INFLUENCE OF TECHNOLOGICAL DEVELOPMENTS ON BUSINESS MODEL INNOVATION

THESIS

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DECLERATION

I, Makhmoor Bashir, hereby declare that that the thesis entitled "Influence of Technological Developments on Business Model Innovation", submitted to the lovely Professional University for the award of Degree of Doctor of Philosophy in Management, is an original research work carried out by me in School of Business at the Lovely Professional University during the period 2013-2016 under the supervision of Prof. (Dr.) Rajesh Verma, School of Business, Lovely Professional University. Any extract to this research in part or as a whole has not been included, incorporated or added to any other work or similar title by any scholar in any other University.

Dated: Makhmoor Bashir

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All praise be to Allah (Glory to thee), Lord of the universe, and may peace and blessings be on the most noble of Prophets and Messengers, our Prophet Muhammad (S.A.W), and on his family and all of his Companions. I offer to Him all praise and gratitude, and seek His assistance and forgiveness. I seek refuge in Allah from the evils of our souls and the wickedness of our deeds. Whomsoever Allah guides, none can misguide, and whomsoever Allah misguides, none can guide. I thank Allah, the Exalted, for gifting this blessed life to me and sound health throughout my PhD. Alhamdulillah, Allah gave me the enough strengths and patience to tackle every problem with calm and ease.

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LIST OF ACRONYMS USED

EFA	Exploratory Factor Analysis
CFA	Confirmatory Factor Analysis
KMO	Kaiser-Meyer-Olkin
CEO	Chief Executive Officer
BMI	Business Model Innovation
COO	Chief Operating Officer
CSO	Chief Strategy Officer
BM	Business Model
TCS	Tata Consultancy Services
TM	Tech Mahindra
HCL	Hindustan Computers Limited
HDFC	Housing Development Finance Corporation
MTNL	Mahanagar Telephone Nigam Limited
SBI	State Bank of India
ICICI	Industrial Credit and Investment Corporation of India Bank
PNB	Punjab National Bank
HT	Hindustan Times
LIC	Life Insurance Corporation
AMU	Aligarh Muslim University
IITD	Indian Institute of Technology Delhi
DU	Delhi University
JNU	Jawaharlal Nehru University

1.0 INTRODUCTION

The way of doing business is changing day by day and at a much greater pace. The factors contributing to this change are the rapid advancements in the technology and globalization. The change is so fast that at times, it becomes impossible for some businesses to respond and the other majority of the firms which respond fail to take the right course of action. So as a result of these changes, managing businesses has become much more sophisticated and complicated. E.g. Nokia which was one of the leading cell phone manufacturers in the world for around 14 years, found hard to survive as it has not been able to respond to the technological changes like its arch rivals (Samsung and Sony).

So many companies have vanished over the last decade and many other have merged or have either been acquired by the competitors. Managers and researchers across the globe are trying to find out the optimal way of responding to these changes and thus the focus on business models has increased by leaps and bounds. Manager's skills are being continuously put under test due to these rapid changes. So as a result of these nasty changes the issues of transformation of business models and disruptive innovations has come to a lime light for various academicians and managers around the globe.

Businesses respond to these changes by framing new strategies and plans. The main question posed to business scholars and researchers now days is why some companies fail and others survive this rapid technological evolution. The answer to this question lies in the fact that successful companies change their business models over time. Companies like that of IBM and Xerox are very good examples of how technology has completely reshaped the business models. IBM in fact went through many business model changes such as getting their hands on companies like PWC's consulting business (2002), SPSS (2009), Kenexa (2012), creation of independent companies like Lexmark (1991), and selling off product lines like ThinkPad to Lenovo (2005) and now again shifting their business to research and cloud computing (Wikipedia).

If you ask any manager round the globe to list downs the possible factors for changes in business models over time, he will put technology right on the top front of that list. Technology has always challenged the traditional means of doing business by bringing new and innovative ways of doing the same things. At the same time technology has threatened the dominance of old and giant firms by disrupting their business models.

A recently published report from The Economist intelligence Unit (2012) in which they surveyed 4,000 senior managers worldwide found that executives don't prefer new products and services as source of future competitive advantage but new business models. A similar type of study was conducted by IBM in which they took the response of more than 750 corporate and public sector leaders throughout the world on the subject of innovation. One of the key findings from the survey was that due to intensive global pressures the focus of top executives on business model innovations from the top executives has increased and reached much higher than expected before (IBM, 2006). Therefore it is clear that companies know the perks of business model innovation and are thus giving lots of importance to the business models.

Another highlight of the study was that companies who outperformed their rivals and whose operating margins have grown at a much greater pace since last five years were putting twice as much focus on the business models as the underperforming companies or their peers. Successful business model changes can serve as a competitive advantage. E.g. the main catalyst behind Dell's growth and success has been its direct selling model. The Model was so efficient and powerful that Dell's rivals found it very hard to imitate and thus it not only gave Dell a unique position in personal computer industry but also served as a distinctive competitive advantage. A good example of business model innovation can be that of IBM. After facing a severe financial crisis in the early 1990s the firm changed it business model and shifted its focus from being a supplier of hardware to becoming a service provider. This change in business model contributed almost more than half of IBM's $96 billion in revenues in 2009 (Amit & Zott, 2010).

The main purpose of this research would be to examine how technology disrupts the way business is done and how in turn companies are changing their business models to remain competitive in the market. Various industries will be analysed, how their business models have been changed by the technology and how it has affected their way of doing business. Finally we would also look at the role of top management when it comes to tailoring an efficient business model which can handle all competitive forces because top management has a very significant role in business model innovation. Top management is the major force in shaping the strategies of the company and most importantly developing an efficient business model keeping in mind the companies vision (Amit & Zott, 2010).

1.1 EMERGENCE OF BUSINESS MODEL INNOVATION

During the last two decades there has been a tremendous surge in the literature on business models. The number of publications citing business models has increased to a dramatic extent, but still scholars do not concur on what a business model is, as the term business model is a relatively young phenomenon.

An enquiry in business source premier, a foremost electronic database for business magazines and scholarly business journals, illustrates that the term became visible in 1960 in the title and the abstract of a paper Accounting Review (Jones, 1960). Figure 1 shows, business source premier database of scholarly business journals, the bottom of expression business models has taken place in the 1990s with 144 occurrences in abstracts and 29 appearance in peer reviewed articles in the year 2003.

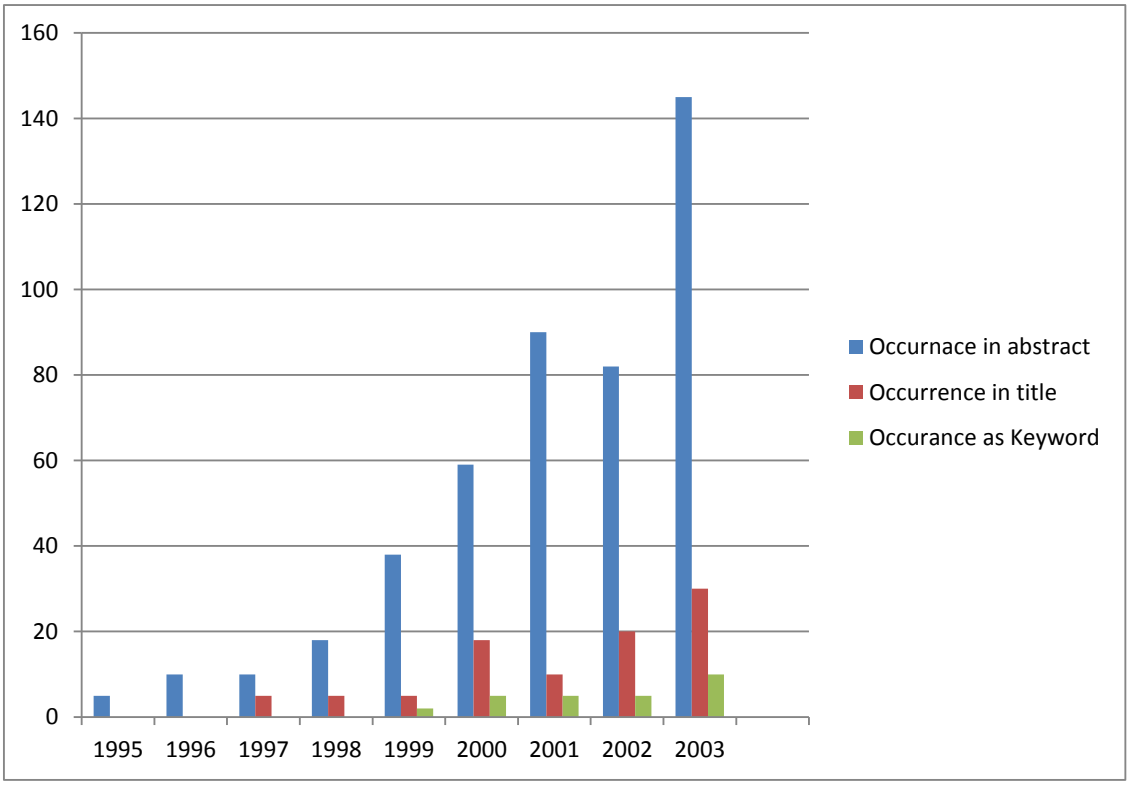
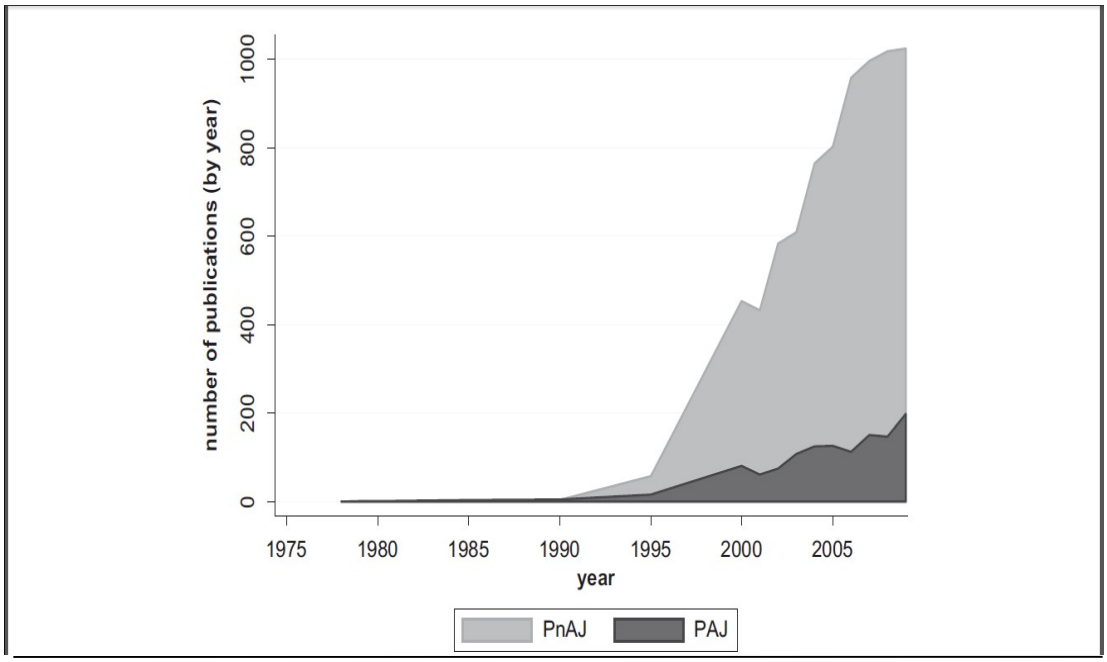


Figure 1.1: Occurrence of the term business model. (Source**:**Osterwalder A, 2004)

Ghaziani & Ventresca (2005), conducted a hunt using the ABI/INFORM database and found 1,729 publications that included the term *business model.* Among these 166 were published in the period 1975-1994 and the outstanding (1,563) belonged to the period 1995-2000, signifying a high level of increase. Zott, Amit & Massa (2011) extended the same study using EBSCO hosts database to 2009. They found that until December 2009 the term business model has been incorporated in 1,202 articles in academic journals while as from 1975 to December 2009, the term has been mentioned in 8,062 documents. A similar kind of trend was followed by the non-academic articles (Christoph, Raphael, & Lorenzo, 2011).



PnAJ=Articles published in non-academic journals, PAJ= Articles published in academic Journals

Figure 1.2: Business Model Articles in the Business Management Field (Source: Zott, Amit, & Mass, 2011)

A similar attempt was made in this study using EBSCO host data base and it was found that from January 2010 to October 2015 there are altogether 932 articles having the term *business model* in the title. The research shows 124 articles in year 2010, 144 articles in the year 2011, 162 articles in year 2012, 214 articles in year 2013, 161 articles in year 2014 and 127 articles up to 31 October in year 2015 had term business model in the title (Figure 1.3).

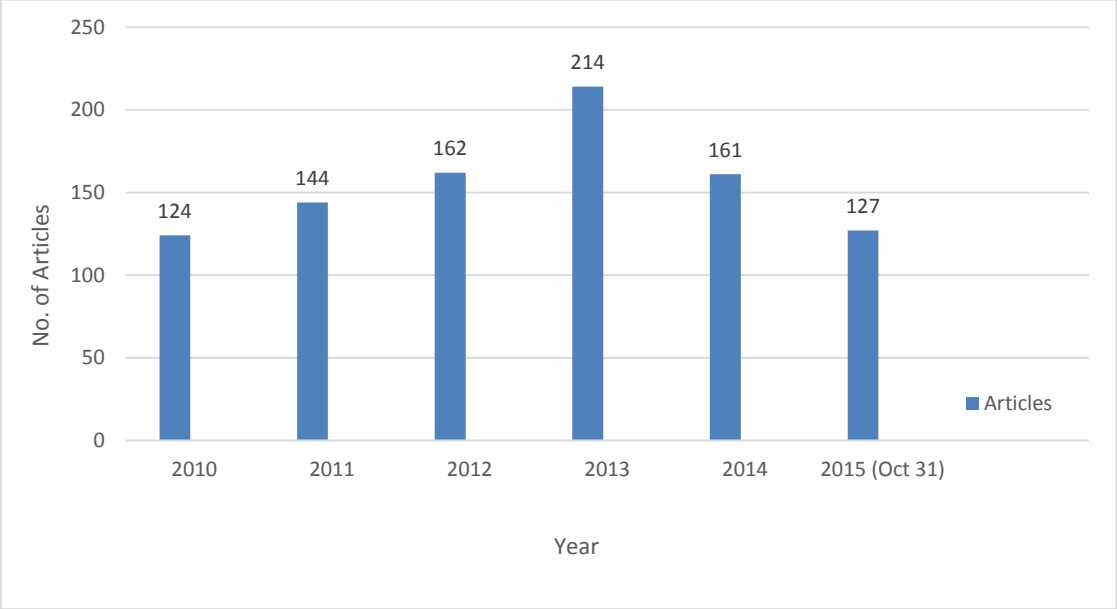


Figure 1.3: Total number of publications containing the term business model in title (EBSCO)

Many scholars argue that the development of the business model concept, and the wide use of the concept may well have been driven by the initiation of the internet (Amit & Zott, 2001), rapid growth in emerging markets and interest in "bottom-of-the pyramid" issues (Prahald & Hamel, 1994; Prahald & Hamel, 2002; Hart&Christensen, 2002;Seelos & Mair, 2007; Thompson & Macmillan, 2010) and the expanding industries and organizations dependent on post-industrial technologies(Perkmann & Spicer, 2010)

The main factors responsible for the regressive use of business model include budding knowledge market, the intensification of the internet and e-commerce, the outsourcing and off shoring many business activities, and the streamlining of the financial services industry around the globe (Teece, 2010). On the other hand Chesbrough argues that "a mediocre technology pursued within a great business model may be more valuable than a great technology exploited via a mediocre business model."(Chesbrough, 2010). This definition highlights the importance of business models in today's changing world. The researcher has tried to establish that only an efficient technology cannot guarantee success to a firm. What matters is how you surround that technology with an efficient business model.

1.2 EVOLUTION OF BUSINESS MODEL CONCEPT

Going through whatever literature is their on business models, it is evident that the concept has really progressed over the last two decades (Westerlund, 2009;Wirtz , 2011). Researchers have identified three foremost phases during which the term 'business model' has been used or rather has evolved. The very first phase stressed on intraorganizational aspects during 1970's and 1980's. During that period business model was availed to model internal structures, functions, processes, operations tasks and communication. This was done to support routine work and decision making. Researchers see this as a techological phase which stressed on system building and system modeling (Wirtz, 2011).

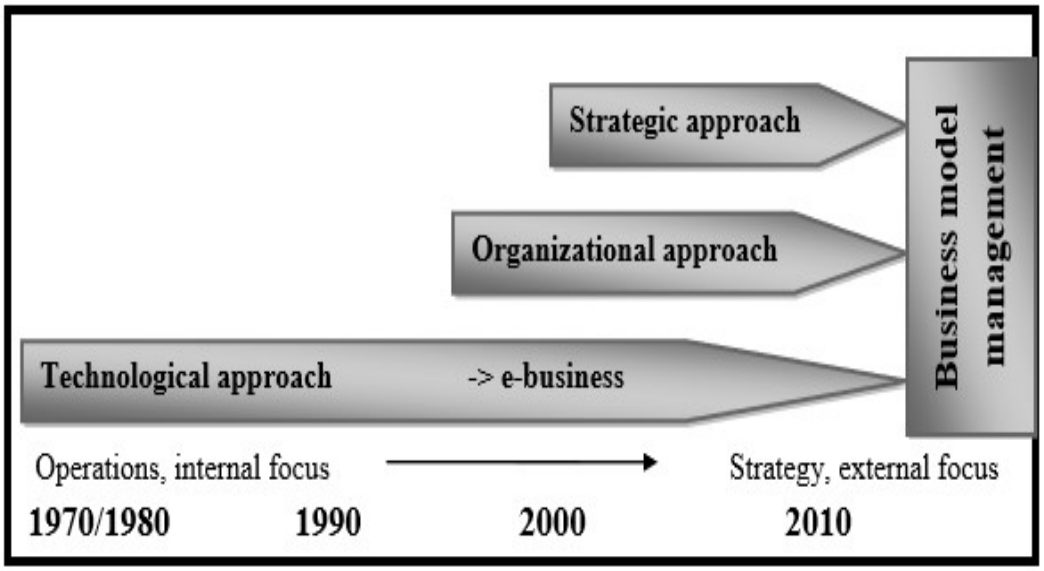


Figure 1.4: Evolution of business model concept. (Source: Westerlund 2009, p. 24) and (Wirtz 2011, p. 20).)

In the era of 1990s business communication where facilitated by the advent of internet and so business models were subjugated by the emergence of internet. The sudden and huge success of internet linked business models provoked scholars to understand their value structure. This was an interesting phase in the subject of business models as it moved towards value crafting processes. As a result of all these events an entire novel branch of business models was moulded (westerlund, 2009). Magretta (2002) is of the opinion that with the advent of e-tech gurgle business models received loads of appreciation.

The strategy and external value network perspective evolved mainly during the last decade. This has resulted in a big focus shift in business models to include external resources and relationships (Westerlund, 2009). This gives a simple implication from firm centric view unit of analysis has shifted towards network view. It is important to note that the unit is not as simple as it was in 1990s which included a single company but rather it is a network of suppliers, manufacturers, partners, customers and investors (Schweizer, 2005). Figure 1.4 gives a brief overview of the evolution of business model concept.

1.3 REASONS FOR THE EXISTENCE OF THE TERM "BUSINESS MODEL

According to Shafer et al., (2005) during the dot-com era millions of dollars were raised from venture capitalists and many flawed business models were funded. Understanding the meaning and basics of business model has become a grave concern for the management professionals and scholars. Scholars argue that the problem doesn't lie with the term 'business model' but its lack of understanding and misuse. Information communication technology commonly branded as ICT and the internet are the two main driving forces behind the wide and rigorous use of the term 'business model'. The emergence of broader range of business networks and business strategies can be attributed to the sophistication of technical and organizational networking. In order to meet the challenges of information age and technology the industrial age of doing business became miserably inadequate (Skerlavaj et al., 2007; Venkatraman and Henderson, 1998).

