicle industry	4.2%
Leisure and Hotel Industry	3.2%
Building Materials Industry	3.0%
Brewery Industry	2.3%

There are some characteristics which are evident in the above table. Firstly the network operators NTT, BT and AT&T are not R&D intensive then the average intensity in the

industry. Secondly the next new entrants represented by WorldCom,Qwest, Level 3, and Global Crossing are even less R&D intensive then incumbents. The reasons being these next new entrants have outsourced all the innovation (intensive R&D in this case) to the specialist technology suppliers. Thirdly being a continuity of the second statement, the entire extensive R&D has moved to the specialist technology suppliers like Cisco, Ericsson, Nortel, Lucent and Nokia.

It may be concluded, therefore, that while in the Old Telecoms Industry the 'innovative engine' was located largely in the central research laboratories of the monopoly network operators, in the New Telecoms Industry the 'R&D engine' has moved decisively into the specialist technology suppliers.

5.2.1.3.4) Organizational Nature of the Next New entrants

Another point to mention here is the nature of the market segment selection. This meant that new operators have been able to choose particular market segments such as multinational business, large domestic business, small and medium-sized business, or residential customers – and focus their learning processes on the chosen segments. Compared with the incumbents, the new operators have been able to avoid hierarchical, bureaucratic organizations in favor of flat organizations.

5.2.1.3.5) The Differentiation Dilemma

Although the network operators have benefited from outsourcing the Innovation process there has been a downside to this as well. By depending on the specialist technology suppliers, who supply their state of-the-art technology to anyone with the ability to pay for it, the network operators have foregone a possible source of differentiation from their competitors. All have access to essentially the same technologies.

5.2.1.3.5.1) The Consequences of Differentiation Dilemma

This issue raises the important question of whether, over time, the new entrants will find that they too should be doing their own internal R&D in order to keep up in the competitive race.

The differentiation dilemma is a dilemma precisely because, in the absence of differentiation, and with substantial new entry facilitated by low entry barriers, firms are unable to earn scarcity rents. Accordingly, profit margins will be low.

This in turn raises two key questions:

- How do network operators compete in the New Telecoms Industry?
- What characteristics drive competitiveness?

Operators have tried to solve this dilemma with various approaches. For example, Qwest, as a result of Philip Anschutz's railway property rights, was able to acquire important rights-of-way that allowed the company to secure its optical fiber conduits by burying them alongside railway lines. As a result Qwest has been able to earn

significant revenues by selling some of the capacity on its optical fiber networks to competitors Frontier, WorldCom, and GTE in the form of dark fiber. Qwest has stated that *"the sale of dark fiber [primarily to these three competitors] has financed more than two-thirds of our overall [network] construction costs*."(Qwest, Annual Report 1998, p.13)

Another advantage comes for the next new entrants who can start with the clean state technology. Whereas the incumbents have to incorporate things with their existing legacy technologies. This advantage is how ever short lived as the other entrants might be able to deploy more updated technology.

5.2.1.4) The Internet as a New Paradigm and the Birth of Info-communications Industry

The emergence of internet was a paradigm shift in the Telecom industry by inserting itself into the very fabric of the Telecoms Industry, the Internet brought about the metamorphosis of this industry into what will be termed here the Info-communications Industry.

Figure shows in the form of a layer model the main features of the Info-communications Industry (which may be contrasted with the features of the Old Telecoms Industry, shown in Table 5)

Table 5.Futures of the New Communication Industry (Martin Fransman, 2001, Evolution of the Telecommunication Industry into the Internet Age)

LAYER	ACTIVITY	EXAMPLE COMPANIES
VI	*Customers*	-
V	*Applications Layer, including contents packaging* (E.g. Web design, on -line information services, broadcasting services, etc.)	Bloomberg, Reuters, AOL, Time Warner, MSN, Newscorp, etc.
IV	*Navigation & Middleware Layer* (E.g. browsers, portals, search engines, directory assistance, security, electronic payment, etc.)	Yahoo, Netscape, etc.
III	*Connectivity Layer* (e.g. Internet access, Web hosting)	IAPs and ISPs
IP Interface		
II	*Network Layer* (E.g. optical fiber network, DSL local network, radio access network, Ethernet, frame relay, ISDN, ATM, etc.)	AT&T, BT, NTT, WorldCom, Qwest, Colt, Energis, etc.

I	*Equipment & Software Layer* (E.g. switches, transmission equipment, routers, servers, CPE, billing software etc.)	Nortel, Lucent, Cisco, Nokia, Etc.

5.2.1.4.1) Innovation and Info-communications era

The innovation in the Info-communication era has also undergone huge transformation. Some of the major changes that radically differ from the Old Telecom industry are visible in Table 6:

Table 6.The Innovation Systems in the Info-communications Industry and the Old Telecoms Industry (Martin Fransman, 2001, Evolution of the Telecommunication Industry into the Internet Age)

INFO'COMS INDUSTRY	OLD TELECOMS INDUSTRY
Open innovation system	Closed innovation system
Low entry barriers	High entry barriers
Many innovators	Few innovators
Common knowledge base	Fragmented knowledge base
High-powered incentives	Medium-powered incentives
Rapid, concurrent, innovation, New forms of innovation (e.g. concurrent co-operative innovation by remote innovators)	Slow, sequential, innovation: Research – prototype – trials – cutover

There are subtle changes in the Innovation compared to the old industry .For example in the Info-communications Industry the innovation system is open anyone. In contrast, in the Old Telecoms Industry the innovation process was open only to the monopoly network operator and its favored suppliers. Entry is greatly facilitated by the fact that there is widespread common knowledge of the main operating systems, software languages and protocols that are used in the various layers of the industry. Internet related innovations have a particularly large potential global market and successful innovations may be extremely richly rewarded.

In the Info-communications Industry new forms of innovation have been created using the Internet as a ubiquitous platform for innovation like Open source development opportunities.

5.2.1.4.2) The Emergence of OTT (Over The Top) Players

OTT or Over The Top players can be simply defined at those players at the application layer who play their games at the top without thinking of the underlying infrastructure. The emergence of such players according to some sources has turned down the way Telcos do their business today. Many of these companies have surfaced exploiting the

benefits of the internet do deliver vale to the customers. Companies, such as Google and Skype, have enjoyed an exponential growth in record time (Werbach, 2005).

Examples of successful OTT service providers include:

- Skype – 82% of VoIP application space in 2011, 60 Billion outgoing call minutes in 2010
- Viber – 22 million minutes a day 1 billion messages a month by December 2011
- WhatsApp – Sending/Receiving over 1 billion messages a day in October 2011
- Facebook Messenger - 25.9 million active monthly users in December 2011
- YouTube had more than 13 million hours of video uploaded during 2010, an equivalent of 150,000 full length movies in theaters each week (Norman 2011).

Note that to date none of these services are profitable, but their impact is significant. Industry analysts Informa estimate that a 10% increase in smart phone penetration could cost western European operators US$1.19 billion in voice and messaging revenues. (White Paper: The business case for VAVOOMB, 2012)

5.2.1.4.3) How do OTT players affect the Telcos

These OTT players are not considered to be a direct threat to the network until they start congesting the network. For Example Google's properties have gained 1 percent of worldwide Internet traffic share since January (a new record). The search giant is now averaging at 6.4 percent of all Internet traffic, according to Arbor Networks. While Internet traffic continues to surge overall (by an estimate of between 40 to 45 percent each year), Google continues to grow faster than the average.