According to Hamel (2002) the high capitalization levels seen throughout 1990's in Silicon Valley led to the emergence of business models more than that that of the ability of their vivid visionaries. On the other hand Aufah (2004) explains business model as the main driving force behind the success of companies like Microsoft, Walmart, eBay and Southwest Airlines. Many other researchers have explained business model as the way of doing business (Gilbert et al., 2003; Johnson, 2010; Kim and Mauborgne, 2005; Schwalm et al., 2009). Some of the pioneer companies in management consulting like McKinsey & Company, Bain & Company and the Boston Consulting Group also offer services in the field of business model innovation. According to IBM (2008) many top notch multinationals actively seek advice as how to innovate their business models. This points out to the fact that despite being low in understanding there is a high level of importance being attributed to the term 'business model'.

1.4 WHY BUSINESS MODEL INNOVATION MATTERS

Since pre-classical times business model have been part of economic activity but the concept gained momentum mainly with the advent of internet in 90's. As already discussed above there has been a huge surge in the academic literature on business model innovation. Despite this surge there are still many unanswered questions but beyond any doubt all of the mangers, businessmen and researchers in the field of management seem to unanimously agree on the growing importance, applicability and relevance of the concept of business model innovation (Amit &Zott, 2011; Bashir & Verma, 2016).

Economist intelligence unit conducted a survey in 2005 with the aim of answering the question: Will business model innovation be important in 2010? The report came up with the answer which is as: 'Worldwide, more respondents identify new business models as a greater source of competitive advantage than new products and services. Products matter, of course, but as a source of lasting competitive advantage, they are vulnerable to replication' (Business 2010, Economist Intelligence Unit). 55 % executives said that in 2010 business model innovation would be a source of competitive advantage. A similar type of a survey conducted in 2012 by the same company highlighted that business model innovation has been pushed right up in the primacy list of firms. The report further highlighted that executives prefer business model innovation as a source of competitive advantage rather than product innovation. Bashir, Yousaf & Verma (2016) by means of a case study on Uber have also highlighted how business model innovation can serve as a competitive advantage.

IBM came up with a study titled 'Expanding the innovation horizon' in 2006 and an extension of the same study was done in 2008, highlighted that CEO's spend almost 30 % of their valuable time in efforts to innovate business models (Figure 1.5). The CEO's who didn't earlier see a reason to spend time and focus on business model innovation seem to believe that time has come to have a look at it. The study also highlighted that companies which have put more emphasis on business model innovation have grown higher operating margins than companies which have not (Figure 1.6). Among the CEO's surveyed in the study some 40 % believe that even changes in competitor's business model would bring changes in the whole industry. Therefore companies spend considerable time, energy and efforts in order to be the first ones who drive the change and be a competitive threat rather than being the ones who will follow the change.

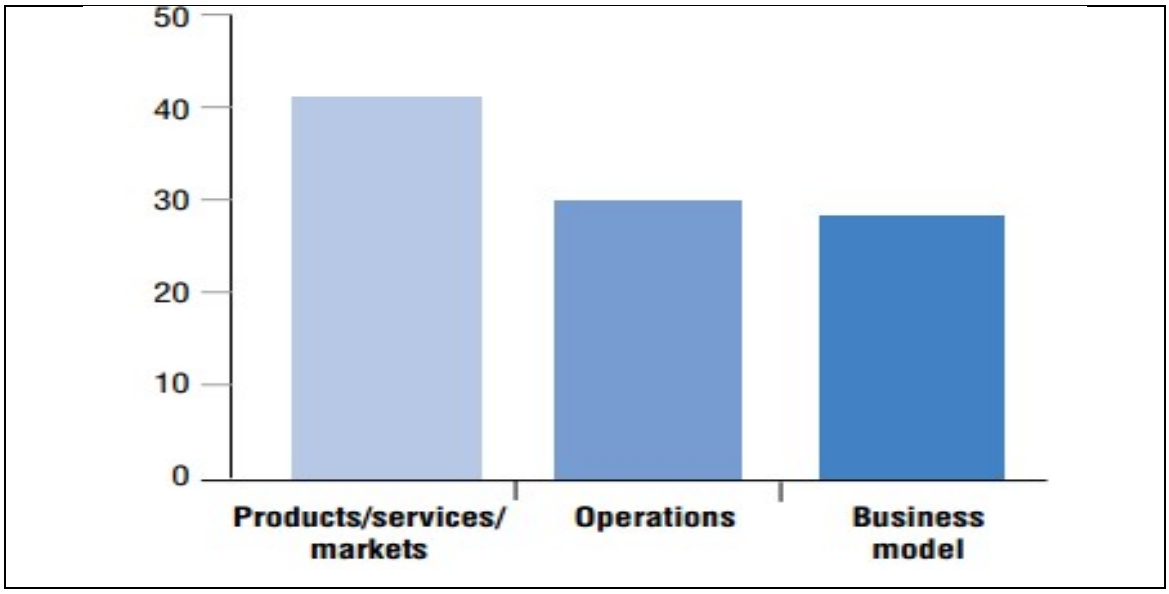


Figure 1.5: Percentage of Emphasis allocated to each innovation type. (Source: IBM, 2006).

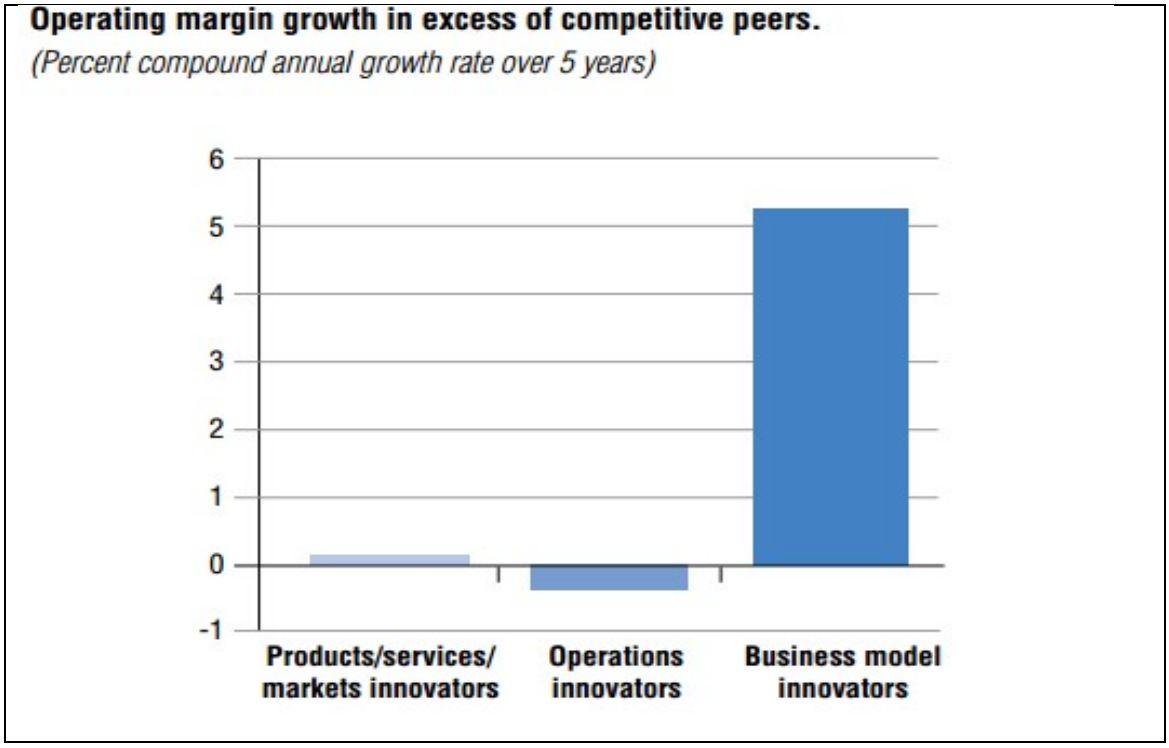


Figure 1.6: Operating margin growth (Source: IBM, 2006)

The report has also highlighted that business model innovation will have a huge impact on the cost reduction and strategic flexibility (Figure 1.7). The CEO's ranking highlighted that business model innovations enables organizations to be lean, quick and more adaptive.

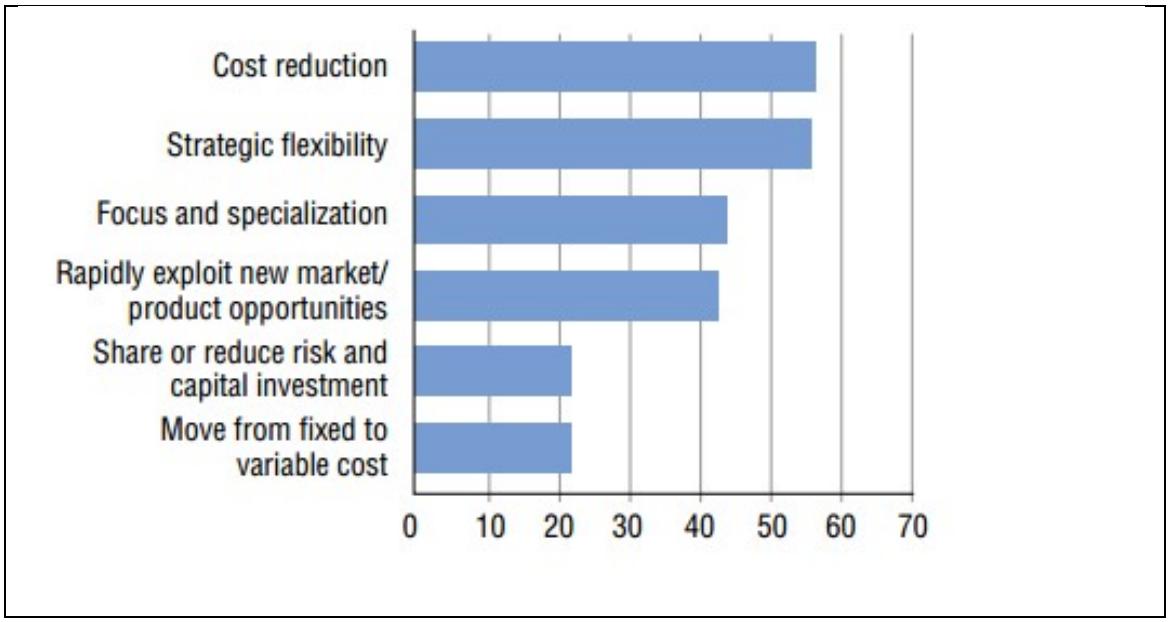


Figure 1.7: Benefits cited by business model innovators. (Source: IBM, 2006)

1.5 THE SCHOLARLY PERSPECTYIVE ON BUISNESS MODEL INNOVATION

According to Bashir & Verma (2016) almost all of the scholars from the different management fields still don't have a common ground in explaining business model innovation. This is because management scholars have no uniformity in explaining business models and definitions are tailored suiting specific studies having very little linkage with other studies. Despite all these contradictions scholars seem to agree that business models explains how a firm creates value (Osterwalder & Pignuer, 2010) and how they monetize that value (Teece, 2010). This highlights the level of complexity involved in business model innovation as compared to other innovations like process and product innovations (Rosenkopf & McGrath, 2011). The reason for complexity is due to the fact that business model innovation requires an absolute change in the organizational structure and alignment of managers and stakeholders.

When the components of business model innovation are concerned there is again not a common ground among researchers in listing down the components. There frameworks discussed by scholars have highlighted different components suiting their particular studies with little generalizability (Hedman & Kalling, 2003, Osterwalder & Pignuer, 2005, Westerlund, 2009, Zott, Amit & Masa, 2011). Many of the frameworks discussed in the available literature on business models lack validity, reliability and applicability across industries. The prime reason being that almost all of the frameworks are based on case studies while some are conceptual and other theoretical lacking adequate empirical support. This has also made it difficult for scholars to build tools for measuring business model innovation.

Scholars from different management fields have also highlighted the importance of external environment, which has a high influence on business model innovation. In order to obtain the required knowledge coupled with the internal knowledge managers rely heavily on the external environment. In this aspect scholars have explained the links partner firms, clients, and suppliers signify indispensable knowledge sources for successfully implementing business model innovation (Bock et al., 2012; Gordijn&Akkermans, 2001). Scholars have highlighted that technology is one of the main external forces which drives business model innovation (EIU, 2012). According to (Gordijn & Akkermans, 2001) there is still lack of clarity about the specific phases of the change of business model elements. This hinders the progress of scholars in highlighting which strategies are most successful in implementing business mode innovations.

Scholars have stressed that business model innovation is different from the business strategy and in no way it should be treated as a sub component of strategy. Despite the growing literature on business model innovation researchers have not been able to fill the gap about the role of top management in business model innovation. There are some very rare papers which have discussed the concept of business model innovation leadership (Foss &Stieglitz, 2014; Guo & Tang, 2013). Top management skills can really reshape the future prospects of any company. Scholars in this regards have not been able to define this relationship exclusively. There are hardly any papers which have highlighted the relationship of top management skills with the business model innovation.

This PhD study will be an attempt to address these gaps. In this thesis researcher will highlight the present, past and future status of business model innovation by doing a comprehensive and through review of the literature. Researchers will explain how business model innovation is different from business strategy, value creation, channel management and other management concepts. Researcher will also develop a valid and reliable scale to measure the influence of technology on business model innovation. The role which top management has in business model innovation will also be discussed in length and breadth.

1.6PURPOSE OF THE STUDY

Taking the earlier discussion into consideration the research on business models is still at budding stage and is just making inroads in some top notch journals. One of the main driving forces behind the surge of academic literature on business models has been with the advent of internet. The success of companies like Dell, Google, Uber, Airbnb etc. gave a new life to the concept of business model. These companies broke all of the traditional barriers and have grown at an impossible rate. Entrepreneurs and venture capitalists spend millions of dollars not only in funding but also understanding novel business models. Researchers agree to the fact that business model innovation can be a source of competitive advantage (Bashir, Yousaf & Verma, 2015).

Long range planning (2010) published a special issue on business model and in no time it received as many as 1000 citations and almost 50,000 downloads on yearly basis. This again goes on to show the interest on business models by both the academicians and as well as the industry. Despite the surge in academic and non-academic literature on business models there

is a still lot of confusion surrounding the term “business model” and its components. This study will study all of the literature on business models and present a holistic view of the past, present and future of the concept of business model innovation. The purpose is to highlight the current state of the art about business models, the varying opinion of the researchers on the definitions of the term “business model”, the reasons of the varying opinion on business models and the various challenges which researchers face while dealing with the concept of the business model.

The purpose of this research is to throw more light on business model innovation and its components. The bulk of studies on business models are either based on case studies or are either conceptual or theoretical in nature. There are hardly any empirical studies on business models as almost all researchers have given contradicting and different definitions of business model suiting their studies. One of the very basic purpose of this research is to develop tools for researchers for measuring business model innovation which will help in explaining the concept better. In this regard a theoretically anchored reliable and valid scale measuring business model innovation has been developed which will bridge the gap for future research on business models.

A report from the economist intelligence report (2012) stressed to the fact that among many factors responsible for change in business models like competitive pressure, government regulations etc. technology comes right at the forefront taking the pole position. Technological developments have a massive influence on business models. Technological developments can bring in new business models in picture which can be very novel like that of Uber and Airbnb. Researchers although agree that technology has a role in business model innovation but as of now this role has not been quantified. So the second purpose of this study is to quantify the influence of technology on business models. This study will highlight how technology and business models interact. This study will analyse the influence of technology on the various components of business model.

Researchers on a general level accept that the business model innovation is usually a top down approach where the role of top management is very critical and crucial. It is the top management of the company which has to streamline the processes and get human resource ready, in order to accept the change. There is again a total ambiguity surrounding the role of top management on business model innovation. There are very rare articles in the academic literature which have highlighted the role of top management in business model innovation.

Majority of the articles focus on some very common themes which have no empirical evidence. In order to bridge this gap this study has made an attempt to clear the confusion surrounding the role of top management in business model innovation by conducting a qualitative study across all the seven industries. The study will be qualitative in nature where interviews would be conducted with the top management of the firms covering seven industries.

1.7 STATEMENT OF THE PROBLEM

The literature review suggested that the overall concept of business model innovation is still at a budding stage. Researchers have no common ground in explaining what a business model is and what are its various components. Researchers have given contradicting definitions in their papers suiting their studies with very little linkage. This has made it difficult for researchers and scholars to develop tools for the empirical research. Majority of the studies therefore are thus based on case studies, conceptual or are based on theoretical foundations.

There are two different literature streams which act as a base of this study: Business model innovation and its interaction with technology plus the role of top management in instrumenting this change. One of the driving forces of changes in business models is the technology. The rate of change of technology these days is so rapid that products and services become obsolete in no time. Product life cycles have shortened to a dramatic extend. A report titled "Agents of change" by the Economist intelligence unit (2012) highlights that technology has a huge influence on the firms' business models. The report doesn't directly measure the influence of technology of business models but rather provides a conceptual approach.

Therefore this study will determine the role of technological developments in business model innovation. Westerlund (2009) framework of business model has been used to explain the components of the business model which is in line with Zott et al.,(2011) and also Osterwalder & Pignuer (2010). The various research questions which were generated after in depth analysis of the literature are as follows:

RQ1: What is the influence of technological developments on the business model innovation?

1. What is the influence of technological developments on the firm's value proposition?

2. What is the influence of technological developments on the firms' assets and capabilities?
3. What is the influence of technological development on the economic or revenue logic of the firm?
4. What is the influence of technological developments on the firms' relationships with actors in business networks?

Business model innovation is usually driven by the initiatives, motivation and the desire of the top management of the firms. The academic literature on business models has so far not discussed the role of top management exclusively. This study will bride this gap by not only highlighting the role of top management in business model innovation but also bringing the relationship of top management skills and its interaction with business model innovation into consideration. Therefore the second research question of this study is as follows:

RQ2: What is the role of top management in business model innovation due to technological developments?

1.8SCOPE OF THE STUDY

The scope of the study is limited to seven industries only like Telecommunication, Information technology, Banking, Media & Entertainment, Insurance, Publishing and Academia. The justification of choosing only these set of industries is the Economist Intelligence Report (2012) which highlighted that the maximum disruption of technology would rest on these seven sectors. Although the report has highlighted some other industries also but looking at the resources in hand and the time constraint the scope of this study would be limited to only these seven sectors.

Data for the study has been collected by taking 42 multinational companies from the seven sectors discussed above. Six companies were chosen from each sector so as to ensure equal representing of each sector in the sample. An average of the last three years profitability was taken into consideration to select companies from each sector apart from publication and academics. The reason of not choosing the profitability index in the publication sector is because some of the major publication houses which cover more than 50 percent of the market share are foreign multinational companies which have entered into an alliance or joint venture with Indian companies and thus they are not required to disclose their quarterly

results. So in the case of publishing sector market share was taken into consideration rather than the profitability index. For the academic sector top six universities from north India where taken as per the QS ranking of global universities 2014.

This study has also taken qualitative data into consideration by conducting in-depth interviews with the top management of the firms from the already chosen sample. Due to time restraints and the willingness of the top management to corporate in giving their time for these in-depth interviews only two interviews were conducted from each sector bringing the total up to 14. The respondents were chosen as per their willingness to corporate, share data and readiness to give their value time for the participation in a one on one interview.

1.9JUSTIFICATION OF THE STUDY

Business model innovation has become a new focus of study for researchers in strategy and information systems (Hedmang & kalling, 2003). Research has shown that companies have shifted their focus from product and process innovation towards business model innovation. The logic behind this is that product and process innovation is very costly and risky in the sense that future outcomes are always uncertain while as business model innovation is much easier to be a carried out and can serve as a competitive advantage which is difficult to imitate (Amit & Zott, 2012). Business model innovation breaks almost all of the traditional barriers in doing business no matter which the industry. The sudden growth influx of companies like Uber, Airbnb, Xiaomi etc. have again proved that business model innovation can really reshape whole industry and make even big giants to rethink their business models.

Due to all of these factors the research on business model innovation has seen a huge surge over the last decade. Business model innovation is one of the most talked subjects not only in business schools and conferences round the world but also in discussion tables and meetings in corporate world. Companies which have significantly outperformed their rivals and grown much higher operating profits spend more time on business model innovation than the underperformers (IBM, 2006).

Despite the surge in academic and non-academic literature on business models, the concept of business model innovation is still undeveloped. Researchers throughout the globe have given contradicting definitions of the term ‘business model’ which only suit their studies. There is no common ground among researchers in explaining the term ‘business model’. This is one of the reason why bulk of the studies are either based on case studies or are conceptual or

theoretical in nature. This makes it extremely difficult to build tools required for doing empirical research on business model innovation. There are some rare empirical studies which can be found on business model innovation, like that of Aziz & Mahmood (2008), Brettel, Strese & Flatten (2012) and Zott & Amit (2007, 2008). This lack of empirical research is also one of the other reasons surrounding the confusion regarding business models.

Researchers also agree that top management have a very vital role to play in business model innovation. After going through the literature on this issue there is a very thin explanation regarding the role of top management. Again like the business model innovation the studies on the role of top management are very limited and based on case studies or are theoretical in nature without having any empirical evidence. There is again a total dearth in empirical research when it comes to the role of top management in business model innovation.

All of these issues and limitations when taken into consideration provide a framework for future research. The present study delivers a theoretical support to the academic community as the outcomes of this study will bridge the gap in the prevailing literature on business model innovation. The study will provide tools for researchers for future research on business model innovation. A theoretically anchored reliable and valid scale for measuring business model innovation has been developed through many stages like literature review, expert interviews, surveys and tested using exploratory factor analysis and confirmatory factor analysis. This scale is only one of its kind in measuring the influence of technology on business model innovation.

The study will also highlight the influence of technological developments on business model innovation which will give an outlook on the impact of technology on business model innovation from an empirical perspective. The current study will also provide a roadmap for researchers to understand and acknowledge the role of top management in business model innovation from a qualitative perspective. It will clear many myths surrounding the role of top management and answer questions like whether the business model innovation is a top down or bottom up approach. The study will also bridge the gap on the relationship of top management skills with business model innovation.

The study will help the people from industry most specially management teams in defining and understanding their respective business models because research has shown even senior management don't have a basic understanding of what is a business model, needless to say

they have thus no clue about their companies business model (IBM, 2006). Therefore the findings of this study will help them in not only having a better understanding business models but also in changing business models over time. Managers will also be able to quantify or measure the influence of technological developments on their respective business models. This way they will be better equipped to anticipate and prepare for any business model change in the external environment.

The study will also help top management to better understand their role in business model innovation. The study will help them to understand how a positive intervention can really reshape a company's business model and give it a sustainable competitive advantage which the rival firms would find very difficult to imitate. The study has highlighted the relationship of top management entrepreneur skills, managerial ties, and managerial skills with business model innovation. The study will also define the role of top management with the bread of the business model changes.

1.10 STRUCTURE OF THE THESIS

This thesis is structured into seven chapters.

CHAPTER 1: INTRODUCTION

The introduction chapter highlights the origin, emergence and the surge of the concept of business model innovation. The chapter highlights research context, study objectives, justification, scope, need and contribution. The researcher has tried to build a framework on the concept of business model innovation and its usefulness and importance in the corporate world. This helps to highlight the research gap, research questions and justifying the reasons for conducting this research.

CHAPTER 2: LITERATURE REVIEW

This chapter builds on the past literature on the concept of business model innovation, its components and the role of top management in dealing with business model innovations. The review is presented by wide range of various researches conducted in the respective areas previously and comprehends on research papers published in top quality journals,

published books, online magazines, industry reports and other miscellaneous articles. The literature review has also identified the various research gaps and provides a basis for hypothesis development supported by strong arguments and theoretical literature.

CHAPTER 3: RESEARCH METHODOLOGY

This chapter discusses in detail the research methodology employed for this study. The chapter provides detailed overview of the sample size, sampling technique, sampling distribution, and the research design used. The chapter also highlights the validity and the reliability of the research instrument used to measure the influence of technological development on business model innovation. Further the chapter lists down the various hypothesis proposed for the study. This chapter also highlights thestatistical tools and research techniques adopted for analysis and interpretations of the collected data.

CHAPTER 4: SCALE DEVELOPMENT

This chapter provides in detail analysis about the various scale development procedures used in this study. The study has followed highly rigorous and valid scale development procedures by Churchill (1979) and Henkin (1995). A theoretically anchored reliable and valid scale for measuring business model innovation has been developed through many stages like literature review, expert interviews, surveys and tested using exploratory factor analysis and confirmatory factor analysis.

CHAPTER 5: DATA ANALAYSIS

This chapter highlights the how various hypotheses were validated and the various tools used for data analysis. A detailed description of both qualitative and quantitative analysis is highlighted. This chapter also presents a holistic view of the impact of technology across different industries.

CHAPTER 6: RESEARCH FINDINGS

This chapter highlights the key findings from the five main objectives of the study. This chapter also highlights the various managerial implications, limitations, conclusion and the direction for future research.

CHAPTER 7: REFRENCES

2.0 LITERATURE REVIEW

2.1 BUSINESS MODEL DEFINITIONS

Although the research on business models has seen a dramatic increase during the last decade but still the academic literature is linked with the degree of newness. Paul Timmers, who was then working for the European Commission was the first of the researchers to clearly define and characterize business models. As per his study business model serves as the structural design for the product, service and information flows, including a description of the various business actors, their roles, a description of the potential benefits for the various business actors and a description of the sources of revenues (Timmers,1998). The study also adds a marketing model which is a combination of business model and marketing strategy in order to understand how a company realises its business mission. Further Weil & Vitale (2001) defined business model as a description of the roles and relationships among a firm's consumers, allies and suppliers. Further it identifies the major flows of product, information and money, as well as the major benefits to participants.

Linder & Cantrell (2000) defined business model as an organization's core logic for creating value. They differentiate between three different types of models: the components of a business model, real operating business models and change models. On the other hand Peterovic & Kittl(2001) perceived business models as the core logic of a business system for creating value. Gordijin & Akkermans (2000) mentioned that in research as well as in industry practice, often business models are wrongly understood as business process models, and so can be specified using UML activity diagrams or Petri nets. As per them this is a misunderstanding and that a business model is not about processes but about value exchanged between actors. In their opinion the failure to make this separation leads to poor business decision-making and in adequate business requirements.

Some scholars recognize a business model as a description of complex business that enables the study of its structure, of the relationships among structural elements, and of how it will respond to the real world (Peterovic & Kittl, 2001). While some researchers ring a bell that a business model is always a simplification of the complex reality (Stahler, 2002). Margetta(2002) adds that a business model is like a story that explains how an enterprise works. More over like Stahler (2002) she segregates the concept of business models from the

concept of strategy. She explains that business models describe, as a system, how the pieces of a business fit together, but as opposed to strategy do not include performance and competition.

Tapscott & Lowi (2000) do not directly define business models, but they call it b-webs (business webs). A b-web is a business on the internet and represents a distinct system of suppliers, distributors, commerce service providers, infrastructure providers, and customers that use the internet for their primary business communication and transactions. Amit & Zott (2001) describe a business model as an architectural configuration of the components of transactions designed to exploit business opportunities. Their framework depicts the ways in which transactions are enabled by network of firms, suppliers, and customers.

While at the same time some authors included a financial element in their definitions of business models. Afuah & Tussi (2003) state that each firm that exploits the internet should have an internet business model. As per their research they understand it as a set of internet and non-internet-related activities that allow a firm to make money in a sustainable way. Hawkins (2001) describes a business model as the commercial relationship between a business enterprise and the products and /or services it provides in the market. The study explains business models as a way of structuring various cost and revenue streams such that it becomes viable, usually in the sense of being able to sustain itself on the basis of income it generates. Rappa (2001) defines business model as a method of doing business by which a company can sustain itself-that is, generate revenue.

Business model represents an important locus of innovation and a crucial source of value creation for the firm, its suppliers, partners and customers (Amit & Zott, 2001). Based on the fact that transactions connect activities, the authors further evolved this definition to conceptualize a firm's business model as "a system of interdependent activities that transcends the focal firm and spans its boundaries" (Amit & Zott, 2010). On the other hand Chesbrough & Rosenbloom (2002) describe business model as a framework that considers the technological characteristics and potentials as inputs and converts them through customers and markets into economics outputs.

Osterwalder, Pigneur, & Tucci (2005) defines business model as a conceptual tool that contains a set of elements, their relationships and allows expression of the business logic of a specific firm. It is a description of the value a company offers to one or several segments of customers and of the architecture of the firm and its network of creative partners.

A wide range of researchers define business model as a representation of firm's underlying core logic and strategic choices for creating and capturing value within a value network (Shafer & Linder, 2005)

Al-Debi & Avison (2008) on the other hand have listed three requirements for a business model definition:

a. The definition should be comprehensive and general.
b. It is not sufficient to define business model only in terms of its components.
c. The definition should synthesize the different points of views presented in earlier research.

Westurlund (2008) define business models as the means by which a company generates returns by specifying the associations with other actors as well as the firm's position in the value creating network. Weil & Vitale (2001) explained that business model represents the roles and relations among the firm's customers, allies and suppliers, identifying the major flows of product, information, money and the major benefits for the actors.

A lot of other authors and researchers link business models with strategy and define business models as, "A business model is a reflection of the firm's realized strategy"(Casadesus-Masanell & Ricart, 2010). Scholars contend that the business model can also be a source of competitive advantage that is distant from the firm's product market position (Christensen, 2001). Firms that address the same customers need and pursue similar product and market strategy can do so with very different business models; business model design and product market strategy are complements, not substitutes (Zott & Amit, 2008)

Wirtz (2011) after reviewing the business model literature extensively explains business models as:"A business model is a simplified and aggregated representation of the relevant activities of a company. It describes how marketable information, products and/or services are generated by means of a company's value-added component. In addition to the architecture of value creation, strategic as well as customer and market components are considered in order to realize the overriding objective of generating and preserving a competitive advantage." Table 2.1 gives an overview of some of the most cited and famous definitions of the term business model as highlighted in some top notch journals.

Table 2.1: Selected Business Model Definitions (Source: Zott, Amit & Massa, 2011)

Author(s), Year	Definition	Papers Citing the Definition
Timmers, 1998	The business model is "an architecture of the product, service and information flows, including a description of the various business actors and their roles; a description of the potential benefits for the various business actors; a description of the sources of revenues" (p. 2	Hedman & Kalling, 2003
Amit & Zott, 2001; Zott & Amit, 2010 (2010: 216).	The business model depicts "the content, structure, and governance of transactions designed so as to create value through the exploitation of business Opportunities" (2001: 511). Based on the fact that transactions connect activities, the authors further evolved this definition to conceptualize a firm's business model as "a system of interdependent activities that transcends the focal firm and spans its boundaries"	Hedman &Kalling, 2003; Morris, Schindehutte, & Allen, 2005; Zott & Amit, 2007, 2008; Santos, Spector, & Van Der Heyden, 2009; Bock, Opsahl, & George, 2010
Chesbrough & Rosenbloom, 2002	The business model is "the heuristic logic that connects technical potential with the realization of economic value" (p. 529).	Chesbrough, Ahern, Finn, & Guerraz, 2006; Chesbrough,2007a, 2007b; Teece,2007, 2010
Magretta, 2002	A business model is a "concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture, and	Calia, Guerrini, & Moura, 2007

	economics are addressed to create sustainable competitive advantage in defined markets" (p. 727). It has six fundamental components: Value proposition, customer, internal processes/competencies, external positioning, economic model, and personal/investor factors	
Johnson, Christensen, & Kagermann, 200	Business models "consist of four interlocking elements that, taken together, create and deliver value" (p. 52). These are customer value proposition, profit formula, key resources, and key processes.	Johnson & Suskewicz, 2009
Casadesus-Masanell & Ricart, 2010	"A business model is "a reflection of the firm's realizedstrategy" (p. 195).	Hurt, 2008; Baden-Fuller & Morgan, 2010
Teece, 2010	"A business model articulates the logic, the data and other evidence that support a value proposition for the customer, and a viable structure of revenues and costs for the enterprise delivering that value" (p. 179).	Gambardella & McGahan, 2010

2.2 COMPONENTS OF A BUSINESS MODEL

Some researchers define business model in terms of components, while other scholars have used the term elements in addition to components (Yip 2004). Chesbrough & Rosenbloom (2002) use the term functions rather than elements or components, Schweizer (2005) uses the term dimensions, nonetheless researchers advocate that all of these terms can be used

interchangeably. The prime emphasis of the architecture is on the components that produce value and in addition clarify the interaction of those elements (Osterwalder 2004). As we know that scholars don't agree unanimously on the definition of Business Models in general, they share the same opinion about the components. Thus there is no such common model which is acceptable to almost all of the scholars but some of the most cited and widely acknowledged frameworks on business models are discussed above:

2.2.1 Osterwalder & Pigneur Framework (Business Model Canvas)

Osterwalder reviewed all the research articles considering the term 'business model'and developed an ontological model. Osterwalders model provides theories and tools that help practioners to capture, understand, communicate, design, analyze, and change the business logic of their firm" (Osterwalder et al. 2005). This model has all the charcateristics of Morris (2005). The biggest edge which this model has over all other suggested models is that its easy to implement, easy to understand and suitable for almost all businesses whether its manufacturing or the service industry. The model has been changed and revised many times by Osterwalder & Pigneur by renaming some of the components but the core logic of the business model has remained the same (Figure 2.2.1).

Osterwalder named this model as business model Canvas. It has altogether nine elements that portray company strategy and business oppurtunities. Osterwalder argues that it not only can be used to depict current stage of the business but also the, 'where we want to be' state. In order to make the canvas more suitable for use Osterwalder published a book 'Business Model Generation' which became one of the best selling books through out the world having almost more than 400 co- authors (Osterwalder & Pigneur 2010). The business model canvas by osterwalder has the following components:

Value Propsition: The value proposition is one of the central and most important component discussed by Osterwalder in his framewoek for business models. Value proposition is the statement of benefits that are delevered by the firm to its customers (Bagchi & Tulskie, 2000). Researchers before osterwalder have also defined value proposition as the way items of value like products or services are boxed to satisfy customer needs (Kambil, Ginsberg et al., 1997).Osterwalder defines value proposition as an overall view of the various bundle of benefits which have some value for a specific customer segment. It explains how a firm differentiates itself with respect to its competitors and further explains the rationale why

customers buy a product or sevice from firm A and not from firm B. The value proposition element can further be explained by its various attributes like description, reasoning, value level and price level and an optional life cycle.

Customer Segments: Osterwalder doesn't make an exception like in many other business models customer comes first so it comes here in this model. The very first step is to determine the customer segments which have common needs and similar traits in order to know how the segement is acting. Osterwalder differentiates between more old-style marketting segementation and the comparatively current notion of communities of interest (Hagel and Armstrong, 1997). Osterwalder suggests that once customer needs are identified a firm can outline a business model to full fill those specific set of needs. He further stressed that we need to see for whom we are creating value? (Osterwalder & Pigneur 2010).

Customer Relationships: Customer relationships include the various relationships which a firm establishes with its customers. The strenght of relationships which a firm builds with its customers is affected by customer interactions. Companies must therefore analyze customer data so as to interpret which type of consumers they want to reach,procure, are lucrative, worth spending and retention efforts and are likely to be subject to add-on selling (Blattberg, Getz et al., 2001).

Channels: Researchers have defined channels as the way a firm goes to marketplace and how it reaches consumers (Hamel 2000). The channel management have become very important study in management as companies have realised the perks of removing intermadaries and reaching customers directlty (Benjamin & Wigand, 1995; Sarkar et al., 1995). As per Osterwalder every channel has a description, the attributes, reasoning and customer buying cycle.

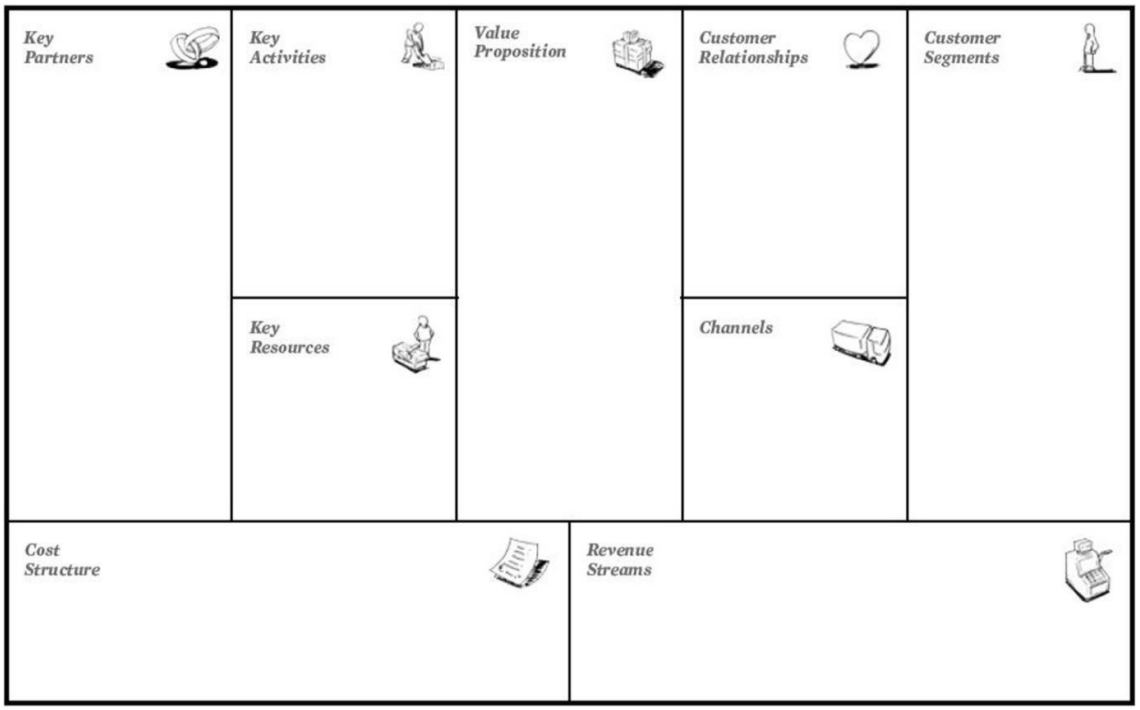


Figure 2.2.1: Business Model Canvas. (Source: Osterwalder & Pigneur, 2010).

Key Resources: Resouces and capabilities play a very important role in a business model of firm. Every firm has to ensure that it marshals the necessary capabilities to deliver its value proposition. (Bagchi & Tulskie, 2000; Wallin, 2000). Capabilities can be either owned by the firm itself orfrom its partner organizations. Resources can be classified as Tangile, Intagible and human Capital. Tangbles include resouces like plant and machinery while as intangibles include patents, brand value, goodwill etc.Finally human capital includes top scientists or managers which firms have and are very crucial in their business models. Other examples include consultancies, hospitals, universities on which the firm relies for innovation.

Key Activities: Activities are the heart of any business model. A company creates value , markets value and genrates revenue through its activities. An activity is executed by an actor which a company owns or is owned by any of its partners. Activities include primary activities involved in value proposition and its marketing and activities which are secondary like firm infrastructure, human resource management, technology development and procurement (Porter 1985).

Key Partners: Due to rapid technological development its almost impossible that a firm will own everything on its own. Therefore a firm has to relay on partners and thus partnerships play a very crucial role in any firm's business model. Partnerships benefit a firm to leverage

its core competencies. By having partnerships firms can concentrate on what they do best internally and outsource all other seciondary activities thereby lowering their costs. Partnerships can take diverse forms, such as integrated relationships (e.g. Collaborative Planning, Forecasting and Replenishment (CPFR) at Wal- Mart), buy-side online platforms (e.g. Nestlé, Danone and Henkel's CPGmarket.com) or service contracting (e.g. Seafax's industry-wide credit reporting for the seafood industry). Partnerships are based on a range of AGREEMENTs (AG).(Osterwalder & Pigneur, 2010).