While Google, Facebook and other players continue to grow both in term of revenues and profit, Telcos are seem to suffer. One such transfer of value can be credited to Voice over IP. Traditionally Telcos have been believed to earn through connecting people but today with help of Voice Over IP or VOIP the profit goes to players like Skype. While the traffic still goes through the Telcos network but they are not able to earn from it.

A study conducted to see the impact of these OTT players over the Telcos with over 122 participants from the Telecom Industry has revealed the following results: (Source : Impact of Internet Companies on Traditional Telcos' Business Model: A Global Research Study , July 2011, World Review of Business Research Vol. 1. No. 3. p. 102-112)

- Biggest Threat on Telcos Comes from the Internet Companies. Business Services and Cloud Computing have the Highest Potential for Future Revenues
- Existing relationship with customers is Telco's main strength. Bad network quality and customer service are Telco's biggest weakness
- Network convergence and investment in Access Networks and Services and Applications should be Telcos' top priority

- Telcos must continuously invest in differentiated products and services and pursue partnerships with Content Providers and Internet Companies
- Telcos must reinvent their business model and address internal resistance as they modernize their network and enhance their product portfolio
- Filtering the Data to Detect Background-Related Biases

According to the report Internet companies (OTT players) pose the highest threat on the Telcos future and that Telcos need to change their business model.

The study has showed that in order for Telcos to effectively compete against Internet companies, they have to focus on continuous innovation in new products, improve the network/service quality, and converge to lower their cost base. Owning the physical network can be a factor if used to offer bundled products/services at competitive prices. This significantly enhances customer retention and paves the way to build on the existing customer relationship to introduce new products and services. Consequently, Telcos will be able to defend their core business and have the best competitive position to create and capture values.

Chapter 6 Situational Analysis

6.1) Actions in Process

The following actions have been in progress at TelcoA right now. These cut across various units including the Innovation, Strategy and HR departments as prime contributors. These are the subset of operations initiatives but the innovation is not limited to them as the author explains in the following parts of the report.

IShakers: IShakers is the short for Innovation Shakers .It is a specialization program in creativity and innovation for employees within the company. These people get extensive training on Innovation Canvas and other up-to-date Innovation practices by firms experienced in this domain. These I Shakers later can act as a catalyst for change within the organization.

ReCrew: Monthly short workshops arrange within the companies vicinity to help people expand their horizons and improve the ideation process. These workshops also act as a form of informal feedback and source of ideas sometimes.

Global Meeting Innovation Space: This is the specific time allocated in the global meetings for employees to present their innovative ongoing projects. This shows the importance of Innovation within the company and the commitment to it.

Innovation Club: Innovation Club is a group within a company which focusses on the strategic partnership with academic institution like Universities. It helps to get Innovative projects aligned with company's strategy and help them with all the required resources.

First TelcoA Day: It's a series of recurring events that happened in a fixed timeline to present innovative ideas in front of the innovation team.

Innovation Week: One week dedicated annually to share tips for innovation, new businesses within the company and the stimulus that could lead to innovation.

Creative Consulting: Creative workshops to solve specific challenges, for example how to improve the ideation process, make a customer journey map, develop and elevator pitch etc.

Bank of Ideas: A tool, basically an online portal to discuss and post employees ideas. This helps to get peer feedback and get reviews from outside ones department too.

Communities 2.0: This initiate encourages professional networks, blogs and other knowledge sharing initiatives.

Startup Week: This is the period to develop the project plan for the approached initiatives (which have already moved up in the innovation tunnel) in an incubated environment. This whole dedicated week the project leaders (people within TelcoA who proposed the idea ranging from different backgrounds and departments) are allowed to develop Comprehensive plan for the project lifecycle. Representatives from the Innovation committee, the IShakers (who are trained with Innovation management and best practices) and various people from Marketing, Sales and Finance are dedicated to bring the ideas to a reality map.

Apart from these actions TelcoA has seen some good initiatives coming from the TelcoA Digital group. This group recently launched applications similar to OTT players over its network.

"We've seen the growing popularity of communications apps on smartphones but we believe we've gone one better with XXX using our knowledge and insights of how people use their devices," said Chief Commercial Officer at TelcoA Digital.

6.2) Webinars (A Perspective)

Webinars are a new interactive way of communication these days. Webinar is a short for Web-*based semi*nar, a presentation, lecture, workshop or seminar that is transmitted over the Web.

A key feature of a Webinar is its interactive elements, the ability to give, receive and discuss information. Contrast with Webcast, in which the data transmission is one way and does not allow interaction between the presenter and the audience.

6.2.1) Friends or Foes: Telecoms operators and OTT players

STL Partners interviewed 25 major third-parties (including Google, Fox Networks, Warner Brothers, American Express, Microsoft, Salesforce.com) and 15 operators (including Orange, Verizon, AT&T, Deutsche Telekom, Etisalat, SingTel, Turkcell, Axiata), exploring the opportunity for operators to add value to OTT(Over The Top) application and service providers and what needs to be done for them to be successful. The concept of the OTT players and how they affect Telcos have been described earlier in section 5.2.1.4.2.

6.2.1.1) Facilitators Overview

1. Michael Manzo is Openet's CMO since 2006. Prior to joining Openet, Michael served as a consultant in the Enterprise Solutions Groups at Nokia Corporation. He has also previously held executive positions at Traverse Networks and Telocity.
2. MD and consulting lead for STL and key report author with 20 years of experience in strategy, marketing and finance; 12 years in TMT. During this time he has worked extensively in both the wired and wireless sectors, including

stints as Marketing Director at MCI WorldCom UK and Orange Group. He specializes in strategic analysis and proposition development and has developed strategies for new products, services and businesses for several operators and vendor companies in the UK and across EMEA and North America. Additional consulting experience with Bain, Gemini Consulting, Cambrian, Oxford Strategic Marketing, Burlington. MA, Oxford University.

6.2.1.2) Inferences from Webinars:

Following facts come from the electronic discussion with the facilitators of the seminar:

- By 2015, voice traffic over the network (as a share of all the traffic on network) will be declining by 15 %.
- The growth rate of telecom operators is the same as of utilities. They are both returning dividends recently.
- The question is if they continue like this they won't die but that would be a different kind of market for Telco's that would be very similar to that of utilities.
- But generally Telco's are not satisfied with it. They are looking for a higher growth.
- Operators don't only require a new Business model but a new market segment.
- One way around for Telcos is creating partnership with OTTs.
- But the questions for Telcos is the best timings for the partnership with the OTT players (is it too early or too late?). They are like deer in the headlight.
- Another fact is that Telcos are competing with each other too and therefore OTTs develop operator independent applications. If partnership is not developed at the early ages Telcos won't have much to differentiate them on.
- The actions differ across regions. In US there's a trend to go for collaboration only with specific players whereas in Europe there is lot collaboration in general. The following figure describes the idea in a quadrant with six possibilities based on collaboration or competition with third parties (OTTs) and other Telcos. If the Telcos keep on confronting they will keep on destroying value for the industry whereas collaboration can help them gain back their value generation capability.

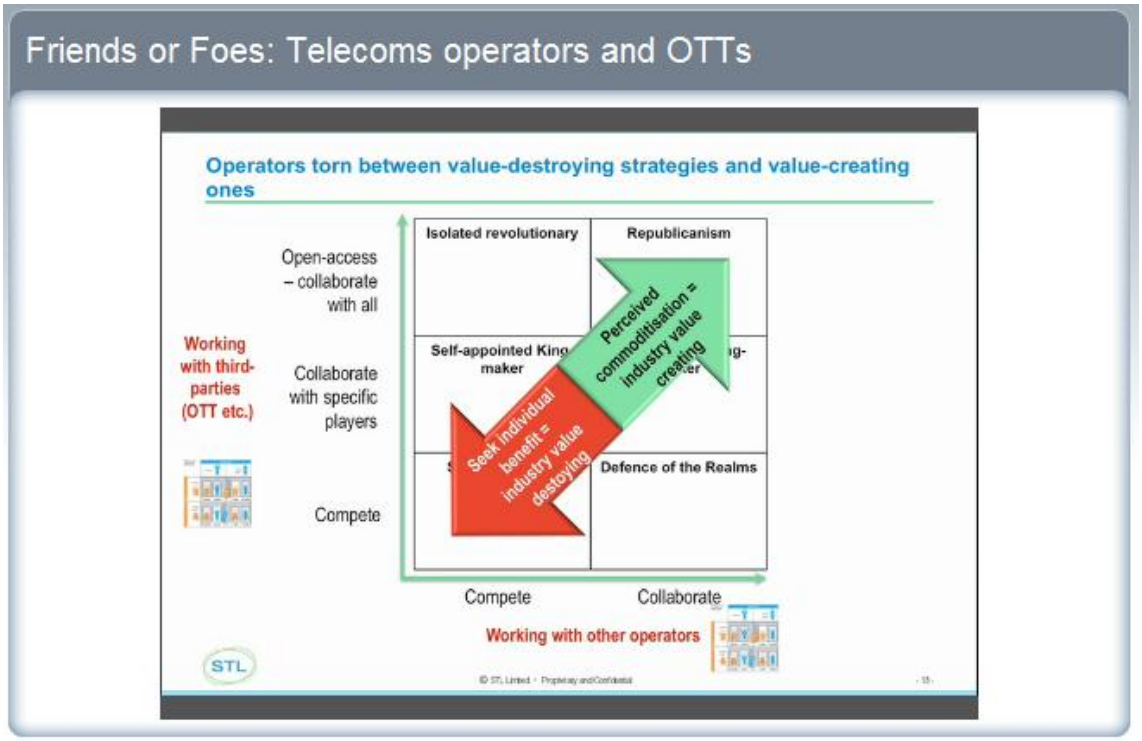


Figure 14: Friends or Foes: Telecom Operators and OTTs (Used with permission from the author)

- The issue is that the propositions are not communicated. The Telcos are not aware of the benefits which lie with collaboration.
- Telecom operators are too slow and lack business culture conductive to innovation
- The operators are caught in a 'prisoner's dilemma' which is preventing the industry from making the necessary changes to unlock value. (The **prisoner's dilemma** is a canonical example of a game analyzed in game theory that shows why two individuals might not cooperate, even if it appears that it is in their best interest to do so).

6.3) Interview Analysis

6.3.1) Interviewees Profile

The first interviewee is working at TelcoA Global Solutions and under TelcoA International Wholesales within which he is responsible for Strategy and Innovation. Previously he has held different managerial positions within TelcoA including the Department Director of Marketing at TelcoA International Wholesales and the Department Director of Alliances at TelcoA International Wholesales.

The second interviewee is the Director of Strategy, Business Development (both Organic and Inorganic) and Alliances under TelcoA Global Solutions. TelcoA Global

Solutions is an International Company under TelcoA managing big international costumers for example Inditex, DHL etc. as well as other international carriers.

The third interviewee is the Head of Logical Security inside TelcoA Global Solutions. He deals with (CSIRT) Computer Security Incidence Response Team. His responsibility is to keep an eye internally as well as externally on the network. Seventy percent of his time is to see inside the company and thirty percent is to provide service outside to other customers like banks etc. He has also been part of one of the internal venture capital project being proposed and led by him. Therefore he has experienced the whole process from the inception, business development and execution of the project within TelcoA.

6.3.2) Major Findings

Below are the major findings from the interviews. The order of the responses has been altered in order to maintain the logical flow. The interviews were designed to answer the following research questions set forth in the beginning of the studies. The mapping of the individual sections with respect to the objectives set forth is given below so as to help the reader get a clear understanding of the objectives and maintain the coherence of the section. Note that the responses represent the perspective of different individuals within the organization. The author has tried to maintain neutrality within this section so as to provide the true picture without any personal bias.

- Section 6.3.2.1, 6.3.2.2 and 6.3.2.3 are focused on how **to identify the reasons behind the need for innovation today in the Telco industry.** These sections delves deeper in the history of innovation in Telcos and then provides an overview of the current changes in the environment. The sections finally conclude by providing the purpose of innovation in Telco today.

- Section 6.3.2.4, 6.3.2.5 are focused on the **hurdles preventing the Telcos from innovating.** These sections first bring into account those factors which prevent the innovation in the Telcos. Later they help to identify whether the problem lies with idea generation or execution in these big firms.

- Section 6.3.2.6, 6.3.2.7 and 6.3.2.8 give valuable insights on the **attitude of firms that are successful with innovation in the industry.** These section take into account three crucial aspects , the organization structure , the role of HR (Human Resource) department and the commitment of senior management towards innovation to determine the elements which contributes toward innovation in successful firms.

- Section 6.3.2.9 is specifically meant to **highlight the practices necessary to create an innovative culture in these traditionally monopolistic firms.** The section provides various suggestions from different managers within TelcoA to improve the innovation process.

- Section 6.3.2.10, 6.3.2.11 and 6.3.2.12 provide propositions for **strategies which are viable in the current industry.** Firstly these sections give an overview about various initiatives taken by the Telcos to be innovative. They later also focuses on the people responsible for leading innovation within the firm. Lastly they give insights about OTT players which are necessary to take into account when devising a long term strategy for the industry.

6.3.2.1) History of Innovation at Telcos and TelcoA

6.3.2.1.1) Telco Industry

"The Telco sector has not being generally innovative in the past because the innovation has been outsourced to Ciscos and Alcatels of the world"

The above comes from one of the Innovation Managers at TelcoA. He elaborates on it that in the past Telcos enjoyed the monopolistic position so innovation was not a prime focus. The innovation was only for some specific industries like banks which were done in labs and sometimes asking the vendors to do it on Telcos behalf. He adds to it that

"It was more about innovation in marketing not innovation of services"

The big change was when the infrastructure and service were disbanded .This came with the coming of players like Google, Skype, Facebook, etc. No longer were Telcos able to provide vertical silos (decentralized departments providing specific products or services). Then Telcos started thinking about things that are not essentially tied to the network (infrastructure). Now Telcos are seeking different business models to reinvigorate their services. The vendors are there but according to one of the Innovation Managers they are selling boxes (more complex hardware) whereas Telcos are trying to reduce CAPEX (Capital Expenditure).