Revenue Model: As per Osterwalder revenue model explains the way a firm makes money. It can be composed of one or servral revenue streams and many pricing elements. A revenue model is always dependent and infact built on the value proposition element. The various attributes it includes are name, description, stream type (selling, lending, licencing, transaction cut, advertising) , percentage and pricing methods (Fixed, differential and market) (Klein and Loebbecke 2000; Pitt, Berthon et al. 1999)

Cost Streams: This final component includes all the costs the firm incurs in order to create, market and deliver value to its consumers. A price tag on all the resources , assets, activities and partner network relationships and then exchanges that cost the company money. As companies these days are focusing more on core activities and outsource all other secondary activities the cost element is right at the central of the business model of any firm (Maître and Aladjidi 1999).

2.2.2 Shafer et al. (2005) Model

Long-time back in 1994 two pioneers of strategic management Hamel & Prahalad identified two keystones of business models, structures and routines. The said researchers emphasize how organizations recognize their organizational structure, their business network and the position within that network. Routines describe how organizations develop effective. This model is very much similar to the Osterwalder& Pignuer model discussed above, but Shafer et al.'s model has more components than the Osterwalder model. The extra components discussed in this model usually indicate process activities and other strategic issues which have a very little linkage with business models. Therefore if we ignore those extra components this model is very much in line with the Osterwalder model. Figure 2.2 gives a comprehensive overlook of the business model structure and components.

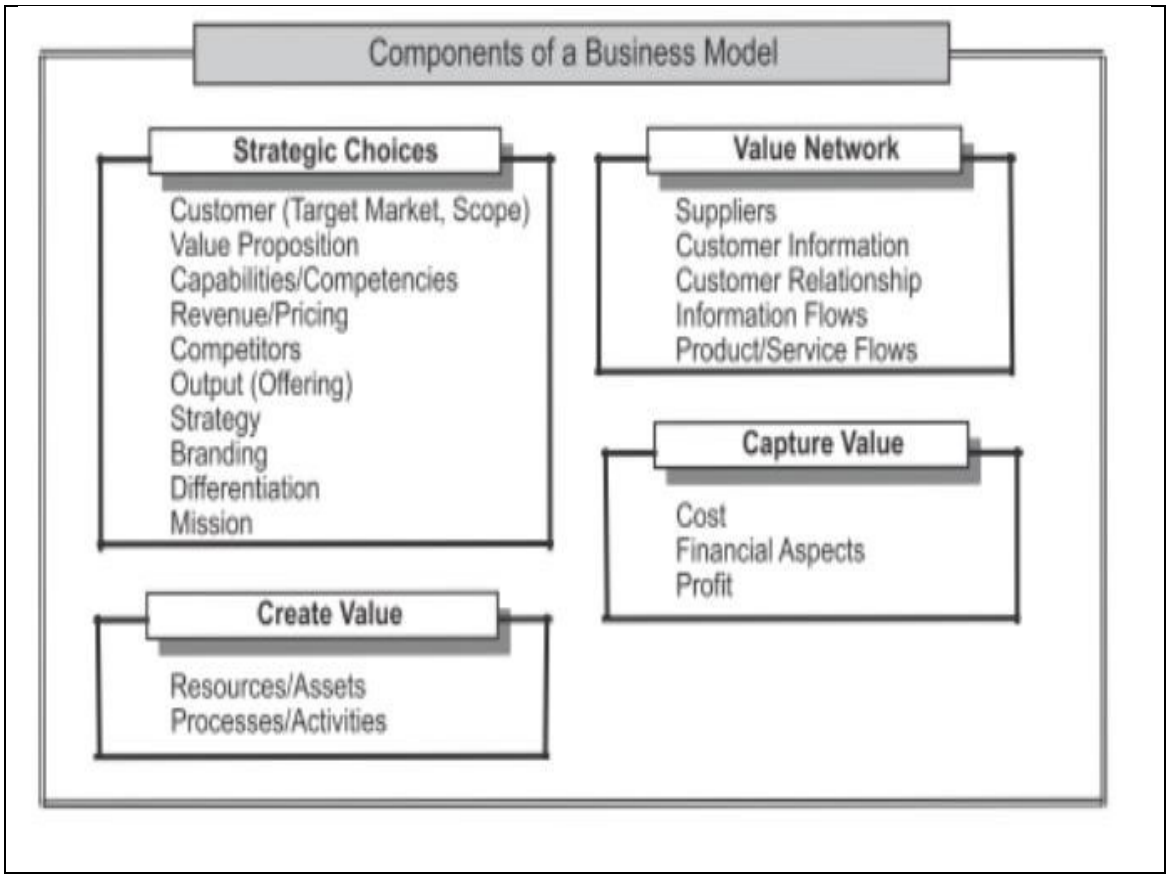


Figure 2.2.2: Business model structure and components (Shafer et al. 2005, p. 202).

2.2.3 Westerlund Framework

Westerlund (2009) based his model on similar basis as with Osterwalder model but discussed only four components. Westerlund (2009) identified those elements or components that are most commonly proposed in some top notch research papers on business models and which are common across all of the research papers. Some renowned scholars like (Zott & Amit, 2011) are on the similar track with very little modifications.

Value Proposition: Value proposition is at the centre of the business model of any firm. Researchers claim that value proposition creates the theoretical primacy of business models (Lambert, 2008). Lambert claims that every other element of a firm's business model flows from the value proposition. She has found a vast literature in support of her argument. Scholars define value proposition as "what precise benefit or benefits at what price will be offered to what customer group, at what cost (Lanning, & Michaels, 1988)

Assets and capabilities as resource: Westerlund argues that without resources a firm cannot realise its value proposition. Resources are the muscles of a firm and they include people, skills, technology, facilities, equipment, logistics, existing product lines etc. Some other researcher have defined capabilities as 'Capabilities as repeatable patterns of action in the use of assets to create, produce, and/or offer products and services to the market' (Wallin, 2000)

The Economic logic or Revenue Logic: This component includes both revenue and cost as per Westerlund (2009). Economic logic explains why a firm delivers value to customers at a specified cost (Chung, 2004). Researchers explain revenue model refers to the specific modes in which a business model enables revenue generation (Amit & Zott, 2001).

Relationships with Actors in Business Networks: Due to technological developments it has become almost impossible for firms to develop everything in-house. Therefore the relationships with partners and suppliers have become very crucial for firms now days. The actors in business network include suppliers, partners and other key relationships which a firm has established. These days new ventures don't have everything in house so they have to rely on partners to perform more roles than ever.

There are so many other frameworks discussed by a wide variety of scholars in many research paper covering similar components with some minor deviations here and there. The various components discussed by almost a wide variety of scholars in some top notch journals are discussed in the section below.

One of the most widely discussed elements or components in the business model is the value proposition. Researchers who have worked in business models stress out to the fact that it's an crucial element in any firms business model (Chesbrough & Rosenbloom, 2002; Dubosson-Torbay, Osterwalder & Pignuer, 2002; Kim & Mauborgne, 2000; Magretta, 2002; Morris, Schindehutte and Allen, 2005; Vorst, Dongen, Nouguier et al., 2002). Value proposition is used to describe the bundle of benefits which a company offers and are of some value to a customer (Osterwalder, 2004). Some researchers focus on the value created to users by the users based on technology (Chesbrough & Rosenbloom, 2002).

Another widely discussed component of the business model is the customer segements. This component most specifically revolves around the target market and scope (Chesbrough & Rosenbloom, 2002; Dubosson-Torbay, Osterwalder & Pignuer, 2002; Kim & Mauborgne, 2000; Magretta, 2002; Morris, Schindehutte and Allen, 2005). Marketers identify this

component as very crucial in any business model of a firm. When the product relies severely on technological traits to target in the development and related back to the argument of cost and revenue architecture then identifying the market focus is extremely important. (Chesbrough & Rosenbloom, 2002). Barringer & Ireland (2006) highlighted that new ventures need to be extra careful at the initial stage in escalating their product beyond their capabilities. Researchers have found that at the initial stage it's wise to go for niche or a segmented market rather than going for broader market (Barringer & Ireland (2006).

The next subsequent key component of a business model refers to the firm's assets and capabilities (Amit & Zott, 2001; Dubosson-Torbay, Osterwalder & Pignuer, 2002; Hamel, 2000; Hedmang & Kalling, 2003; Kim & Mauborgne, 2000; Morris, Schindehutte & Allen, 2005). The assets which deliver the value created to customer. Assets and capabilities include people, technology/products, equipment, information, channels, partnership/alliances and brand (Johnson,Christensen& Kagermann, (2008). Some other researchers suggest that capabilities are the resources needed to develop and implement a business model Morris, Schindehutte & Allen, 2005).

One of the other broadly discussed components discussed by researchers in defining business models is the value network model (Chesbrough & Rosenbloom, 2002; Dubosson-Torbay, Osterwalder & Pignuer, 2002; Hamel, 2000; Hedman & Kallang, 2003; Hoque, 2002; Kim & Mauborgne, 2000; Magretta, 2002; Morris, Schindehutte and Allen, 2005; Vorst, Dongen, Nouguier et al., 2002; Nougueir & Hilhorst, 2002). Value network includes partners, suppliers and any other coalitions in the value network (Hamel, 2000). Hamel (2000) also stressed that company boundaries work as a bridge by connecting strategic resources and value network. This will help a company to determine which activities they need to conduct in-house and which ones they need to outsource. The debate on value networks as a business model element is very closely related with the discussion on the costs (Chesbrough & Rosenbloom, 2002; Dubosson-Torbay, Osterwalder & Pignuer, 2002; Magretta, 2002; Morris, Schindehutte and Allen, 2005). The reason behind the argument is that no cost reduction can take place without shifting the cost activities to other firms by outsourcing.

Although many researchers are of the opinion that partnering is a form of value network but many other researchers have described it as a separate component (Osterwalder &Pignuer, 2010). In today's turbulent business environment it's very much impossible for companies to manufacture everything of their own so the reliance on partnership has increased like

anything. If by partnering firms feel that they can enhance their value proposition they should actively consider partnering (Chesbrough & Rosenbloom, 2002; Kim & Mauborgne, 2000; Shafer, smith & Linder, 2005). One of the very basic rationale for partnering is to obtain necessary resources and to increase the market power of the firm (Barringer & Harrison, 2000). Researchers have also highlighted the various risks of partnering like too much reliance on partner members (Barringer & Ireland, 2006).

Cost is also one of the main components discussed by researchers in the business model literature (Chesbrough & Rosenbloom, 2002; Dubosson-Torbay, Osterwalder & Pignuer, 2002; Magretta, 2002; Morris, Schindehutte and Allen, 2005). Researchers define cost as the total cost experienced to create, market and deliver value proposition (Dubosson-Torbay, Osterwalder & Pignuer, 2002). Researchers also link firm's business model directly with the cost aspect by defining business model as the ability of the firm to generate positive cash flows (Dubosson-Torbay, Osterwalder & Pignuer, 2002).

Screening the literature on business model it is evident that some researchers have combined the cost and revenue under the same heading (Westerlund, 2009; Amit and Zott, 2011) while other have separated cost and revenue (Chesbrough & Rosenbloom, 2002; Dubosson-Torbay, Osterwalder & Pignuer, 2002; Magretta, 2002; Morris, Schindehutte and Allen, 2005). Some researchers have defined competitors also as component of business model (Chesbrough & Rosenbloom, 2002; Hedman & Kallang, 2003; Hoque, 2002). Other have included customer relationships (Dubosson-Torbay, Osterwalder & Pignuer, 2002), economic logic (Magretta, 2002; Morris, Schindehutte and Allen, 2005), creation of value (Amit & Zott, 2001; Morris, Schindehutte and Allen, 2005).

It is important to note that this is not the end in itself as there are other components discussed by researchers like customer interface and fulfilment support (Hamel, 2000). Amit & Zott (2001) have discussed information flows as a component. Business opportunities, transaction content, governance and structure as discussed by Timmers (1998). Even product innovation, infrastructure management, financial aspects have also found a mention in a number of studies (Dubosson-Torbay, Osterwalder & Pignuer, 2002). There are other components like management (Hedmang & Kallang, 2003), firm's value chain model (Chesbrough & Rosenbloom, 2002), customer benefits Morris, (Schindehutte and Allen, 2005) and firm reputation (Hoque, 2002). Table 2.2 highlights the various business model components discussed by many researchers.

2.2.3 Summary of Literature on Business Model Components

The literature on the components of business model gives a snapshot about the contradicting and overlapping components discussed by many scholars in their studies. The components have been discussed in conjunction with their studies which primarily suit their respective purpose. All of the major components discussed are based on case studies or are rather based on theoretical or conceptual findings with almost no or very little empirical evidence. This is also one of the main reasons why scholars have no common ground while explaining the components of a business model. The only frameworks which are very popular and on which scholars have a uniform opinion are that of Osterwalder &Pignuer (2010) and Westerlund (2009) which is basically derived from the Osterwalder &Pignuer (2005) framework of business model canvas.

The need of the hour is to develop a uniform framework on which all scholars will have a common ground and the only possible way of doing that is to develop the model based wholly and solely on empirical research. This will not only clear the confusion surrounding the term business model, components of business model and business model innovation but will also strengthen the concept of business model innovation by giving a concrete direction for future research.

Table 2.2: Business Model Components

Authors	**No. Of components**	**Business Model Components**
Timmers (1998)	4	Value Network, Revenue/Pricing, Information flows, product/service flows
Hamel (2000)	4	Customer interface, Core strategy, strategic resources, Value networks
Kim & Mauborgne (2000)	8	Cost, Customer, Value chain, Pricing/Revenue, Capabilities, Value Proposition, profit and value network
Amit & Zott (2001)	10	Product, Information, resources, capabilities, output, value creation, business opportunities, transaction content, transaction governance

		and transaction structure
Dubosson-Torbay et al. (2002)	4	Product, Innovation, customer relationship, Infrastructure management, financial aspects.
Magretta (2002)	5	Economic logic, customers, profit, cost, value proposition
Vorst et al. (2002)	6	Value network (suppliers), value proposition, processes/activities, functionalities, infrastructure applications and specific characteristics
Hoque (2002)	12	Value network (suppliers), customer (target market/scope), resources/assets, competitors, strategy, branding, differentiation, mission, culture, environment, firm identity and firm reputation
Chesbrough &Rosenbloom (2002)	10	Market, value proposition, value chain, cost and profit, value network, competitive strategy, revenue/pricing, competitors, output (offering) and value creation
Hedman and Kalling (2003)	11	Value network (suppliers), resources/assets, capabilities/competencies, processes/activities, competitors, output (offering) and management
Morris et al. (2005)	12	Customer (target market/scope), value proposition, capabilities, cost, offering, strategy, value creation, economic logic, time, scope and size ambition, pricing and revenue sources
Westerlund (2009)	4	Value Proposition, Assets & Capabilities, Economic Logic and Actors in business networks.
Osterwalder & Pigneur (2005), (2010)	9	Value Proposition, key relationships, Key partners, customer relationships, Channels,

		key activities, key resources, revenue streams, cost structure.

Source: Author Findings

2.3 BUSINESS MODEL CHANGES AND INNOVATION

As the business environment is changing continuously and at a much rapid pace, companies make substantial efforts to change and innovate their business models so that they can cope up with these changes and can maintain or improve their profit margins. These innovations to perk up processes and products are not easy as they require a lot of investment in the R & D, specialized resources, fresh possessions and even complete novel business units. Despite of all these efforts returns on these funds are always doubtful. Shy to make big bets companies are diverting their attention towards business model innovation as a substitute, alternative or compliment to product or process novelty (Amit & Christoph, 2010).

Linder & Cantrell(2000) state that business model is a portrait at a point in time. Almost all business models are under regular force to vary for the reason of plentiful changes in firm's surroundings e.g. technology, regulation and rivalry. Consequently in order to synchronize and conduit change within a company, they set up self-styled change models. They make a distinction of four basic types according to their extent to which they alter the centre of a business, which are realization models, renewal models, extension models and journey models (Figure 2.3).

So according to the said researchers a renewing firm leverages its mainstay ability to craft fresh positions on the price/value arc. This sort of change model expands businesses to cover fresh ground. An extending company stretch its operating model to include new markets, value chain functions, and product and service lines. This type of model frequently engages forward, backward horizontal integration in the value chain. At last, journey models aggravate most change and take a company to absolute fresh business model.

Tapscott & Lowi(2000) suggest a change methodology using six steps on the way to creating a b- Web company. The primary footstep consists of unfolding the current value proposition by defining end- customers, offerings, customer value and value proposition's potencies and weak points from a customer's viewpoint. The next stride consists of disaggregating and

spotting the entities that add to the whole value-creation system. The subsequent action envisions-web enable value. In simple words, plotter ought to move outside their day-to-day cerebral models to build up inventive and discontinuous views of undertaking business. This means soliciting what new business models-way of generating, settling and carrying value and easing affairs with customers, suppliers and partners- could be envisaged. Fourth step suggests that company must reaggrgate. The fifth stride consists of drafting a value map, which is graphical portrayal of how b-web operates. It classifies the members, such as strategic partners, suppliers and customers and their exchanges of value. The final provision

consists of doing the b-web mix, which means bearing in mind how every type and subtype might improve customer value, provide competitive differentiation reduce costs for the members.

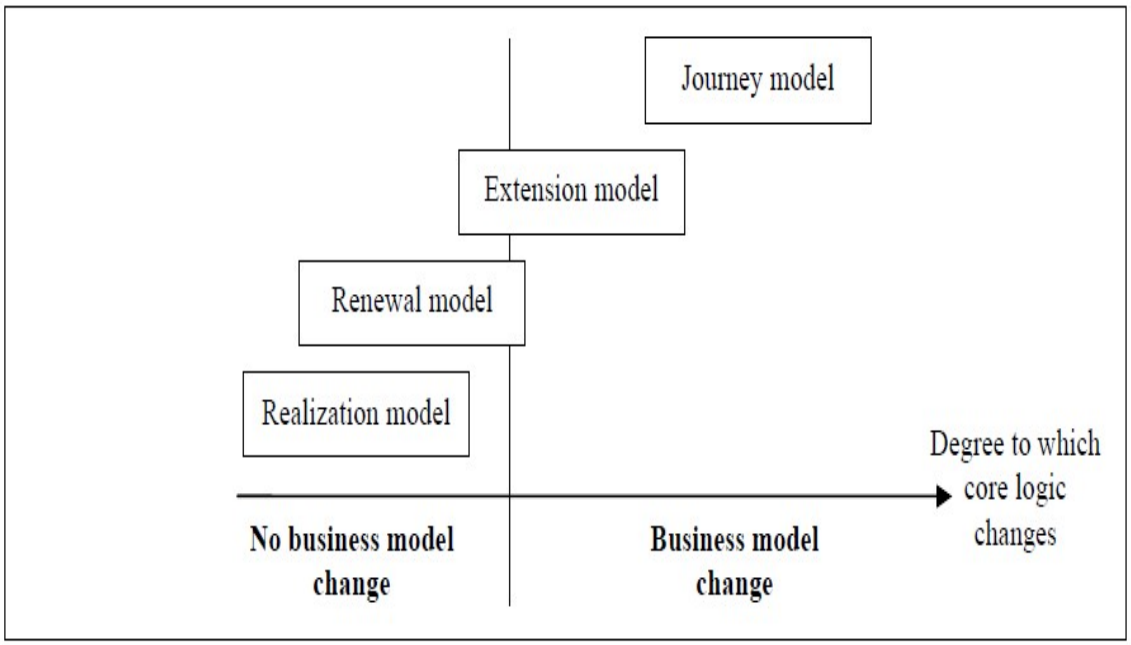


Figure 2.3: Change Models. (Source: Linder & Cantrell, 2000)

Gordjin (2002) on the other hand sketches a change methodology founded on value model deconstruction and reconstruction which is principally encouraged by Tapscott & Lowi, (2002). Evans & Wurster (2000) and Timmers (1999). He divides the course of action into

two questions, that is, which value adding activities exist, and which actors are ready to carry out these deeds.