The second thing according to the Manager of Innovation at TelcoA is that the strategy of vendors is not aligned with that of Telcos. The vendors are themselves trying to figure out what direction should they adopt for the future. They are putting more functionality on the network .They believe they can provide more control over the network by these functionalities. The truth is the customers are not willing to pay for these services and overhead they are putting in the network. Telcos have to tell the vendors they want something which is simpler and lean .One of the managers at TelcoA has to say about it:

"Vendors make life by selling iron. We are pushing the vendors to not to put all these ad hocs which we cannot squeeze for any extra money"

6.3.2.1.2) TelcoA

TelcoA Global Solutions was built to standardize the quality of services so that it would be homogeneous for International customers as well as to develop synergies between

the groups. According to one manager for 5 years TelcoA Global Solutions didn't achieved the Break Even Point (BEP) i.e. its expenses were more than the revenue generated but it helped the other companies in the group to be more profitable by exercising more centralized control over the network and by providing a more standardized and better quality service to its global clients. This could be regarded as the first step of the organizational towards efficiency.

The formal Innovation program within TelcoA Global solution started 4 years back. This can be regarded as the second big step where an innovation committee was created and at the same time 7 new product lines which have much autonomy from the rest of the company's business. The purpose of autonomy was to allow more freedom to these new products and avoid any organizational politics in their growth .This could be considered as both good and bad. We have to acknowledge that if it's seen something much separated no one gives much importance to the results of it. The vertical units which have much autonomy included Cloud, Security for financial services and Health to name a few.

According to him the third and the most major step has been the creation of TelcoA Digital which has merged all the past initiatives and a lot of capabilities for acquisitions. It has not only been developing its own innovative services but also has the budget to acquire other small innovative companies. All these initiatives can be dated back to no more than past 5 years.

6.3.2.2) The change in Environment

6.3.2.2.1) Micro environmental Changes and the Pace of Change

There are two factors here that mean major changes, in TelcoA as well as in other companies. First is in terms of micro environment majorly the crisis. Telcos suffer because people are more sensible to price due to the financial crisis in the world especially in Europe where TelcoA has its major Business. The Business Development Manager at TE has to say about it:

"In crisis people are kind of commoditizing the services faster. So you are also facing the challenge of lowering the prices and this way your financial figures suffer."

The next challenge is how fast the landscape is changing and how Telcos react to it. The manager continues:

"In most cases the top management is too old, they don't have a clue about how it's going to look in the future .They are averse in changing some decisions, this would require strong restructuring in the future."

It means that the senior management is resistant to huge change .One thing is cutting jobs, which depend much on financial figures. The second is the senior management seems to lack the clear view of the future and therefore might be forced to make

changes big changes in future. One of the manager mentions two scenarios in this regard:

"I foresee that one scenario is Telcos would need to deploy good quality broadband at an affordable price. These means you don't require many departments .If you are going to be a commodity then you will remove many activities that you do now. For example the power company, they don't have an innovation department; they don't have a marketing department. You will buy the cheapest megabyte available in the market. The other scenario is outsourcing the whole departments."

Recently TelcoA has taken some actions similar to the second case .For example TelcoA did it with network department which is outsourced to a popular Chinese company in one of its major region. In a company like Telco network is the department where most of the people are, outsourcing this department to third parties shows some hints where the company wants to head on. The manager adds to it:

"So you will be kind of company focusing on marketing, you have the network but let other people manage it, design it."

These are the two different scenarios. In the first scenario Telcos would continue providing the same service but with low price and better quality whereas in the second scenario Telcos have to cut on many of its current operation and have to focus on just the core services with the rest of the operations outsourced to third parties .In the middle there is a mix. What path a company selects depends on what role it wants to play in the future.

6.3.2.2.2) Regional Differences

According to the Innovation manager at TelcoA the situation in U.S and Europe is not similar which is forcing Telcos to do different things. For example the market in Europe and Latin America is more segmented**.** The Manager of Strategy from Global Solutions has to say about this:

"In the US there are quasi monopolies .The enjoy the monopolies so the thing is that they can push high prices for voice for broadband .They can still enjoy the same situation as past with not much disintermediation."

Disintermediation can be defined simply as removing the middle men i.e. removal of intermediaries in a supply chain (such as a distributor, wholesaler, broker, or agent).

According to him in Europe there are two different types of situations. One is the case where the government is in control of the situation for example in Germany and France and Netherlands. They have to think of activities which majorly affect the society for example they cannot fire the people that easily, they tend to be more bureaucratic organizations. In this case they probably would be struggling more than others; TelcoA has an edge in this area. As one of the manager at TelcoA adds:

"TelcoA is the only company in the world which is so much diversified in terms of geographical presence. This allows TelcoA to foresee what's going on in one market and also u can hedge in what's going on terms of crisis in Europe and still the market growth in Latin America. For some services we are late on Europe but with Latin America we have fresh air for that."

Another trend identified by the manager in the Telco industry is a wave of consolidations**.** According to him Chinese companies can become an active factor and consolidate many companies in future. The Manager of Innovation and Strategy has to add to it:

"In the next 5 years I see Chinese companies going up and buying companies. I don't see so many players in Europe. There are not going to be more than 2 or 3 big operators in future."

6.3.2.2.3) Effects on TelcoA

Since TelcoA has its major market in Europe it has been effected very much by the crisis, especially in Spain**.** In this regard about job cutting and similar changes the Director of Strategy at TelcoA has to say:

"Job cutting is also a natural process and TelcoA has been making it peacefully .This is something that the sector is effected by. Telcos are suffering from the change in paradigm. Most of the analyst look at Telco sector as probably not so growth oriented. The focus is on the hyper sector like Google, Facebook."

Secondly in terms of the organization changes after talking with few employees from different departments it can be stated that in the past 5 years employees see a slow but a positive change in culture .As one employee told that some years back people focused on the time to reach the company and the time to end the work. The time in between doesn't matter .According to him a very big change is the ability to work with objective, task and activities. His words better convey this idea:

"This is better for the company. People are now thinking about what you are doing and not about where are you. Now you don't need to be there physically there. In the crisis people have to make sure that you cover the cost of chairs, table, transportation."

6.3.2.3) Purpose of Innovation Today for Telcos

The interviewed management from TelcoA has similar opinion about the purpose of Innovation of Telcos today, which is survival. The Director of Innovation and Strategy clearly states this:

"Innovation today for TelcoA is to survive. This is not that we won't survive in next two years, but to survive as a growing sector not as a utility .There's a model that is pure utility."

One manager in the innovation department describes the role of innovation in two parts: first to push as much as the cultural change and secondly the new revenue

sources. The innovation program within TelcoA as witnessed by the author can be seen aligned with these two aspects. The Manager of Innovation

"We have to change from the very monolithic company, to something that is very agile. Other thing is to find source of revenue for declining services."