Researchers are yet to come on some common terms while explaining business model innovation. The term business model innovation just like the business model is yet to achieve a common definition in academic literature. The term has been used by several authors in explaining how technology is commercialized (Chresbrough & Rosenbloom, 2002). On the other hand Christensen & Raynor(2003) also highlight the importance of business model innovation in order to maximize the reach of a novel technology.

The business model innovation has received a huge attention since the mid-1990s due to the advent of internet. Some scholars have focussed on business model innovation as a medium for transformation and rebirth (Velu & Prakash, 2010; Velu & Stiles, 2013). Business models are critical for commercialising scientific innovations, creating strategic flexibility, reducing costs and being able to transcend the constraints faced by different societies such as affordability (Velu & Khanna, 2013). While doing so business model innovations have been shown to create superior competitive advantage for firms as they are less susceptible to imitation by other firms compared to product or process innovation (Amit & Zott, 2012).

In accumulation to espousing business to assist technology innovation and the execution of technology, firms can take the business model in itself as a theme of innovation (Mitchell & Coles, 2003). Chesbrough (2003) initiated the idea of open innovation as a form of innovation in which firms, rather than relying on in-house ideas to move on business, gaze outside limits in bid to influence internal and external ideas of business. Open innovation business models, distant from being a theme of innovation, might prompt extra business model innovation in complementary marketplace as an outcome of the reconfiguration of downstream actions and competence (Gambardella & McGahan, 2010).

The open business model necessitates the approval of fresh, open business models intended for chipping in or authorizing technologies (Chesbrough, 2007b). The business model itself can turn out to be element of intellectual property (Rappa, 2001). Just as of the point of sight of focal firm, the actions of exterior innovators can be prearranged as a mutual hamlet or as a market (Boudreau & Lakhani, 2009)

A lot of other studies have highlighted the significance of business model innovation. E.g. Chresbrough & Rosenbloom (2002) present a case study of why the Xerox Corporation's

business model was not appropriate to commercialise the inventions emanating from its research laboratory, Xerox PARC. Zott & Amit (2007) responded to the call to measure business construct by studying 190 entrepreneurial firms listed in US and European stock Exchanges. The study found that firms that adopted a novelty business model design outperformed firms that had an efficiency-centred design.

Boston Consulting group a pioneer name in business consulting and research throughout the globe has proposed a model which illustrates the different stages of a business model innovation process. The model consists of five stages which are described as follows: (Figure 2.4)

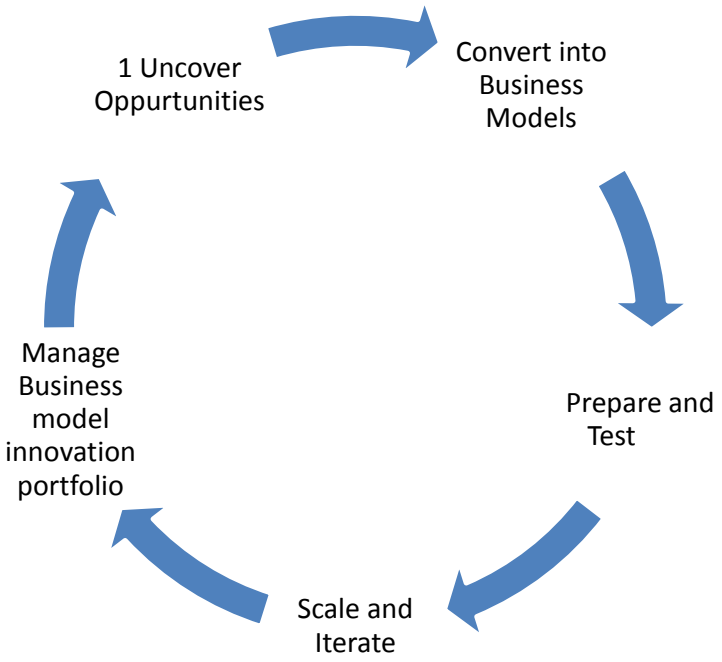


Figure 2.4: BCG business model innovation process.(Source: Lindgardt & Reeves, 2010)

In this model the first stage consists of bringing to light the opportunities and diagnosis of the current business model and an analysis of various positives and negatives. The next stage consists of transforming those opportunities into business models and most importantly setting up evaluation criteria for the selection of these models. The third stage deals with the testing and implementation. The fourth stage scales the selected business models and iterates on the business model design. When it comes to timing, risk and payback the fifth stage is very important as it focuses on the management of the business model portfolio.

On the other hand research has shown that business model innovation can take many forms and at times companies can adopt successful business model innovation from other industries. A Boston Consulting Group research on business model innovation in 2009 highlights three kinds of patterns to business model innovation. It can either be an innovation in the value proposition, to the operating model and at times with the value network of a business model (Lindgardt et al., 2009). Figure (2.5) gives a comprehensive overview of the different business model innovation forms along with some relevant examples from the industry.

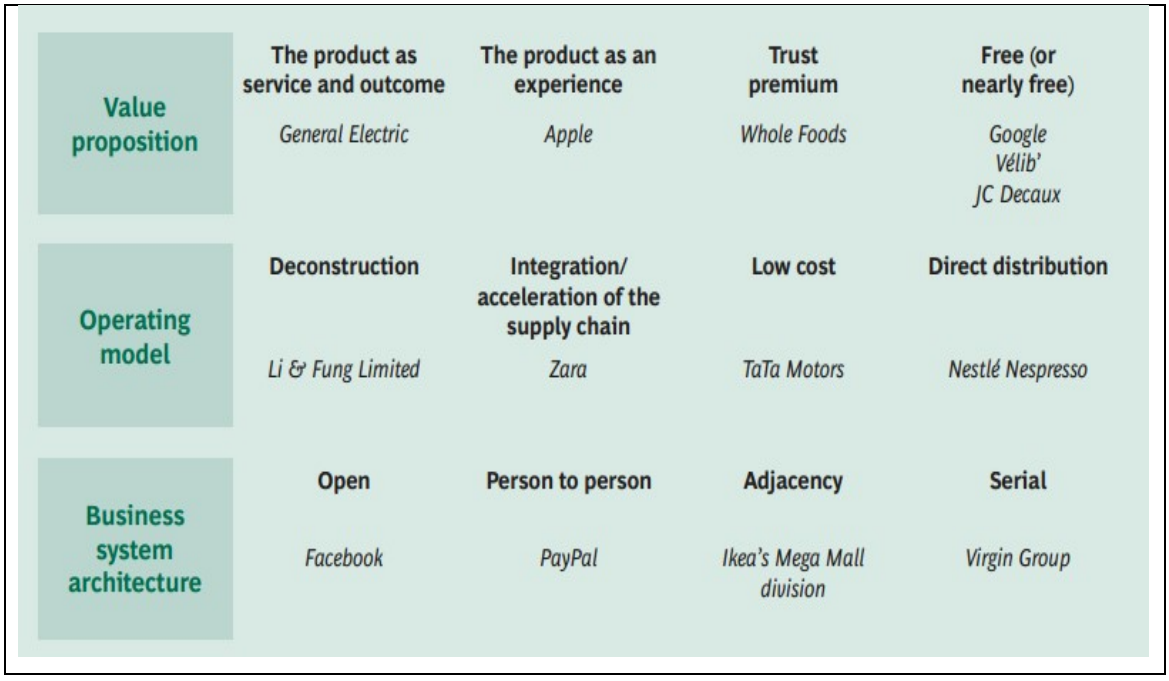


Figure 2.5: Business Model Innovation Takes Many Forms (Source:Lindgardt et al., 2009)

2.4 FACTORS AFFECTING BUSINES MODEL INNOVATION

Going through whatever little literature is there on business model innovation, only some rare papers have discussed the factors which influence a company to change or innovate their business models. Researchers have mostly focussed on the external and internal factors with the prime focus being on the internal factors. While some other researchers have discussed the barriers to business model innovation also. Generally the various factors which influence firms to innovate their business models are as follows:

2.4.1Technology

Economist Intelligence Unit (2012) in a survey of more than 4000 senior managers round the globe came up with a conclusion that one of the pivotal and significant factors which compels firms to innovate their business models or which acts as a driving force in business model innovation is technology. Researchers have studied technology both as an external driving force in business model innovation and also as a barrier for firms to innovate. According to Reuver et al. (2009) firms which operate in an environment of rapid technological developments, the only chance of their survival and sustainability is to continuously innovate their business models. While other researchers argue that disruptive technology or innovation would shake the existing business operations because the existing business model is designed to match older technologies (Chesbrough, 2010). On the other hand Johnson et al. (2008) highlights that in order to capitalize on a new technology firms need to innovate their business models. Teece (2010) a pioneer in business model innovation claims that technology can have a dramatic impact on the cost structure of the company. The researcher supported his claim by giving an example of "cloud solutions" which has significantly reduced the need to invest in own servers for small businesses.

According to Chesbrough et al. (2002 p.529) "The business model unlocks latent value from a technology, but its logic constrains the subsequent search for new, alternative models for other technologies later on". Technology is basically changing the very fundamentals of the competition (Bettis & Hitt, 1995). Usually it's the large corporations and new technology based firms which have a habit of technological innovations (Del Palacio, Solé & Montiel, 2006; Storey & Tether, 1998). Researchers suggest that technological innovations should be supported and complemented by business model innovation because it's not the technology which will bring value but business model innovation (Chesbrough, 2007; Bashir & Verma, 2016).

2.4.2 Competition

Competition is one of the other significant factors which has an influences or in some cases forces firms to innovate their business models. Firms always monitor their business model environments to see and analyse how ways of value capturing and value monetizing are changing within their industry and at times outside their territories. Researchers argue that firms these days relay on business model innovation so as to outperform their competitors as it creates new ways of generating value. (Najmaei, 2011). The importance of business model innovation increases when a company needs to react to opponents or fend off low end disrupters (Johnson et al., 2008). Teece (2010) argues that companies have to be careful and keep their antennas open as there are chances of imitation even for reinvented business models.

2.4.3 Organizational Structure

The reason why start-ups are very successful in business model innovation than the established companies is because of their organizational structure. Big companies have complex structures involving many hierarchies which hinder business model innovation many times. According to Koen et al. (2011) and Parmar et al. (2014) incumbents always struggle in business model innovation. Researchers argue that the prevailing organizational structures or routines hinder business model innovation because they are tailored for the current operations and market opportunities (Braganza et al., 2009).

Vlaar et al. (2005) in his paper titled "Why Incumbents Struggle to Extract Value from New Strategic Options" discussed many reasons why incumbents struggle to innovate their business models by using a case of airline industry. The researchers have discussed that incumbents face complications associated with cannibalization, conventional wisdom, internal and external inflexibility, and incompetence or overconfidence. Other researchers like Parmar et al., (2014 support the notion that "established companies are notoriously bad at finding new ways to make money, despite the pressure on them to grow".

According to Frankenberger et al., (2013) this problem persists in the managers and people at leadership roles as they are always trained to think in terms of new product development and market penetration rather than the business model innovation. This creates a sort of inertia in the organizational structure and hinders any progress towards business model innovation.

This costs the company in terms of taking out the competition upfront and converting new opportunities into new business models. It very much constrains companies' ability to make changes in reaction to environmental threats (Cavalcante et al., 2011; Zott et al., 2011).

2.4.4 Culture

The existing literature on business model innovation highlights that organizational culture has a strong influence on business model innovation. According to Chesbrough (2010) organization culture should support existing business models until new model is able to replace the existing one completely. Chesbrough (2010, p.361) states that "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". On the other hand Hedman and Kalling (2003) argue that it takes a strong communication and a clear strategic purpose to manage culture. At the same time organizational culture should facilitate in rethinking the existing means of doing business. Sosna et al., (2010) suggest a trial and error learning method before a company wants to innovate their business model. The researchers have also determined that business model innovations are beyond product and service innovations, which would challenge firms to the core of their organization culture.

2.4.5 Leadership

Leadership is one of the main drivers for successful business model innovation as it's the top management which has an overall view of the firm and carry bulk of responsibility in changing and implementing it. Effective leadership can really cultivate a culture which encourages management teams to think in terms of business model innovation rather than product or process innovation. Leadership of a company is usually responsible for equipping skills and as well as capabilities in management teams, uniting teams and allocating resources to support the new models (Chesbrough, 2010; Doz and Kosonen, 2010). According to Chesbrough (2010) an internal leader has to be identified for driving the business model change so as to manage the processes and deliver a new, better and efficient business model for the company. Therefore the leadership of the company has to overcome the stiffness that accompanies customary business models (Zott et al., 2011; Doz and Kosonen, 2010).

2.5 BARRIERS TO BUSINESS MODEL INNOVATION

The abundant literature on business model innovation not only reflects the growing importance, popularity and usefulness of the concept but at the same time it has highlighted that it can be tough to achieve. According to Chesbrough (2010) experimenting with novel business models beyond any doubt pays off but still many companies are not experimenting it. One of the significant reasons behind this reluctance is that businesses face significant barriers to experimenting business model innovation (Amit & Zott, 2001). Researchers have highlighted how new business models conflict with the existing business models. The various barriers to business model innovation as identified from the previous literature on business models are as follows:

2.5.1 Organizational Structure

Chesbrough (2007) defined a term "business model innovation leadership gap", where the organizational structure is such that no one takes the leadership of the business model innovation process. The rationale for this is that managers and executives are transferred within the company in a period of 2-3 years'. Researchers argue that this time is too short and brief for any manager to create new business models. According to Comes & Berniker (2008) whenever a new business model is introduced, management needs to keep is independent and separate from the existing units. This although will create some additional monitoring and management challenges but at the same time this will give the new model much needed space to grow. Although the financing and budgeting of the parent company are still present which will compel the new business model to comply with the existing business scenario.

Some of the other researchers have highlighted the role of corporate parenting in case of bigger multinationals which have diversified range of businesses. According to Santos et al. (2009) the corporate parent of the organization will always bring new opportunities for business model innovation by developing management teams across organizations which will automatically facilitate the dialogue between managers but at the same time it also hinders the progress because at times the change doesn't comply with the overall strategy of the corporation. It can also at times conflict with the operations of the other businesses in the portfolio. Therefore researchers have suggested a loosely tied organization as the best way to share knowledge rather than having a rigid organizational structure which creates obstacles in business model innovation.

2.5.2 Organizational Culture

According to Tikkanen et al (2005) it's the organizational culture which drives individuals within an organization towards working in the strategic direction of the company. Symbols, language, ideology, belief, ritual and mythsare all artefacts of organizational culture as defined my management scholars (Pettigrew, 1979). What hinders many organizations to not experiment with new business models is their corporate or organizational culture. Organizational culture compels firms to keep on continuing with the existing business models rather than striving for the new models. Researchers have used a term "creative space" while discussing organizational structure and business models. Creative space means sharing of knowledge and change initiatives between managers across departments. Researchers argue that creating a 'creative space' requires a very supportive and strong organizational culture.

2.5.3 Financial Metrics and Incentives

Comes & Berniker (2008) in their research on business models state that publicly traded firms are less efficacious in business model innovation that privately held incumbents. The researchers state that one of the reasons behind this is that the publically held companies have greater impacts of financial markets than the privately held corporations which adds further rigidity and complexity in the decision making regarding business model innovation. Innovating firm's business models is not an overnight and easy task, the benefits derived out of it may take some time and in case of publicly traded firms any deviation in the short term profits is met with an alarm. Therefore it takes a lot of convincing by the management to the shareholders and to the board that the efforts in innovating business models will pay off in the long run. On the other hand when the performance management system is concerned top managers are always rewarded on the basis of the quarterly performance of the growth of their business. This compels managers to look for growth options within the existing business model rather than looking towards new avenues of growth by means of business model innovation (Chesbrough, 2007).

2.5.4 Barriers in the Business Model Innovation Process

From the available literature on business model innovation process we can conclude that there are three phases of business model innovation. The first step consists of identifying the need for the change because if the need is not accredited the business model innovation is unlikely to yield any fruit. According to Doz & Kosonen's, (2010) organizations need not

only to see the coming challenges in time but also react to the challenges in time. Second step consisting of choosing the right business model. One of the barriers of choosing the new model is when the management has many alternatives. McGrath (2010) has advocated to use the method of exploration in choosing the right model. Then the final step consists of business model innovation implementation. The main barriers in this phase are primarily that of resistance by the employees and the lack of incentives for implementing the change. Figure (2.6) gives a holistic overview of the business model innovation process.

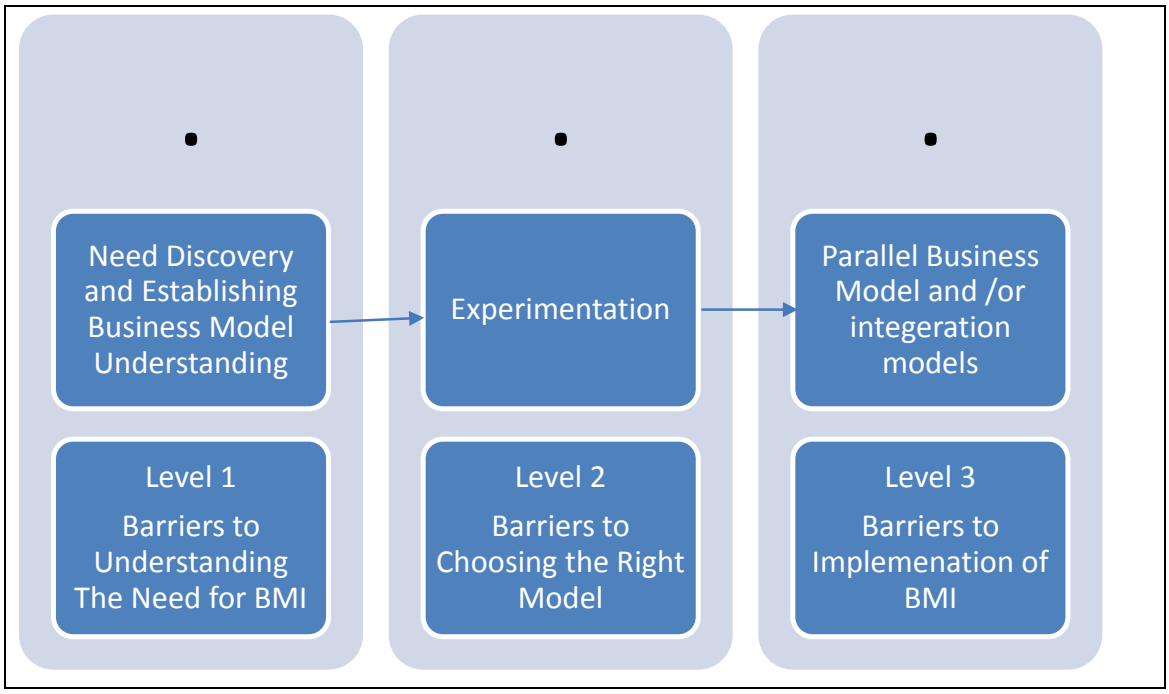


Figure 2.6: The business model innovation process and the barrier.(Source: Nenonen, 2010)

2.6BUSINESS MODEL AND STRATEGY

The literature review puts forward that scholars unanimously agree that business models might be basis of competitive advantage that is distinctive from firm's product market place (Amit & Zott, 2001; Shafer & Linder, 2005; Bashir, Yousaf & Verma, 2016). Firms which attend to customer requirements and follow alike product market tactics can do so with very

dissimilar business models; business model design and product market strategy are compliments, not alternatives (Zott & Amit, 2008; Christensen, 2001).

A wide variety of scholars agree that there is a missing link between strategy and operations (Amit & Zott 2001; Shafer et al. 2005). Therefore they suggest that business model concept may well be the intermediate medium between resource configuration and strategy regarding especially value creation (Makinen & Seppanen, 2007). So this leads to the conclusion that business models are neither a strategy nor a business process, but something between them (Osterwalder & Pigneur, 2010). The figure 2.7 depicts how business model relates to strategy and business processes.