6.3.2.4) What Hinders Innovation?

TelcoA is one case but also in other companies the foremost problem is culture .One has to change the way they do things .They feel they are being menaced, for example if you change the way you do networking they feel they will lose their significance .The people who have very deep knowledge about something they are threatened . Second is the slow nature of Telcos to react**.** One manager says about it:

"The way we are used to push things is much slower than people who are threatening us".

Let's take a look at what Amazon or Facebook is doing .They are taking out the complete layers, they are transforming their business models and they are able to do it in few months. For Telcos it takes a lot of time. For example it takes 2 years for Telcos to launch a new thing and by the time you arrive the market the landscape has already changed.

Asked if the other companies which are small are much quicker, the interviewee adds:

"I won't say they are quicker .Because of the size they can be more agile. Not because they want it but because they don't have any more choice. Of course that means they are less in control in the direction the company is taking but if they are good enough to choose the right partners they can be more agile."

The Director of Innovation and Strategy brings another insight though very related to the culture that is innovation is time consuming.

"Everyone likes innovation. The problem is that you don't have to come with an extra head count. You can't say I am going to develop and innovation program with 10 people, and then you are isolating innovation."

He continuous that people who are in the job can think of improving the process. But when one asks the people to take the next step that requires time then one have problem with the managers .Secondly people expect quick results and innovation takes time**.**

The employees who have been part of innovation process seem satisfied with the process because it was the first of its kind in the company. One employee adds to it:

"For me the process was really good because it was the first one but still very good. In my case the Technical things are easy but when we are touching financial numbers

they are horrible. But during the process we came to learn how to build a business case, so for the first time it was a good learning experience."

One suggestion for the next time was to involve all the other units of the company in the beginning of the process .For example Business Unit, Legal department which can give you hints on Legal issues and Marketing department which can give insights on consumers.

6.3.2.5) Where's the Problem? Idea Generation or Execution

Of the people interviewed almost everyone has a notion that the problem lies with execution. On manager dealing with innovation at TE concludes this by saying:

"To put a project in place is difficult because you have lot of resistance from different sides. You have to be really convinced on what you are proposing. Even when you end up having success, probably you are not going to be recognized for that. It's not really a meritocratic organization. It's more political, more social."

Another problem is the dedication of time by the people, not because they don't want to dedicate time but the managers were reluctant on that. Moreover when you can't execute ideas, after two or three times the next time people say forget it .So you need to execute at least some ideas to motivate the employees who have valuable resources and ideas to contribute with.

At last it all melts down to funds .One statement by an employee is:

"Some years ago you have enough budgets, but now you have small budget to do these things."

The other senior managers interviewed have a slightly different opinion on that. They feel there has been a reorganization in the current years which has diverted the Innovation budget to Internal Ventures rather than efficiency project. The line seems blurred but the recent addition of TelcoA Digital means the funds are there but available through more fine-tuned channels.

6.3.2.6) Impact of Organization Structure on Innovation

The mangers interviewed at TelcoA agree that Organizational Structure is very important but each one of them perceives it in a different way.

One Innovation manager believes that it's a good position to start with but it's not enough. According to him there needs to be a deeper change in the organization. Whereas the employees or the middle level manager conceive the change to be chaotic .One employee has to say:

"This is a problem. When you have a regular work and you have a standard process to do things, you can spend time for innovation but when you are changing so quickly (the boss, the work, the activities), innovation becomes secondary for you."

In this regard one also has to see that TelcoA had 4 different organizations in 2 years. For the employees there is a reason to be stressed. It seems they are trying to figure out their new boss their new work. According to some employees there seems experimentation within an organization .According to them the management is not sure about its organization. Small tweaking is ok but big changes bring disaster. On the other hand the managers at the mid high level are still waiting for more change. One manager from Innovation department quotes:

"I would like to see the organization more prone to taking risk. Everything is to be perfect here in the process including the market manuals and then u start selling in two years. You have to change this, for example start a service in beta phase, may be its not perfect, may be its not reliable but it allows to have something in 3 or 6 month."

The Director of Strategy seems much contended with the structure and the current position of Innovation committee within organization. Moreover he adds that one has to put some KPIs (Key Performance Indicators), that are commonly used by an organization to evaluate its success or the success of a particular activity in which it is engaged .But for the innovation and they don't need to be traditional for example revenues or OIBDA (Operating Income before Depreciation and Amortization). He has to say about it:

"The innovation should not be at the bottom of an organization and the way you measure should be different from the traditional financial indicators."

He adds that things like this have been in process. For example along with the innovation program TelcoA started a new HR program .It changed the traditional training program to new programs like leadership or personal branding ,more related with how one expresses his ideas and feeling . This he believes is to create an atmosphere where people are willing to give ideas, no matter good or bad.

6.3.2.7) Role of HR in Innovation

HR plays a significant part in innovation .The HR department at TelcoA Global Solutions has recently taken many initiatives in this regard. For the other company's within TelcoA group for example TelcoA Spain or TelcoA UK, people still believe that there is more that need to be done. They have made the first step to encourage people to participate. One manager part of such initiatives at TelcoA considers training and induction both being an important part for Innovation:

"The first thing you have to do is to identify who are willing to participate. The second thing is to train them. This is something we did well in the past year. And then you always need some expertise from outside. You need a combination of both."

The HR Director at TelcoA Global Solutions is considered a great profile for that, here recent initiatives and approachability has been much of praise. One employee who has been part of an Internal Venture capitalist project contributes by his words:

"The initiatives like I Shakers, Innovation Week are all examples of that. Before that you have a good idea your boss will say very nice very nice, keep on working. It's very important to have a different path then just your boss to bring your idea to reality."

6.3.2.8) Commitment of Senior Management

At last it all melts down to the committeemen of leadership and if it's willing to make a change. The leaders at TelcoA according to the interviews seem committed to innovation and reinvigoration to be among the companies witnessing growth. According to one manager the commitment is not homogenous in the whole group .As he adds that in some departments they are still skeptical about the creation of TelcoA Digital.

It can be inferred that people are still waiting to see the results. The higher management is committed but strategy needs execution so as not to look hallucination. The Director of Strategy and Innovation has to say about it:

"The reality is that TelcoA has taken a big step by creating TelcoA Digital. Not many people believe much in it at the middle management; they say we will see what happens."

6.3.2.9) Innovation Best Practices

At different levels within TelcoA the best practices proposed were much diversified. As for the Innovation Managers he prioritizes the following:

- We should provide the proper environment to the people who are trying to innovate so they feel that they are being backed by the company.
- The main sponsor of innovation should always be CEO.
- All the organization should be involved. You cannot take a bunch of people and let them innovate for all.
- In some cases you have to take tough decision on the organizational level.
- Be clear in setting the goal.
- Provide a path for project to become a reality in the end.

From the employees who lead one of the change projects within the company, Business case is more important. One of the change leaders explains:

"You have to have love for your idea but keep in mind the financial point of you. Focus on Business case."