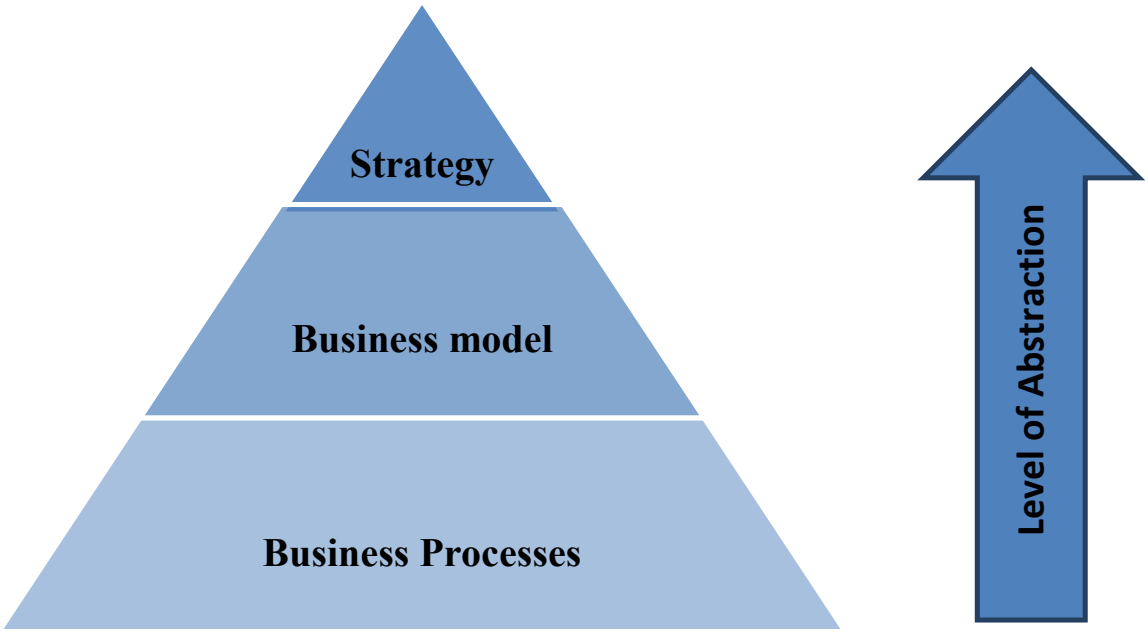


Figure 2.7: Business Logic triangle (Source: Dubosson, Osterwalder & Pigneur, 2002)

Therefore literature review highlights that business models and strategy are not one and the same subject, rather are different with respect to one another. Nonetheless strategy and business models have some common issues but strategy is seen as making choices that are related to future business and competitive positioning (Currie, 2004). Rather than just making preferences, business models reflect these preferences by facilitating, testing and validating the cause and effect relationship that derive from strategic choices (Shafer, Smith, & Linder, 2005). That is why some scholars define business model as “the conceptual and architectural execution of a business strategy” (Dubosson,Osterwalder & Pigneur, 2002).

Zott, Amit, & Massa (2011) emphasize that strategy focuses on rivalry, value arrest, and competitive advantage, whereas the business model concept is oriented to collaboration, partnership, and joint value creation.Teece argues that business models can create competitive advantage and they reveal the value capturing mechanism behind strategy. Further scholars agree than business models are transparent and can be easily imitable by competitors. Therefore successful business model is inadequate in itself to ensure competitive advantage. Thus business models need something to support their structure and some kind of isolation mechanism to hinder the copying. (Teece, 2010).

Teece (2010) argues that those processes, systems and assets behind a business model can prevent copying. Therefore those processes, which constitute a business model, make the difference, not a business model itself. Secondly, a level of capacity limits replication possibilities. Further if competitors are uncertain about the details of a business model, it might gain competitive advantage

Dell Computers business model of direct selling was so powerful that it over performed its rivals for more than a decade. The model was very difficult for the existing players to copy as it would upset their breathing delivery channels and make unfriendly the resellers on whom they relied. Fascinated by their own strategies, they were hopeless if they copied Dell and disaster-prone if they didn't (Magretts, 2002). So it's clear that most important element in creating competitive advantage around a business model is to innovate a value mechanism which is hard and difficult for the competitors to imitate.

2.7BUSINESS MODEL INNOVATION AND TECHNOLOGICAL MANAGEMENT

Business models and technological management have some common association, as business models have been addressed in the field of technology management. Business models have the capacity to create value which is rooted in a new technology. Two corresponding facts seem to typify the research. The initial is that companies commercialize pioneering ideas and technologies through their business models. The subsequent is that business model symbolizes a novel subject matter of innovation, which harmonizes the conventional subjects of process, product and organizational innovation plus engages new-fangled forms of cooperation and partnership (Christoph, Raphael, & Lorenzo, 2011).

Chresbrough & Rosenbloom (2002) in their extensive case study of Xerox Corporation demonstrate how the company grew up in part by making use of a valuable business model to commercialize technology discarded by other foremost corporations. Their research moreover measure up to triumphant and failed technology spin-offs with analogous market impending and highlights that in victorious ventures the hunt and learning for an effectual business model was appreciably superior than in field ventures. Technological innovations can prompt modifications in company's working and commercial activities, and therefore in the business models (Calia, Guerrini, & Moura, 2007).

Technology has a great role to play in transition of business models and that is the reason why researchers have as of late laid so much stress on technology and in fact highlighted that technology is the major force which brings change in business models over time. Some researchers on the other hand have highlighted out the significance of business models for all industries (Johnson & Suskewicz, 2009). They state that in huge infrastructural change the key is to budge nucleus from developing individual technologies to crafting entire novel systems.

So as a whole the research on business models and technology management have emphasized that technology has a foremost impact on the business models. At the same time researchers have also highlighted that a mere technological innovation cannot pledge firm success (Doganova & Eyquem-Renault, 2009). This is for the reason that technology has no intrinsic value (Chesbrough, 2007a). Thus technology has to be supported by an efficient and unique business model.

2.8BUSINESS MODELS AND FIRM PERFORMANCE

The likes of Dell, Amazon and Apple have shown that business models can serve as competitive advantage which can boost the financial performance of a company. Research scholars also agree that business models represent a possible resource of competitive advantage (Markides & Chritou, 2004). At the same time originality offered by novel, effectual models can upshot in better value creation (Morris, Schindehutte, & Allen, 2005). Afuah & Tucci (2001) explain business model as the means by which a firm puts together and utilizes its resources to present its customers superior value and to make money in doing so. While Afuah (2004) introduced a strategic skeleton in which business model is

conceptualized by means of a set of components that keep up a correspondence to the determination of firm's prosperity.

Zott & Amit (2007) assessed the business model design in entrepreneurial firms and analysed its impact on their performance. As per this observation the essence of the union among business model design along with focal firm performance can be analysed by gazing at two separate effects: the total value creation of business model design and focal firm's ability to appropriate that value. As per this empirical work, business model is the autonomous variable and is tied to firm performance, moderated by the surroundings. They recognized two design themes around which business model can be arranged: Efficiency and Novelty.

A wide majority of researchers introduce business model as a variable moderating the outcome of top management, team composition and organizational performance (Patzelt, Knyphausen-Aufseb, & Nikol, 2008). Their study showed that founder-based, firm-specific knowledge of management group members can have affirmative or a downbeat impact on firm performance, depending on business model adopted. On the other hand Zott & Amit (2008) admit the likely contingent consequences of business model in mediating between product market strategy and business performance.

A similar type of a study on business models and firm performance identifies that business model innovation can bring success and innovation in enterprise models that centre on exterior collaboration and partnerships is predominantly useful in older companies as compared to younger ones (Gisen, Berman, Bell, & Blitz, 2007). A worldwide survey by the consultants at IBM, where in they interviewed 765 Corporate and Public-Sector executives internationally, established that outperforming firms put twice as much stress on business model as did underperformers (IBM, 2006).

2.9BUSINESS MODEL INNOVATION LEADERSHIP

Whenever we talk about business model innovation it's the top management which has wide role to play. Business model innovation is usually a top down approach and the role of leadership role is very crucial in making this change instrumental. Leadership has been

discussed by scholars widely in many studies (Brymann 2004, Rooke 2005) but there has been hardly any study in the context of business model innovation. Research has shown that top mangement has a crucial role to play in driving innovation. Business model innovation leadership aims at continously thinking out of the box with the aim of gaining some competitive advantage. (Lindgren & Rasmussen, 2012; Lindgren & Abdullah, 2013).

Bulk of the availble literature on business model innovation has stressed on the role of top management in business model innovation. As per the resource based view top managers ability in efficiently allocating and managing resoures is strictly related to firm innovativeness (Ireland et al., 2003). On the other hand social network theory advocates that for firm innovativeness managerial social networks are very crucial (Zhang and Li, 2010).

Lindgren & Rasmussen (2012) analyzed 24 businessess involving small and meduim sized businesses in EU and US. The study was conducted from a period of 2003-2011 and the reserachers came up with a framework to carry out business model innovation especially in three areas:

1. The ability to generate and recognize new business model idea and business model concept.
2. Leading strategically BMI by orchestrating different strategic lines of innovation leadership.
3. Bring BMIL up to a point of leading a multitude of BM within the business

Many researchers are of the opinion that the role of top management in business model innovation depends on the depth of business model change (Foss & Stieglitz, 2014). (Figure 2.8).

Depth of BM changes / Breadth of BM changes	Incremental	Radical
Modular	(I) Continuous BMI. Example: Google's search engine	(II) Ambidextrous BMI. Example: Amazon's Kindle
Architectural	(III) Evolutionary BMI. Example: Mobile Facebook	(IV) Revolutionary BMI. Example: Apple's iModel

Figure 2.8: Depth of Business Model Changes. (Source: Foss & Stieglitz, 2014

2.9.1 Top Management as Monitor:

Whenever the depth of business model innovation is modular and incremental top management has a very narrow role to play. This simply means that the change which is being implemented is nothing else but a refinement of an existing business model and thus almost all of the activities can be diverted or decentralized towards subordinates. Top managements primarily role here is to act as a monitor and ensure that employees don not overstep the mandates (Foss & Klein, 2012). The basic job of the top management here can be to suggest improvements. Second it's very important for the top management to scan the external environment and make judgements as whether the current business model is viable or not. Google usually engages in many small changes in their processes which are basically nothing but minor refinements of the existing business model.

2.9.2 Top Management as Sponsor

When the change in business model innovation is modular and radical in nature top management had a much wider role to play and needs to act as a sponsor of the change (Smith & Tushman 2005). Since old and new business units are separated. Scholars in previous studies have used a term known as structural ambidexterity (O'Reilly & Tushman 2004). The central idea here is to provide for loose coupling so that new business units can effectively experiment and concentrate on new organizational design.

The kindle initiate at amazon is one of the very beautiful examples which fits in this very case. Managers at Amazon's ecommerce business have different KPI with respect to employees handling Kindle. Strategic decision making is largely delegated to the novel business unit that may ponder on the new business model without having to integrate with the prevailing business model. Again if we take the case of Amazon kindle has a different vision statements and Amazons E-commerce business has a different one. Now in any case if the top management refuses to get involved as a sponsor, this very business model innovation will fail because as such there would be no alignment between capabilities and competitive advantages (Smith & Tushman, 2005; Carmeli & Halevi, 2009).

2.9.3 Top Management as Moderator

In case when the business model innovation is architectural and incremental it puts more pressure on top management leadership more than the earlier two forms discussed. This type of innovation affects the whole business model and thus changes cannot be confined to the separate business units. Top management here needs to act as a moderator by providing a roadmap of system wide inventions and also moderate many conflicts and changes to re-establish coherence. This roadmap should automatically trigger some sort of search for new business model (Lovas & Ghosal, 2000). The main catalyst responsible for Facebook's successful evolution towards mobile advertisement was concocted by top management. As per researchers this requires absolute resolution of conflicts among business units that would most often need centralized intervention (Williamson, 1991). Researchers also suggest that reward system is one the primarily instrument to communicate and motivate them towards the roadmap (Siggelkow & Rivkin 2003; Kaplan & Henderson 2005).

2.9.4 Top Management as Architect

One of the most challenging and risky business model innovations is the one which comes up with an architectural and radical change. It takes a firm completely into a new territory knows as Knightian uncertainty ((Foss & Klein, 2012). It requires an absolute entrepreneurial judgement and also a clear form of communication by the top management. Top Management not only provides a comprehensive roadmap but also delegates who is actively involved in everyday decision making and experimentation. Steve Jobs from Apple used to have this type of leadership style (Isaacson, 2011). This stresses out to the fact that almost all decision would be taken centrally and activities would not be delegated to subordinates (Foss &Klein, 2012). Due to Knightian uncertainty incentives would play a very little role in this business model innovation.

3.0 RESEARCH METHODOLOGY

This chapter of this thesis deliberates in detail the research methodology used in the study. The focus of this stage is to highlight the data collection process. This is followed by discussing the measures to be used, research design, sampling frame, data collection procedures, survey instrument and the statistical techniques used in the data analysis. Descriptive research design has been employed in this study to investigate the influence of technological developments on business model innovation. The researcher has developed a scale to measure the influence of technological developments on business model innovation. The scale decomposes business model innovation into four components like Value Proposition, Assets & Capabilities, Economic Logic or the Revenue Logic and the Actors in Business Network.

3.1 NEED OF THE STUDY

Taking the earlier discussion into consideration the research on business models is still at budding stage and is just making inroads in some top notch journals. One of the main driving forces behind the surge of academic literature on business models has been with the advent of internet. The success of companies like Dell, Google, Uber, Airbnb etc. gave a new life to the concept of business model. These companies broke all of the traditional barriers and have grown at an impossible rate. Entrepreneurs and venture capitalists spend millions of dollars not only in funding but also understanding novel business models Researchers agree to the fact that business model innovation can be a source of competitive advantage (Bashir, Yousaf & Verma, 2015).

Long range planning (2010) published a special issue on business model and in no time it received as many as 1000 citations and almost 50,000 downloads on yearly basis. This again goes on to show the interest on business models by both the academicians and as well as the industry. Despite the surge in academic and non-academic literature on business models there is a still lot of confusion surrounding the term “business model” and its components. This study will study all of the literature on business models and present a holistic view of the past, present and future of the concept of business model innovation. The purpose is to highlight the current state of the art about business models, the varying opinion of the researchers on the definitions of the term “business model”, the reasons of the varying

opinion on business models and the various challenges which researchers face while dealing with the concept of the business model.

The purpose of this research is to throw more light on business model innovation and its components. The bulk of studies on business models are either based on case studies or are either conceptual or theoretical in nature. There are hardly any empirical studies on business models as almost all researchers have given contradicting and different definitions of business model suiting their studies. One of the very basic purpose of this research is to develop tools for researchers for measuring business model innovation which will directly help in explaining the concept better. In this regard a theoretically anchored reliable and valid scale measuring business model innovation has been developed which will bridge the gap for future research on business models.

A report from the economist intelligence report (2012) stressed to the fact that among many factors responsible for change in business models like competitive pressure, government regulations etc. technology comes right at the forefront taking the pole position. Technological developments have a massive influence on business models. Technological developments can bring in new business models in picture which can be very novel like that of Uber, Airbnb. Researchers although agree that technology has a role in business model innovation but as of now this role has not been quantified. So the second purpose of this study is to quantify the influence of technology on business models. This study will highlight how technology and business models interact. This study will analyse the influence of technology on the various components of business model.

Researchers on a general level accept that the business model innovation is usually a top down approach where the role of top management is very critical and crucial. It is the top management of the company which has to streamline the processes and get human resource ready to accept the change. There is again a total ambiguity surrounding the role of top management on business model innovation. There are very rare articles in the academic literature which have highlighted the role of top management in business model innovation. Majority of the articles focus on some very common themes which have no empirical evidence. In order to bridge this gap this study has made an attempt to clear the confusion surrounding the role of top management in business model innovation by conducting a qualitative study across all the seven industries. The study will be qualitative in nature where

interviews would be conducted with the top management of the firms covering seven industries.

3.2 SCOPE OF THE STUDY

The scope of the study is limited to seven industries only like Telecommunication, Information technology, Banking, Media & Entertainment, Insurance, Publishing and Academics. The justification of choosing only these set of industries is the Economist Intelligence Report (2012) which highlighted that the maximum disruption of technology would rest on these seven sectors. Although the report has highlighted some other industries also but looking at the resources in hand and the time constraints the scope of this study would be limited to only these seven sectors.

Data for the study has been collected by taking 42 multinational companies from the seven said sectors. Six companies where chosen from each sector so as to ensure equal representing of each sector in the sample. An average of the last three years profitability was taken into consideration to select companies from each sector apart from publication and academics. The reason of not choosing the profitability index in the publication sector is because all the major publication houses which cover more than 50 percent of the market share are foreign multinational companies which have entered into an alliance or joint venture here with Indian companies and thus they are not required to disclose their quarterly results. So in the case of publishing sector market share was taken into consideration rather than the profitability index. For the academic sector top six universities from north India where taken as per the QS ranking of global universities 2014.

This study has also taken qualitative data into consideration by conducting in-depth interviews with the top management of the firms from the already chosen sample. Due to time restraints and the willingness of the top management to corporate in giving their time for these in-depth interviews only two interviews were conducted from each sector bringing the total up to 14. The respondents were chosen as per their willingness to corporate, share data and readiness to give their value time for the participation in a one on one interview.

3.3 RESEARCH OBJECTIVES

The study uses Westerlund (2009) framework to explain business model. The justification for using framework is that it has been developed after reviewing all of the literature on business models and only those elements were picked which are almost in all of the top cited research papers and on which researchers have a common consciousness highlighting its wide level acceptance and validity. The framework apart from minor modification is also in line with Osterwalder & Pignuer (2010) and Amit & Zott (2011). Westerlund (2009) decomposes business model under four components value preposition, Assets & Capabilities, Economic Logic and Revenue logic and the Actors in Business Networks. The main research objectives of the study are as follows:

1. To examine the influence of technological developments on the business models
    a. To study the influence of technological developments on the firm's value proposition.
    b. To study the influence of technological developments on the firm's assets and capabilities as resources.
    c. To study the influence of technological developments on the firm's economic logic or revenue logic.
    d. To study the influence of technological developments on the firm's relationship with actors in business networks.
2. To study the role of top management in the business model innovation due to technological developments.

3.4 RESEARCH HYPOTHESES

After doing the necessary literature review and on the basis of the objectives of our study following hypotheses have been proposed:

$H_{0:}$ There is no significant influence of technological developments on business models.

$H_{0a:}$ There is no significant influence of technological developments on firm's value proposition.

H_{0b}: There is no significant influence of technological developments on firm's assets and capabilities as resources.

H_{0c}: There is no significant influence of technological developments on firm's economic logic or revenue logic.

H_{0d}: There is no significant influence of technological developments on the firm's relationship with actors in business networks.

3.5 RESEARCH DESIGN AND METHODOLOGY

Research design is usually defined as "a blueprint for conducting a study with maximum control over factors that may interfere with the validity of the findings". The most comprehensive and holistic definition has been given by Kerlinger (1995), he defines research design as "a plan, structure and strategy of investigation so conceived as to obtain answers to research questions or problems." Green et al. (2008) on the other hand define research design as "the description of the methods and procedures for obtaining the information needed". There are other definitions given by many researchers around the similar lines like Campbell & Stanley (1963), Kazdin (1980), Lichten berg & Tracey (2003). All of these definitions point out to the fact that research design is actually a framework or a roadmap which gives a direction towards the investigation being conducted in the most effective and efficient way.

3.5.1 Survey of secondary Sources

In order to get insight into the concept of business model innovation, its components and the influence which technology has over it, massive volumes of secondary data has been used, reason being the concept is still at a budding stage. The main sources of secondary data used for this study were the research papers, articles, review papers, books, magazines, reports, books etc. The research papers were downloaded and surfed from databases like Emerald, EBSCO, ProQuest, Springer, Scopus etc. The literature review conducted has mainly focussed on laying a strong foundation on the concept of business model, clarifying the construct of business model, the distinction of the concept of business model innovation with

other subjects like strategy and developing the tools for researchers in order to measure business model innovation.

3.5.2 The Study Population

The study has focussed on the middle to senior managers representing seven industries like Information Technology, Telecommunication, Banking, Media & Entertainment, Insurance, Publishing and the Academia. The prime justification of choosing companies from only these specific industries is the Economist Intelligence Report (2012), which after surveying 567 Senior management executives throughout the globe came up with interesting findings that the although the technology has influence on almost every industry but the maximum impact would resist on the above mentioned seven industries. This explains the rationale of choosing these specific industries. This study has chosen 6 companies from each sector taking the toll to 42 companies. Although data has been collected throughout India but in some cases the research has confined towards north India only due to the convenience, cost and the resources available at the disposal of the researcher.

3.5.3 Sampling Techniques and Sample Size

This study has adopted stratified sampling technique to collect data from the respondents covering 7 industries representing 42 companies. The total sample size of the study has been confined to 200 respondents. In order to fulfil the research objectives and looking at the sensitivity of the topic data was collected from the middle to senior management teams of the companies. The revenue and profitability has been taken into consideration to choose companies from the each sector but in some cases like Publishing revenue and profitability was not taken into consideration reason being the sector is being dominated by multinational subsidiaries who don't disclose their results. Therefore after due consideration and discussion with some senior executives representing publication sector companies were chosen on the basis of market share. As far as the academia side is concerned data was collected from five top universities in India as per the QS ranking of international universities is concerned. The study has also used qualitative data and for that purpose two interviews were conducted from each sector based on the cooperation and accessibility of the top management.

3.5.4 The Research Instrument

To measure the influence of technological developments on business model a structured questionnaire has been developed. The researcher has developed the instrument as per the procedures suggested by Churchill (1979) and Henkin (1995) which are one of the highly valid and well accepted procedures used in scale development. In order to overcome the problem of redundancy, duplicity and ensure reliability data was collected from senior managers who have a total overview of the organization and know-how of their business model. To access the role of top management on the business model changes a qualitative data collection technique would be used where interviews with the top management will be conducted using a schedule.

3.5.5 Development of Instrument

Developing a measurement scale for any research is a tough, time consuming and cumbersome task which involves loads of literature review, concentration and dedication. This study as already discussed has developed the scale as per the guidelines and procedures of Churchill (1979) and Hekin (1995). The survey technique has been developed after a deep and thorough review of the literature in order to get insights into the influence of technology on business model innovation. Researcher has used only those instruments which demonstrated high validity, reliability and are clearly linked with the objectives of the study. After generating the item pool measuring the influence of business model innovation a five point Likert scale was used (where 1 – highly disagree and 5 – highly agree). The researcher also conducted the content validity of the instrument by sending the questionnaire to 11 respondents representing some top notch corporations and universities. Before the final instrument was developed pilot study was conducted by researcher to check the reliability of the scale developed. Figure 3.1Gives a holistic view of the steps involved in the development of instrument.

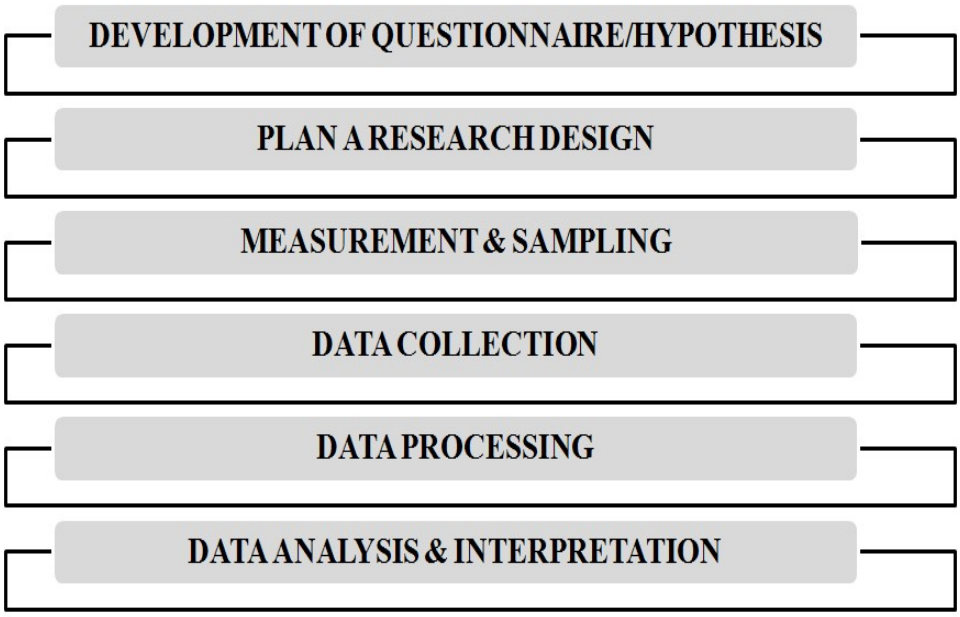


Figure 3.1: Steps Involved in Development of Instrument

3.5.6 Validity and Reliability of the Instrument

It is of prime importance in any kind of research that the instrument used for measurement is valid and reliable. Validity and reliability both refer to the consistency with which the scale would be able to produce results which are stable or consistent. Instrument which lacks validity and reliability may not give consistent and reliable results and therefore the whole research process becomes vague and the findings derived out of that very research become questionable. This study has taken reliability and validity both into consideration so that there is a high level of consistency among the statements used in this scale.

3.5.6.1 Validity of the Instrument

Different researchers have given different definitions of the term validity but one of the most cited definition of the term validity is by Jope (2000) he defines validity as

"Validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. In other words, does the research instrument allow you to hit "the bull's eye" of your research object? Researchers generally determine

validity by asking a series of questions, and will often look for the answers in the research of others. (p. 1)"

Criterion, content and construct validities are the three different types of validities used by researchers to judge the validity of the instrument. The content validity of the scale has been judged by 11 experts representing some top notch universities and multinationals. The judges represented some top notch multinationals like Bharti Airtel, Aon Hewitt, J & K Bank and some of the top research universities like National University of Singapore, IIT Delhi, Priest University Dubai, Iqra University. All of the 11 judges expressed their satisfaction with the validity of the scale. The researcher was very conscious in picking only those items which have consistency with each other.

3.5.6.2 Reliability of the Instrument

Reliability has been defined as the consistency of the results. According to Jope (2000) reliability is the "The extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable. (p. 1)". So the general notion is that reliability is the consistency with which the scale can give the same results again and again (Carmines and Zeller, 1979). Researchers usually divide reliability as internal reliability and external reliability. Internal reliability means the internal correlations among the items whereas the external reliability means whether the results from the study can be generalized (Black, 1999).

The internal consistency as per many researchers can be judged by checking the Cronbach's alpha (Carmines and Zeller, 1979). On the other hand external reliability can be judged by test re-test reliability. IBM, SPSS software was used to calculate the Cronbachs alpha and the value was found out to be .941(Table 1). According to Nunnally (1994) in order to judge the validity of the measure the minimum threshold vale for Cronbach's alpha should be 0.7. Therefore the 74 items scale measuring the influence of technology on business model innovation is way too satisfactory as it exceeds the minimum required.

Table 3.1: Reliability Statistics

Cronbach's Alpha	N of Items
.941	74

The Reliability of the scale was also checked at the sub- Construct level. For all the four main sub- constructs the value of Cronbach's alpha was way over the minimum acceptable threshold level of 0.7 as per the general notion of all researchers (Nunnally, 1994). Table 3.2 gives a snapshot of the reliability analysis at the sub- construct level.

Table 3.2: Reliability Statistics

Cronbach's Alpha		**N of Items**
Value Proposition	.847	18
Assets & Capabilities	.761	20
Economic Logic	.866	19
Actors in Business Networks	.853	17

Therefore the questionnaire satisfies all of the conditions and can be used for the final data collection.

3.5.7 Administration of the instrument

After the satisfactory results of the validity measures, reliability measures and the pilot testing the instrument was personally administered by the researcher. The respondents were approached via an electronic mail and the questionnaire was shared using Google drive but the response rate was very low and then the researcher personally administered the data collection process by taking appointments with some top executives from seven industries

and the questionnaire was distributed by means of a hard copy. The questionnaire was divided into four section containing questions on the value proposition, Assets & Capabilities, Economic Logic and the Actors in business networks. Apart from these sections there was a separate section on the demographic details of the respondent and organization.

In order to satisfy the qualitative aspects of the study a schedule was developed to measure the influence of top management on business model innovation. The schedule contained 21 questions on the role of top management which were asked to selected top executives of the companies representing the sample. This mix of qualitative and quantitative aspect has really enhanced the quality of the study.

3.5.8 Sample Description

The data for this study was collected among seven industries viz.: Information Technology, Telecommunication, Banking, Media & Entertainment, Insurance, Publishing and Academia. The justification of choosing these very industries is the Economist Intelligence Report (2012) which conducted a worldwide survey of over 7,500 executives ranging many industries emphasized that the maximum impact of technology would be in these very 7 industries. Among these 7 industries 42 companies were chosen taking 6 from each sector so as to ensure equal representation. The criterion for choosing the companies from each sector was the revenue. The top six companies on the basis of the revenue were chosen from the each sector. Some of the companies showed their reluctance in participating in the survey so they were dropped and the next subsequent company was picked.

For the academia, researcher felt that the revenue criterion would be meaningless so researcher took the top 5 universities from north India as per the Qs ranking of the world universities 2014. The universities chosen were Punjab University, IIT Delhi, Jawaharlal Nehru University, Delhi University and Aligarh Muslim University. For the publishing sector it was observed many multinational companies who are not listed in the national stock exchange and are thus not obliged to show their earnings control the bulk of the market place. Thus the Revenue Criterion would not be fair and valid in this case. Thus after a discussion with some top notch publishing houses in India like the Tata McGraw hill and Pearson market share was brought into perspective and top six companies were chosen as per the market share criterion.

The questionnaire comprising 74 statements was send via a hard copy and electronically to over 300 middle- senior level executives. After ignoring some incomplete questionnaires a total of around 200 responses were collected for further analysis.

In addition to this a qualitative study has been conducted in which interviews were conducted with senior executives of these seven industries to measure the influence of technology on business mode innovation and also on the role of top management in business model innovation. The respondents for the interviews were chosen on the basis of viability and cooperation of the senior executives as all of them didn't express their willingness to participate in a recorded interview. A Total of 14 interviews were conducted, 2 interviews from each sector.

Industry	**Companies**	**Number of Respondents**	**Percentage**
Information Technology	TCS	34	16.7
	Infosys		
	Cognizant		
	TM		
	Wipro		
	HCL		
Telecommunication	MTNL	30	14.7
	Bharti Airtel		
	Idea Cellular		
	Reliance		
	Tata Communication		
Banking	SBI	31	15.2
	ICICI		
	HDFC Bank		
	Axis Bank		
	Bank of Baroda		

	PNB		
Media & Entertainment	HT	30	14.7
	PVR		
	India Today		
	Den		
	Zee		
	Network 18		
Insurance	HDFC Life	30	14.7
	ICICI Pro		
	NIA		
	LIC		
	Oriental		
	SBI Life		
Publication	Cengage	26	12.7
	Tata Mcgrill		
	Pearson		
	Infomedia		
	Archie's		
Education	Punjab University	23	11.3
	Delhi University		
	IIT Delhi		
	JNU		
	AMU		

4.0 SCALE DEVELOPMENT

This study has used well accepted and renowned scale development procedures from Churchill (1979) and Henkin (1995), which is further supported by Anderson and Gerbing (1982), Bentler and Bonnet (1980), Bagozzi et al. (1991), Nunnally and Bernstein (1994) and Yi & Gong, 2013). The scale development process used in this study is highlighted in the Figure 1.

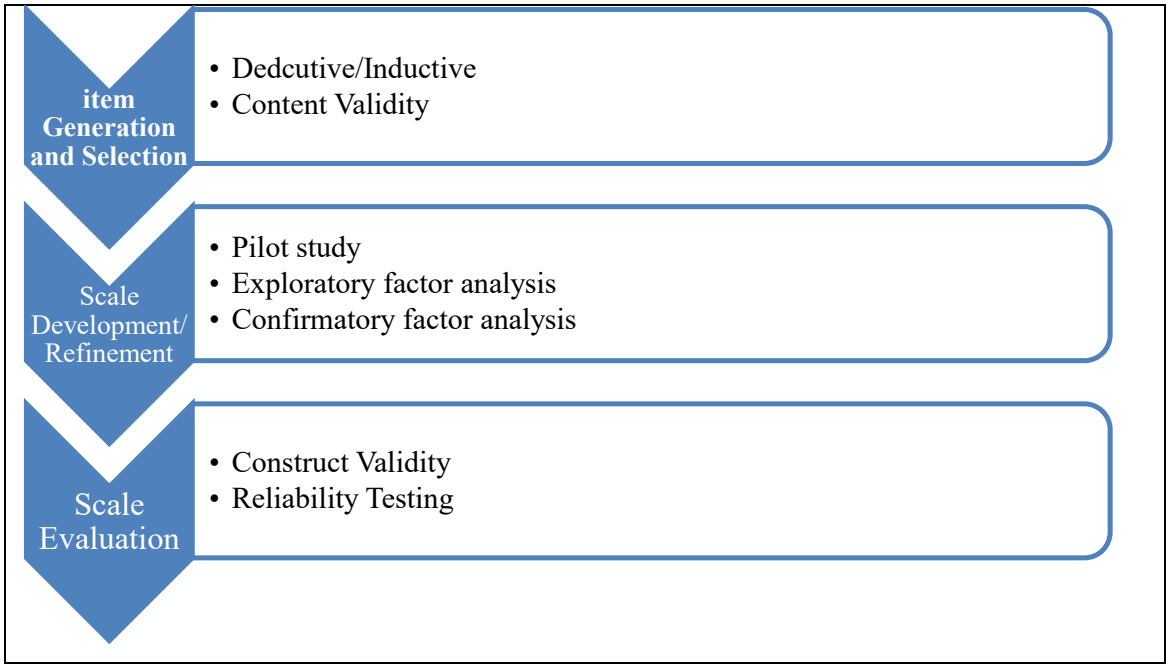


Figure 4.1: Steps in Scale Development (Source: Henkin, 1995).

4.1 STAGE 1: ITEM GENERATION AND SELECTION

Researchers have usually classified two main methods of item generation in scale development. First one is deductive and the second one is inductive (Hunt, 1991). In inductive method researchers first cultivate conceptual definition grounded in theory and then take a sample of respondents who are subject matter experts to provide some perilous incidents that are afterwards used to develop items. This process can be time consuming and expensive, so researchers generally don't use this method in developing items for any

measure. Henkin (1995) reviewed all of the papers on scale development from 1989-1994 reviewing altogether 75 articles from top notch academic journals. He found that only 11 percent studies have used inductive approach, 83 percent used deductive and the rest 6 percent used a combination of the both techniques.

This study has used deductive method for developing items. Deductive approach demands a very deep and thorough review of literature in order to develop the theoretical definition of the construct under investigation. Then usually this definition of the construct is used a guide for the development of items. The study uses westerlund (2009) definition of business model in deriving items related to the main construct of business model innovation. The rationale for using westerlund (2009) model is that it was developed after reviewing all of the literature on business model and only those components of business model were chosen which are in almost all of the papers on business models and on which researchers have a common consciousness. The framework is also consistent with the Osterwalder &Pignuer (2010) and Amit & Zott (2012).

This study has decomposed business model innovation into four components viz.: value preposition, assets and capabilities, Economic Logic or revenue Logic and the actors in business network (Westerlund, 2009). This study started with 90 items in total measuring the influence of technology on business model innovation. At the sub- construct level there were 20 items measuring Value Preposition, 25 items measuring Assets and capabilities, 24 items measuring Economic Logic or the Revenue Logic and 21 items measuring the influence on Actors in Business Networks. One of the very important things which was kept in view during the development of the items was the content validity of the items developed.

4.1.1 Content Validity

One of the very basic steps after the development of the items and before the collection of data is to validate the consistency of the items by checking their content validity. The internal consistency of the statements in this study was checked by 11 experts who represent some of the leading academic institution like National University of Singapore, Priest University, Indian institute of Technology Delhi, Aligarh Muslim University, Iqra University and some of the top notch multinationals like Bharti Airtel, Hindustan Computers Limited (HCL), Aon Hewitt and Jammu & Kashmir Bank (Table 4.1.

Inspecting the items in the first round, it appeared that there are some items which lack transparency and which might result in misinterpretation by the respondents. So after reviewing the literature again and taking the collective feedback of the experts into consideration 10 items were deleted. In the next step the scale was again evaluated by the experts and after a deep discussion 6 more items were deleted as experts felt that couple of them are double barrelled in nature, two are repetitive and on other two questions respondents would hesitate to give their responses. The scale was reduced to 74 items and was once again reviewed by the experts. This time around experts suggested that few statements need to be modified and suggested to incorporate some familiar item words which would be easy for respondents to understand so that responses are fair. Therefore the final scale measuring the influence of technology on business model innovation was reduced to 74 items.

Table 4. 1: List of Experts Consulted for Content Validity

S.No.	Name	Designation	Company
1.	Mr Ravi Gandhi	Chief Regulatory Officer	Bharti Airtel
2.	Rahul Rajvanshi	Divisional Manager	Aon Hewitt
3.	Gaurav Sharma	Group Technical Manager	HCL
4.	Salman Butt	Senior Manager / Tax consultant	Deollite
5.	Zamir Qadri	PA to CEO	J & K Bank
6.	Dr Omar Khalid Bhatti	Management Consultant with 10 years industry Experience.	Start-up
7.	Dr Shabir Hakim	Asst. Professor	Priest University

8.	Dr. Sanjay Dhir	Asst. Professor	IIT Delhi
9.	Dr Robina	Asst. Professor	Iqra University
10.	Dr Ahad Usman	Professor	GSM, Malaysia
11.	Dr Aasif	Asst Professor	AMU

4.2 STAGE 2: SCALE REFINEMENT/ DEVELOPMENT

According to Churchill (1979) and Henkin (1995) this stage includes a wide variety of steps like the Pilot study, exploratory factor analysis, and confirmatory factor analysis (Figure 1). This study has refined the scale by going through each and every stage ensuring that all the necessary conditions were fulfilled.

4.2.1 Pilot Study

According to Churchill (1979) and Henkin (1995) this step includes pilot testing of the scale in order to check the internal consistency of the statements by analysing Cronbach's Alpha. In order to conduct the pilot study the questionnaire measuring business model innovation was send electronically and via a hard copy to over 100 middle level executives representing some top notch multinationals. Apart from the two responses which were incomplete a total of 50 responses were collected for the conduct of pilot study. IBM, SPSS software was used for calculating the Cronbach's Alpha. The Cronbach's Alpha for all of the 74 statements was found to be (0.941) (Table 4.2). According to Nunnally (1994) in order to judge the validity of the measure, the minimum threshold vale for Cronbach's alpha should be 0.7. Therefore the 74 items scale measuring the influence of technology on business model innovation is way too satisfactory as the value of Cronbach's Alpha (0.941) is way to over the minimum acceptable threshold level.

Table 4.2: Reliability Statistics

Cronbach's Alpha	N of Items
.941	74

The Reliability of the scale was also checked at the sub- Construct level. For all the four main sub- constructs the value of Cronbach's alpha was way over the minimum acceptable threshold level of 0.7 as per the general notion of all researchers. Table 4.3 gives a snapshot of the reliability analysis at the sub- construct level.

Table 4.3: Reliability Statistics

Cronbach's Alpha		**N of Items**
Value Proposition	.847	18
Assets & Capabilities	.761	20
Economic Logic	.866	19
Actors in Business Networks	.853	17

After the satisfactory results of the reliability analysis researchers proceeded with the study and went for the final collection of the sample to validate the scale used in this study.

4.2.2 Data Collecting

The data for this study was collected among seven industries viz.: Information Technology, Telecommunication, Banking, Media & Entertainment, Insurance, Publishing and Academia.