And then there are knowledge management tools which are equally appreciated at all levels but their strength lay in their proper use .As one employee shares his experience about the knowledge management tool:

"We have a knowledge database. It's a tool but the people don't understand the function of the tool. The idea is to put your knowledge, not all the knowledge in the world. In TelcoA Spain 40 percent of employees are without any university degree but they have been working for 20 years in TelcoA. We need their knowledge, not the manuals."

From the Strategy Directors point of view one has to be more open to external ideas to and has to look outside its industry for best practices:

"In fact we are looking to competitors and other companies. You have to look not only to your peers but to other industries as well which are related. For example Amazon which is related in the way it shifted from an industry of book selling to a new paradigm. You have to look at it very openly."

About the initiatives taken by other companies one employee who has been the Change leaders mentioned the program at Google adds:

"In Google the idea is to join different people from different works .If you are working in the 3rd floor, your free time space to 2nd floor. You need to move from your regular working space to another space .This is innovation time; you can say you have 15 innovation minutes with different people with different point of views."

Another program is the rotation program which is already a big part of TelcoA initiatives where one can see in real time people solving the same problem in a different ways in different places. One could see the initiatives like those at Facebook and Google coming to TelcoA but it's difficult. Firstly there is a need for change in culture. It's not like you say with policy that you need to be innovative from today. As one of the Change Leaders at TelcoA quotes:

"Innovation is an attitude. It's not about following the rules; it's about breaking the rules and see what happens. Innovation is a long term process."

6.3.2.10) Recent Initiatives by the Firm

Talking about the recent initiatives taken by TelcoA the most appreciated initiative in the company is TelcoA Digital .The Director of Strategy and Business Development has to say:

"The most relevant movement was the creation of TelcoA Digital. It was quite a pioneer movement. We put it's the same level as other units. In fact some other carriers are reacting to delve in the same direction."

It seems that the initiatives by TelcoA Digital have acted as a motivational factor for the employee .The reaction of one of the change leaders within the company signifies this change. He shares:

"If you talk about an idea 5 or 6 years back so as how to do the same things in a different way people will say yes yes it's a good idea but let's go to work. It was like this is your work, these are your resources, these are your tools, these are your activities and keep working on these, and we can talk about the other things tomorrow and Tomorrow Never Comes."

The initiatives like I Shakers and First TIWS days to poll in ideas have been widely appreciated by people. The Director of Strategy and Development adds to it by saying that everyone is looking to it because it's an ambitious initiative. According to one of the Innovation managers most of the initiatives are coming from TelcoA (TE) Digital because it has this mandate.

Related to the results of TelcoA Digital, the Director of Innovation adds that the people are too hasty to see results but it will take time. And then there are initiatives related to TelcoA OTTs (Over The Top) services, the results of which one has to see depending on how the market evolves in future. One of the innovation managers adds to it by saying:

"The initiatives are itself very nice but it's not just that , you have to change the culture of the company which takes a lot of time , and then you find a lot of resistance from some units"

6.3.2.11) The Innovation Committee

The Innovation Committee can be called as the last piece of the innovation program. According to the Director of Strategy and Innovation who himself is a part of Innovation Committee ,it constitutes not only of the executives of the TelcoA Global Solutions but also the executives of the whole TelcoA group (TelcoA LatinAmerica , TelcoA Europe , TelcoA Global Solutions and TelcoA Digital). The members were selected based on the need of innovation in certain prospective areas. The Director of Innovation and Strategy at TelcoA has to say:

"We used the criteria based on which areas are more related to the next step of innovation. After all the product or service will be part of the company. After creating the product it will be part of the business machine of the company. That was rational; also we involved the Network Director, the Product Development director, the IT director, the CEO of the company, the Strategy and Innovation Director. Additionally from the rest of the group we selected the Global CTO of the group, the executive of the HR of the group and the people from TelcoA Digital because they have an innovative mindset. In the start it started with 5 or 6 ideas but now there are 56 to 60 ideas in the pipeline and people are motivated to see that."

The inclusion of top executives from different departments is a positive thing. In this way the Innovation Committee can get various perspectives to see if it's not a business case for TelcoA. One of the Change leaders confirms this by saying:

"In the beginning I proposed 4 big ideas but now there are 2. For me they are 4 good ideas but for company they are two, the other two don't fit well with the strategy of the company."

Another question linked to it is since financial people have a very different mindset compared to the people in venture capitalist firms, making them an authority on the selection of project could be harmful for long term innovation. Asked if it is the case at TelcoA, Manager of Innovation at TelcoA has to say:

"No. In most of the cases they are Engineers. I don't think you can put a financial guy at the top of the Innovation. Even I don't think putting financial guy at the top of Venture Capitalist firm is a good idea."

This can be regarded as good and bad because at the end one has to go through financial people. This is good because they put some discipline but this is also bad because they have a short term orientation. As the manager further adds to it:

"It's not betting for future, its betting for next year results"

This information was further confirmed with a discussion with Director of Strategy and Innovation .According to him the big discussion with the people from finance was in the beginning of the program. The Director of Strategy adds to it:

"When we asked for innovation we asked for funding and finally we got funding. Then this has given us a degree of freedom. Then we can select project not just for financial reason but for strategic reasons."

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6.3.2.12) Discussion about OTT

6.3.2.12.1) To what extent are the OTT players a threat for Telcos?

Are OTTs (Over the Top) players really a threat to Telcos? There are different perspectives on it. According to one of the Innovation managers in TelcoA, it's not about OTT it's about the customers who are trying to do things in a different way. He says

"The main problem for Telcos is the ability to adapt (to customers). Value creation has made all the Telcos to put financial people on the board. The company has been managed from the financial perspective .We are very good at detecting the main cost drivers. We are very bad in managing the customer relationship."

Another perspective is commonly shared among the managers at TelcoA is that OTT players are considered to be threat because there's no sustainable business model for the partnership between Telcos and OTTs. It seems logical that if there many OTT players in the arena that's good because people need new handsets, people need bandwidth, and this means the demand is increasing. The problem is that in the current model Telcos have to develop infrastructures to which OTTs like Google or Netflix don't contribute. According to the Director of Strategy and Innovation at TelcoA, the users are not willing to pay more and the OTT are not paying anything. The manager simply describes it:

"The OTTs are something necessary to get the growth but we have to stress our position in the future."

By the stressing the position as elaborated by him means a good business model where Telcos share the value generation with OTTs, not just being a bit carrier. Another aspect is to consider the planning term used by Telcos and OTTs. One manager from the network security team has to say that all the OTT players have their vision from medium to long term .For example when Google started they took three years to obtain a good business model with a small business . The big companies have big problem, that they have existing services and millions of customers so they have to provide existing services and then develop new ones and retain existing customers. It's important to note that the OTTs have nothing to lose in the start and they don't manage the infrastructure. Talking about the end users he adds:

"There are about 5000 of different links around the word. Right now if you can't use Google search engine from your mobile, and your mobile comes from TelcoA then the customer would come to you. You don't know if it's Google or TelcoA. All the incidences go to the Telcos, not to the OTTs. They don't have these kinds of problems."

In this regard we have to note that the customers of OTT are primarily customers of Telcos. The infrastructure is not the service but the infrastructure has a cost and the value today lies with the services.

6.3.2.12.2) Do the OTT Players Warrant any Changes in the Telcos World?

With the current trends in consumer behavior it's apparent that people are using these applications (Skype, Whatsapp), that you cannot stop. According to the Manager of Innovation who is also in charge of developing more sustainable business models with OTTs, if OTTs are going to **cannibalize** (to take sales away from an existing product by selling a similar but new product) the services one should try to take advantage of the platform, even when they lose revenue from some of the services. Platform is a crucial element for Telcos to take advantage of. The manager from the Strategy Department at TelcoA expresses this idea by:

"We know what people do, how they do, with whom they do and when they do. In order to make it useful for us we have to create a new organization, which is apart from the existing organization and allow them to do what they do even if it means cannibalizing the existing services."

For example an application similar to Whatsapp and Skype faced a lot of resistance from TelcoA Spanish unit. They feared that voice revenues would go down .But Telcos right now don't realize that cannibalization is going to come like it or not, internally or externally. Continuing the same topic the manager expresses his opinion that

"You have to decide if you want to play the role in future or keep on extending your existing services and what will happen if they disappear in future."

One also has to see that the OTTs strategy is very different from Telcos. Google's business is about advertisement and for that they need public .For that they get money from the advertisers not from public. Telcos model is very different. Their business comes from the final users, the users of DSL, Mobiles etc. For the final user one needs to pay for DSL, for mobile, etc. but Google is free, Facebook is free .This is a very strong and aggressive business model which Telcos have to deal with.

6.3.2.12.3) What's the Solution?

The good part is that the Telcos are trying to move away from just being bit carriers. For example Telcos are trying to provide their own content provider service to OTTs. Similarly some have started their own services similar to Facebook (social networks). TelcoA started a social network meant for youngsters below 20. So they are trying to put things in the network**.** There are two popular approaches; confrontation or collaboration and in between there's a mix. The selection differs among Telcos.

6.3.2.12.3.1) What is TelcoA Doing

TelcoA seems to be following a mix .The Innovation manager at TelcoA has to say:

"We are following both approaches. In some cases we are collaborating, some partnerships, in some others we are competing. This is not different from the Telecom arena, for some services we partner with other Telcos, for some services we compete. The thing is these people we consider as outsiders coming into our business, so it's kind of a gut, it's an emotional thing."

As TelcoA will try to compete, launch its own services, the question mark is if it would be able to do it and if as good as the OTTs. If it fails then they have to do partnership. At last it depends much on how well do Telcos do and how do consumers perceive it. As one of the managers at TE has to say:

"It's not because OTT is pushing things, it's because people are choosing to do things in a certain way. It's not about OTTs, it's about people."

According to the Director of Strategy and Innovation the most important for TelcoA is to develop its own OTT services without disregarding its existing agreements otherwise

it's very difficult to negotiate with big OTTs. The creation of TelcoA Digital is a way to develop its own OTT services. In fact it had already developed some OTT services which are in the market but just launched. At the same time TelcoA is negotiating with OTT players but this will take time and also the regulations have to play a role.

The another aspect is ending the so called data buffet for consumers .Right now TelcoA is also planning to put an end to flat tariffs and is doing a differentiation among consumer who are quite heavy on the network .

But all in all regulations also have to play a major role in this. At last collaboration between Telcos is also a useful tool to deal with the OTT issue but it's difficult to achieve. The upcoming initiative by different Telcos and related information sharing is very rare because they have fear of losing their competitive edge.

6.3.2.12.3.2) What are Other Telcos Doing?

According to the TE management other competitors are struggling about the same thing. He adds that they are bit slower than TelcoA because of their structures .If one looks at American companies they are earning from their infrastructure and in terms of innovation they are going along the M&A (Mergers and Acquisitions) way, they acquire companies which they think can add value on this OTT scenario. TelcoA is going less on the M&A way, trying to do things on our own. European firms in general don't have funds to go the M&A way.

According to the Manager of Innovation most of them are trying to find some kind of agreements to get some payment for the use of network by OTT. That's something TelcoA started a couple of years ago. The creation of digital services is not very common as explained by him. Only some companies other than TelcoA for example Singapore Telecom, Verizon are trying to develop their own OTTs. A recent example is the "viewdini" by Verizon which is its own mobile video portal app competing with similar services by OTT.

Chapter 7 Conclusion

7.1) Answer to Research Question

The Research Question described in Chapter 1 laid the foundation of the studies for this work and has been considered throughout for the selection of the research methods and literature review. The objective was to obtain:

A retrospective and prospective view on different factors which contribute towards innovation in traditionally monopolistic companies (with a focus on the Telco Industry)

Throughout the research a historical perspective of the evolution of the industry was considered so as to keep in mind what drivers contributed towards innovation during different phases in the history of Telecom. Chapter 5.2 was specifically dedicated to study how the industry has evolved the way it is today. Since the research was focused on traditionally monopolistic companies the researcher has studied how different elements of monopolistic history still influence the innovation process within the organization. Another aspect was to give a more prospective outlook to the research and study the trends which are shaping the industry today. In this regard the researcher studies the different environmental parameters specific to the Telco industry and those new players which have been a relatively new addition to the Telecom industry and have been responsible for a paradigm shift in the Telco industry. Chapter 5.2.1.4.2 and 6.3.6 specifically deals with these new players in the industry.

7.1.1) Research Objectives (Sub questions)

The following sub questions were considered to refine the:

Identify the reasons behind the need for innovation today in the Telco Industry

It has been found that in traditionally monopolistic firms innovation has not been one of the priorities and is one of the functions which has been majorly outsourced .But now with the tough competition resulting from the termination of monopolistic advantages, the environment is changing and forcing these firms to innovate .The need for innovation has been identified as necessary for survival.

Determine the hurdles preventing Telcos from innovating

The major hurdles identified have been two: the culture of these organizations and the pace of change currently needed in the industry. Primarily these firms are specialized in their services and the consumers have been changing the way they consume these services and in many cases require new services which these firms currently lack expertise in .Secondly the size and the bureaucratic nature of these organizations

make it difficult to keep pace with the change in the industry .By the time they are able to launch new services , the needs of the market have already transformed and so they are not able to reap benefits even if they identify the trends.

Pinpoint the differentiating features of the firms that are successful with innovation in the industry

The initiatives taken by various firms considered to be leaders in innovation today vary broadly based on the industry that they belong to and the nature of business they are in. But one common element which exists in all these firms is their trial and error (do and see) attitude. These firms favor the early failures and seed many projects out of which some finally make through the innovation tunnel to successful ventures. Secondly these firms place an emphasis on networking. The most successful projects come as an evolution of ideas which are born in an informal setting but have the proper environment to incubate. Thirdly the innovation in these firms is geared towards long term goals. These firms closely link their strategy to the market trends and commit resources to it .In these firms innovation is not just meant to achieve results for the next quarter but to gear the company to lead in future.

Highlight the practices necessary to create an innovative culture in these traditionally monopolistic firms

It has been found that many initiatives have been taken recently by various big firms to foster the culture of idea sharing and open innovation. One of the necessary aspects is to provide a defined path from idea to reality. Moreover an organization should be open to listening and the appreciation culture be in place to motivate individuals. It has been found that compared to small firms, big firms have their edge in execution therefore their success lays in placing the right people and the right resources together in the right place. Another implication of the research is that today closed room innovation (a limited team dedicated to innovation within a firm) is not enough therefore open innovation is a must in big firms.

Propose strategies which are viable in the current industry

The research focused on both the strategic and operational aspects of innovation within the Telecom industry. For the Telecom industry the most important proposition is to clearly understand that the industry it exists in is changing rapidly and it needs to expand internally with new initiatives and new services even if it means cannibalizing its existing services .The author has provided some recommendations in the following section of the report.

7.2) Managerial Implications of the Research

"Strategy without implementation is hallucination"
Microsoft COO Kevin Turner

The study was carried out using Telco industry as a case study, therefore the author has given strategic and operational propositions in this section which is the crux of the findings and if followed could yield benefits for the Telcos.

7.2.1) Major Strategic Implications

Firms in the Telco industry need to shift from the silos based structure (with individual business units managing regional sales or a small portfolio of products) to layered provision of services which might cut across many of its existing services. This might mean a change in the way of provision and development of services based on user's requirement instead of the fixed menu approach that is currently in practice. This would open the window of opportunity to co-develop services with the user and explore areas of new sources for revenue generation.

This also implies the change in the organizational structure where innovation needs to be part of daily life through proper placement of Innovation department and commitment by the executives. Moreover a separate part of escalation of ideas rather than the traditional line management is needed so as not to jeopardize the innovation process. The Telcos being in an industry which has a high pace of evolution needs continuous stream of new projects so as to sustain its growth and provide value to its stakeholders. In this regard the need for innovation department cannot be subsided to manage the innovation process.

The Telcos have to realize the change in the consumer need, for example from Pagers to SMS, from SMS to Apps. It's time for Telcos to recognize this trend and start developing their own content provision services rather than just being a dump pipe. The first step in this regard is to embrace OTTs .This implies firstly the development of their own OTT services .The Telcos have certain expertise for example invoicing services which they should utilize to develop their own OTT propositions. Secondly it's high time for Telcos to develop more sustainable business models with the OTTs. The OTTs in the future are unavoidable therefore joint ventures and partnerships with them could go a long way opening new sources of revenues. For example Telcos have the enough data for user authentication or have expertise in invoicing service, both of these competencies could be used to sell user authentication or user subscription services to OTTs to develop a two sided revenue generation model. A mix approach with both collaboration and competition is advisable. The regulations might also play an important part in selecting the right mix in different geographies.

The Telcos are part of a broader ICT (Information and Communication Technology) arena where ecosystem plays an important role to decide if one could play a part in the future. Therefore partnership with complementary industries (hardware and software

vendors, content providers, etc.) is not only necessary but the selection of right partners to a great extent also determines their success.

Last but not least consolidation is very natural phenomenon prevalent in the Telecom industry. The question is to take over or be taken over in the coming years. Therefore the Telcos not only need to focus on their core competencies but have to expand in the related industries that could result in collective synergies. The content providers have been one of these complementary industries where Telcos have focused in past. Now when the Telcos need to diversify in their proposition organic as well as inorganic growth could also play a big part to shape one`s future.

7.2.2) Major Operational Implications

The main sponsor for change within the organization should always be the CEO. The commitment by senior management contributes extensively to sway the effect of skepticism that employees hold for new ventures. Moreover the need for a proper appreciation system is dire to motivate individuals to contribute towards change.

The Eureka moment is one of the fallacies of innovation. The ideas come through networking and collaboration therefore small initiatives like annual gatherings, interdepartmental common areas to socialize; accessible spaces to jot down ideas etc. go a long way to create a more open culture towards innovation.

The R&D departments could no more be the sole sources of innovation. In big firms like Telcos individuals have always better knowledge to improve the processes within the organization. For projects to be part of future, the firms should look at the lead users who are visionaries and have discovered needs beyond that of the end users today.

7.3) Limitations and Future Research

The research has been done in the period of 6 months therefore one of the clear limitations of the work is time. Though during the research a few internal ventures were analyzed from their inception to prototyping phase, the project was based in a single firm. A more comprehensive study could yield further insights taking in account different other firms within the same industry.

In addition to these, major constraints have been the intrinsic nature of strategy: the subject is very much opinionated by people holding different perspective. This study has been developed on an empirical research based on a specific case study; the intent of the author has been to contribute to the academic and empirical knowledge on Innovation Strategy.

Despite the fulfillment of challenging initial targets, there is still a long road for improving the insights on Innovation and Intrapreneurship within big firms, among them include:

- An analysis based on the policy implications in different regions related to the OTT players in the market and their impact on Telcos.

- A study on how to revitalize the drying revenue sources by industries witnessing a paradigm shift. The need for big steps by transforming the core business of a firm.

- The reward based approach to create an innovative culture within an organization. Are rewards really feasible for the purpose of motivation? What are the unintended consequences of rewards?

- How productive is the use of behavioral sciences and personality assessment (individually tailored programs) to create an innovative environment within firms?

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Appendix

Interview Questionnaire

Interview Structure: Open unstructured discussion.

Interview Time: Preferably 60 to 90 minutes, schedule permitting.

Note for Interviewees: The interview is solely meant to get insights on the innovation and Intrapreneurship in the company. The study would help to understand the Innovation process within TelcoA and its environment and to help develop recommendations for any changes if required. The responses will be kept anonymous. The study is also part of a Thesis on entrepreneurship within big corporations. The results of the study would be communicated to the interviewee.

Questionnaire

- Current Position and Responsibilities
- Please share some recent innovation initiatives taken by TelcoA and how well have they worked?
- Please say a little bit about the history of innovation in TelcoA (if you can)?
- Who is part of the innovation committee at TelcoA? Are people from finance having a big say in corporate ventures? Who is leading the change?
- What hinders the process?
- Do you think the company is experiencing a huge change (crisis, job security, and focus on core competencies, cut cost)? TelcoA vs. Industry
- What do you think about the discussions and debates about the “Over the Top” (OTT) players such as Google, Facebook, and to what extent are they a major threat to TelcoA?
- Does the competitive threat from the OTT players warrant certain innovation and Intrapreneurship initiatives at TelcoA in your opinion?
- How should TelcoA deal with them in future?
- How are other Telcos dealing with them?
- What is the role of innovation at TelcoA? (To help ensure survival? An engine for growth? Just a buzzword used by executives?)
- How has organizational structure impacted innovation? What good and what bad?
- What changes do you advocate on organizational structure that would enhance innovation here?
- What is HR doing to advance innovation and what more should it doing? Is the hiring process tailored anyway to improve the intake?
- What opportunities exist for existing employees to be more innovative?
- Is the problem mostly with (lack of) idea generation, or with (lack of) execution (or something else)?
- Please share your ideas regarding execution best practices for internal corporate ventures?
- Do you see some initiatives that you would like to bring to TelcoA?
- Do you use any tools that help with innovation (e.g., knowledge-sharing tools)?
- How committed is TelcoA’s senior management to innovation and change?