The justification of choosing these very industries is the Economist Intelligence Report (2012) which conducted a worldwide survey of over 7,500 executives ranging many industries emphasized that the maximum impact of technology would rest in these 7 industries. Among these 7 industries this study has chosen 42 companies taking 6 from each sector so as to ensure equal representation. The criterion for choosing the companies from each sector was on the basis of revenues. The top six companies on the basis of the revenue were chosen from the each sector. Some of the companies showed their reluctance in participating in the survey so they were dropped and the next subsequent company was picked.

For the academia researcher felt that the revenue criterion would be meaningless so researcher took the top 5 universities from north India as per the Qs ranking of the world universities. The universities chosen were Punjab University, IIT Delhi, Jawaharlal Nehru University, Delhi University and Aligarh Muslim University. For the publishing sector it was observed that many multinational companies having considerable presence in Indian markets are not listed in the national stock exchange and are thus not obliged to show their earnings. Thus the Revenue Criterion would not be fair and valid in this case. Thus after a discussion with some top notch publishing houses in India like the Tata McGraw hill and Pearson market share was brought into perspective and top six companies were chosen as per the market share criterion.

The questionnaire comprising 74 statements was send via a hard copy and electronically to over 300 middle- senior level executives. After ignoring some incomplete questionnaires a total of around 200 responses were collected for further analysis.

4.2.3 Exploratory Factor Analysis

Factor Analysis is typically a sample size specific technique. There are two school of thoughts about the minimum sample size criterion in factor analysis. One set of researchers focus on the number of cases and the other one stresses on subject to variable ratio. According to Hatcher (1994) the subjects should be 5 times the number of variables on the other hand Gorsuch (1983) and Kline (1979) have recommended a minimum of 100 also. Hutcheson and Sofroniou (1999) suggest a minimum of 150. When subject to variable ratio is talked of scholars have recommended a higher ratio of 20:1, 5:1 like, Hair, Tatham, and Black (1995) but other scholars have suggested that a ratio of 3:1 is also acceptable (Cattell,

1978); Arrindell & Van Der Ende, 1985). Therefore the data set satisfies both the conditions and thus factor analysis can be applied.

4.2.4 Sampling Adequacy

Researchers agree that for a good and effective factor structure Kaiser-Meyer-Olkin (KMO) should be 0.60 or more (Tabachnick & Fidell, 1996). The SPSS results in this study showed a Kaiser-Meyer-Olkin (KMO) value of.871 (Table 4.4) which is way too adequate. Therefore this means that the factor analysis can be applied. A very negligible significance level was shown by the Bartlett's Test of Sphericity. This further goes on to show that the sample is good and factor analysis can be applied.

Table 4.4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.871
Bartlett's Test of Sphericity	Approx. Chi-Square	2187.088
	Df	253
	Sig.	.000

4.2.5 Factor Structure:

Several iterative cycles of factor analysis were applied to the data. At each stage researcher observed the total variance explained and the number of factors extracted. Factors which didn't correlate with any of the other factors were deleted. The goal of researcher was to improve the total variance explained, minimising the number of factors and get a matrix with good loadings. The researcher used Principal component analysis method of factor analysis for this study. Varimax method with Kaiser Normalization was used by researcher for rotation. Varimax was used for rotation as inter –factor correlations were found to be insignificant after analysing the factor correlation matrix.

A total of 76.597 percent of variance was explained by 9 factors which is adequate as per the researchers (Field, 2009). Rotated component matrix was used to classify the items under 9

factors (Table 4.6). The other coefficients with a value below 0.4 were supressed to get a matrix with clear loadings. The least cut off norm for removal of the items was the factor loading >0.50 (Karatepe et al., 2005), cross loadings .0.40 or communalities 0.30 (Hair et al., 1998). A total of 44 items under 9 factors having Eigen values greater than one were revealed by the analysis (Kaiser, 1960). The communalities ranged from .453 - .807 indicating good factor analysis. A total of thirty three items were deleted which couldn't satisfy the above mentioned criteria.

Table 4.5: Communalities

	Initial	Extraction
VP3: Meaningful new ways of differentiating the product / service have emerged	1.000	.677
VP4: Created more USP's for products or services	1.000	.690
VP7: Have helped in adding more features to the offerings	1.000	.756
VP9: Have increased the ease of use	1.000	.718
VP11: Increased the number of value added services a customer gets	1.000	.772
AC2: Skill set of the employees has improved over the period	1.000	.840
AC3: Efficiency of the people has increased	1.000	.813
AC8: Channels have become more responsive to customer requirements	1.000	.749
AC13: Processes have become more streamlined	1.000	.781
EL2: New methods of payment have emerged	1.000	.803
EL3: Existing methods of payment have improved	1.000	.765
EL11: New low cost avenues for advertisement have been created	1.000	.755
EL12: More options for revenue sharing are available	1.000	.727
EL16: Reduced the risks associated in the business	1.000	.734
EL19: Margins in each revenue source have increased	1.000	.778
AB1: Relationship with suppliers has improved	1.000	.781
AB2: Relationship with customers has strengthened	1.000	.688
EL4: Fixed costs in businesses have decreased	1.000	.827

EL5: Variable costs have decreased	1.000	.724
AB10: Coordination with partners has improved	1.000	.794
AB11: Communication with partners has improved	1.000	.902
AC1: Number of people working in the organization has gone down without affecting productivity	1.000	.842
AC20: Capital Barriers in business have been reduced to a great extent	1.000	.703

Extraction Method: Principal Component Analysis.

The proportion of common variance within a variable is known as communality (Field, 2009). The principal component matrix used in this study works on a common assumption that all the variance is common. This is the reason why before extraction all the communalities are 1 (Table 4.5). The communalities range from .677 to .902 signifying a good factor structure. The average of communalities can also be found out by adding the number of communalities and then dividing by the number of communalities. The average of communalities comes out to be .766 which is again satisfactory.

Table 4.6: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.711	33.525	33.525	7.711	33.525	33.525	3.721	16.178	16.178
2	2.103	9.143	42.668	2.103	9.143	42.668	2.582	11.224	27.402
3	1.819	7.909	50.577	1.819	7.909	50.577	1.936	8.419	35.821
4	1.496	6.504	57.081	1.496	6.504	57.081	1.913	8.319	44.140
5	1.129	4.908	61.988	1.129	4.908	61.988	1.735	7.545	51.685
6	1.098	4.773	66.762	1.098	4.773	66.762	1.531	6.658	58.343
7	.897	3.901	70.663	.897	3.901	70.663	1.479	6.432	64.776
8	.716	3.115	73.777	.716	3.115	73.777	1.392	6.054	70.830
9	.648	2.819	76.597	.648	2.819	76.597	1.326	5.767	76.597
10	.620	2.694	79.290						
11	.593	2.579	81.869						
12	.533	2.317	84.186						
13	.484	2.105	86.291						
14	.470	2.043	88.335						
15	.420	1.827	90.161						
16	.379	1.648	91.809						

17	.374	1.625	93.434						
18	.329	1.431	94.865						
19	.289	1.258	96.123						
20	.257	1.116	97.239						
21	.230	1.001	98.241						
22	.217	.946	99.186						
23	.187	.814	100.000						

Extraction Method: Principal Component Analysis.

Table 4.7: Component Matrix[a]

	Component								
	1	2	3	4	5	6	7	8	9
VP3: Meaningful new ways of differentiating the product / service have emerged	.688								
VP4: Created more USP's for products or services	.727								
VP7: Have helped in adding more features to the offerings	.770								
VP9: Have increased the ease of use	.677								
VP11: Increased the number of value added services a customer gets	.740								
AC2: Skill set of the employees has improved over the period	.643								
AC3: Efficiency of the people has increased	.707								
AC8: Channels have become more responsive to customer requirements	.516	.520							
AC13: Processes have become more streamlined	.516								
EL2: New methods of payment have emerged	.538								
EL3: Existing methods of payment have improved	.632								
EL11: New low cost avenues for advertisement have been created	.569	.558							
EL12: More options for revenue sharing are available		.606							

EL16: Reduced the risks associated in the business									
EL19: Margins in each revenue source have increased			.507						
AB1: Relationship with suppliers has improved									
AB2: Relationship with customers has strengthened									
EL4: Fixed costs in businesses have decreased						-.526			
EL5: Variable costs have decreased	.624								
AB10: Coordination with partners has improved	.676								
AB11: Communication with partners has improved			-.532						
AC1: Number of people working in the organization has gone down without affecting productivity									
AC20: Capital Barriers in business have been reduced to a great extent	.580								

Extraction Method: Principal Component Analysis.
a. 9 components extracted.

The SPSS output before rotation in the table 4.7 shows the component matrix. The blank spaces in the matrix are because researchers have supressed all the loading below .5 to get a matrix with high loadings. Although the matrix is not that important for interpretation but it signifies that before rotation most of the variables load in the first factor. This is the very rationale why it accounts for most of the variance (Table 4.6).

Table 4.8: Rotated Component Matrix.

Variable	**Component**								
	1	2	3	4	5	6	7	8	9
1	.743								
2	.722								
3	.754								
4	.755								
5	.734								
6		.782							
7		.519	.563						
8		.801							
9		.798							
10			.836						
11			.601						
12				.809					
13				.731					
14					.711				
15					.818				
16						.849			
17						.686			
18							.618		
19							.914		
20								.855	
21								.547	

22									.755
23									.590

4.2.6 Interpretation of Factors: The extracted factors, the items under each and the interpreted name for each are presented in Table 4.9. Even though one gets a reasonable impression of what each factor entails by scanning the items, our understanding of the factors is presented in the table.

Table 4.9: Extracted Factors and Factor Naming

Factor	Items	Factor Name
1	Meaningful new ways of differentiating the product / service have emerged	Value Proposition
2	Created more USP's for products or services	
3	Have helped in adding more features to the offerings.	
4	Have increased the ease of use	
5	Increased the number of value added services a customer gets	
1	Channels have become more responsive to customer requirements	Channels
2	New low cost avenues for advertisement have been created	
3	More options for revenue sharing are available	
1	Processes have become more streamlined	Costs
2	Fixed costs in businesses have decreased	
3	Variable costs have decreased	

1	Skill set of the employees has improved over the period	Human Capital
2	Efficiency of the people has increased	
1	Relationship with suppliers has improved	Value Networks
2	Relationship with customers has improved.	
1	Coordination with partners has improved	Linkage with Partners
2	Communication with partners has improved	
1	Number of people working in the organization has gone down without affecting productivity	Assets & Capabilities
2	Capital Barriers in business have been reduced to a great extent	
1	Reduced the risks associated in the business	Revenue Sources
2	Margins in each revenue source have increased	
1	New methods of payment have emerged	Methods of Payment
2	Existing methods of payment have improved	

4.2.7 Confirmatory Factor analysis

The scale development procedure used in this study suggests that the next step for scale purification after exploratory factor analysis is the confirmatory factor analysis. Confirmatory Factor Analysis is a specific case of Structural Equation Modelling (SEM) also know by the

other name of linear structural relationship model (Joreskog & Sorbom, 2004) or covariance structure (McDonald, 1978). The enhancement of scales psychometric properties is reliant on reiteration of confirmatory factor analysis (Bagozzi, 1980; Anderson & Gerbing, 1988 and Arnold & Reynolds, 2003).

SPSS AMOS 19.0 was used to study the nine factor confirmatory model. The model indices are as (Chi-square = 422.560, CMIN/DF=2.178, RMR=.020, CFI=.890, RMSEA=.076). The results reveal that some indices are below the acceptable threshold. The inspection of the squared multiple correlations and modification indices was conducted. Two items were deleted with the aim to improve the confirmatory factor analysis model. Then in the next step researches again examined the squared multiple correlations and modification indices but this time none of the items could be deleted.

The final confirmatory model appeared with 41 items and the results of the model are as (Chi-square= 356.147, CMIN/DF=2.212, RMR=.017, CFI=9.00, RMSEA=.077). Figure-2 provides a broad overview of the CFA model. The final set of 41 items retained in the entire scale is presented in Table 4.12

Table 4.10: Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	68	287.574	142	.000	2.025
Saturated model	210	.000	0		
Independence model	20	1918.404	190	.000	10.097

RMR, GFI

Model	RMR	GFI	AGFI	PGFI

Model	RMR	GFI	AGFI	PGFI
Default model	.019	.886	.831	.599
Saturated model	.000	1.000		
Independence model	.101	.326	.255	.295

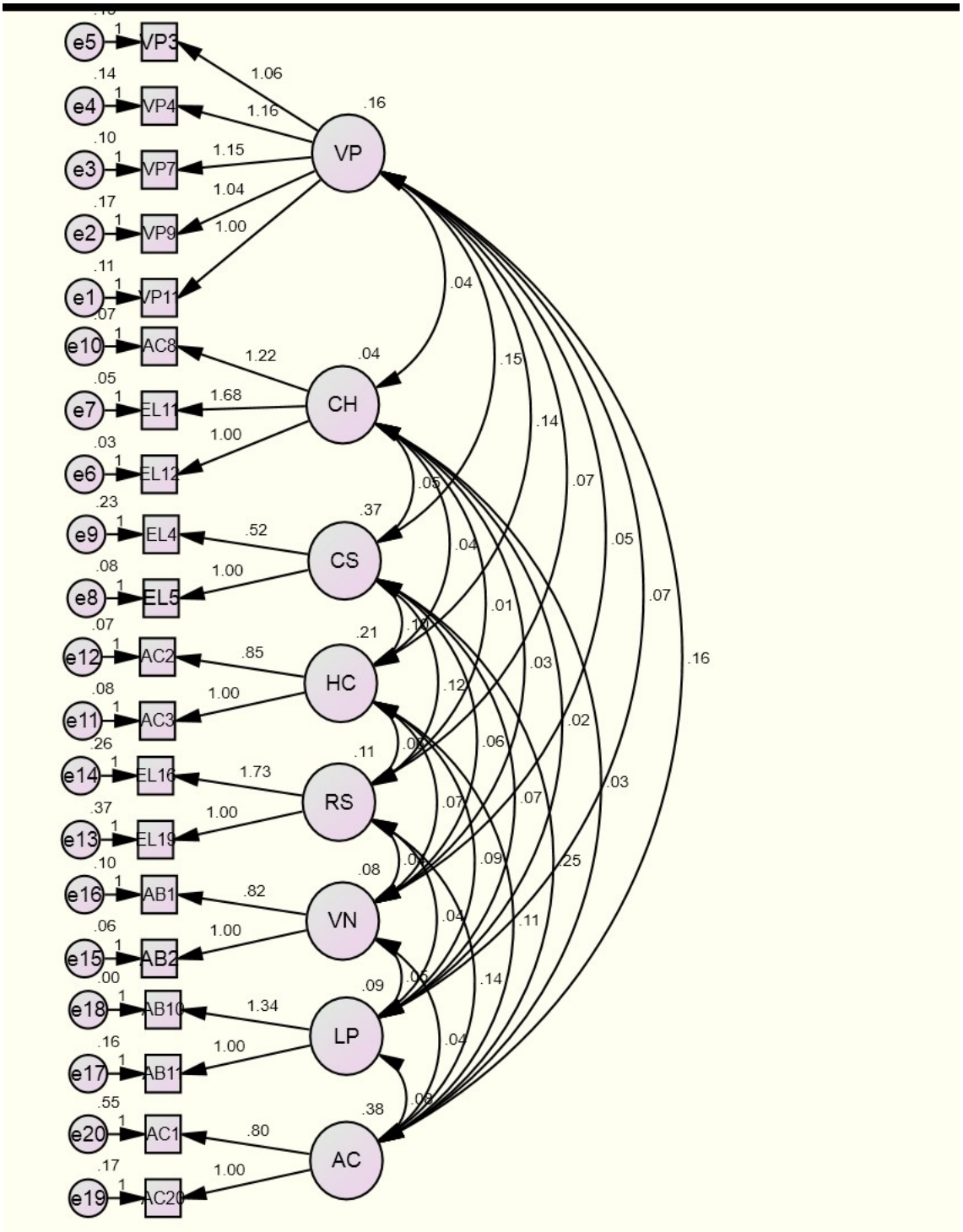
Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.850	.799	.918	.887	.916
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.071	.059	.083	.002
Independence model	.212	.203	.220	.000

Figure 4.2: Confirmatory Factor Analysis Model.



4.3 STAGE 3: SCALE EVALUATION

As depicted from the figure 1 this is the final step in the whole scale development process. One of the main objective of the earlier stages in the scale development was to create measures that demonstrate validity and reliability.

4.3.1 Reliability Testing

IBM, SPSS was again used to check the reliability of the items in the scale covering 8 factors. The Cronbach's alpha is .942 (Table 4.11). This demonstrates a significant degree of internal consistency among the items and indicates that these symbolize a solitary construct- in this case that of business model.

Table 4.11: Reliability Statistics

Cronbach's Alpha	N of Items
.895	20

4.3.2 Construct Validity

Content validity is supposed to answer the question, Does this test measure what it is supposed to measure? Long-time back Guilford (1946) stated that: 'the factorial validity of a test is given by its loadings in meaningful, common reference factors'. According to Nunnally (1978) Construct validity is also knows as factorial validity. This therefore illustrates that the factors their interpretation, reliability measures, exploratory factor analysis provide ample evidence regarding the construct validity of the scale.

Construct validity can also be checked by analysing the average Variance Extracted AVE's. According to Fornell & Larcker, (1981) the average variance of all factors should be around 0.4 or more to determine its construct validity. The average variance extracted in this case ranges between 0.45-0.891. Further the composite reliability of all the measures ranges

0.685- 0.911 which is again way too satisfactory (Hair et al., (1998). Therefore all of these measures provide ample evidence to indicate high degree of convergence between the items. The final scale in presented in the table 4.12.

Table 4.12: Final scale

Factor	Items	Factor Name
1	Meaningful new ways of differentiating the product / service have emerged	Value Proposition
2	Created more USP's for products or services	
3	Have helped in adding more features to the offerings.	
4	Have increased the ease of use	
5	Increased the number of value added services a customer gets	
1	Channels have become more responsive to customer requirements	Channels
2	New low cost avenues for advertisement have been created	
3	More options for revenue sharing are available	
1	Processes have become more streamlined	Costs
2	Fixed costs in businesses have decreased	
3	Variable costs have decreased	
1	Skill set of the employees has improved over the period	Human Capital
2	Efficiency of the people has increased	
1	Relationship with suppliers has improved	Value Networks

2	Relationship with customers has improved.	
1	Coordination with partners has improved	Linkage with Partners
2	Communication with partners has improved	
1	Number of people working in the organization has gone down without affecting productivity	Assets & Capabilities
2	Capital Barriers in business have been reduced to a great extent	
1	Reduced the risks associated in the business	Revenue Sources
2	Margins in each revenue source have increased	

5.0 DATA ANALYSIS

This chapter elaborates on the hypothesis validation and provides in depth hypothesis testing process. The section highlights the various statistical tools used for validating hypothesises. The other sub section highlights the impact of technology across different industries. Lastly this chapter highlights how qualitative data was used to access the role of top management on the business model innovation due to technological developments.

5.1 DESCRIPTIVE STATISTICS

Descriptive statistics helps researchers to analyse, summarize and interpret data in a much more meaningful way. Descriptive statistics provides unpretentious outlines about the data and about the annotations that have been made. Researcher has also made sure that before proceeding ahead with data analysis that there is no interaction between covariates (Malhotra & Dash, 2011). In descriptive statistics only mode and median were calculated for interpreting and analysing data for all the four components of business model innovation like value proposition, assets and capabilities, economic logic and actors in business networks.

5.1.1 Value Proposition

The influence of technology on value proposition construct has been measured using 18 items. The mode and median results in table 5.1, reveal that influence of technology has resulted in increasing the convenience, outlook, differentiation and ease of use. The results highlight that technology has helped in creating unique selling prepositions for the product thereby helping in differentiating the product/service. Further the respondents agree that technology has helped in simplifying the process of the offering which has helped in reducing the cost for the consumer. The results also highlight that technological developments have improved the quality of the product. When the relationship with customers is concerned, technological developments have created new avenues to establish relationships with customers. Finally the data reveals that making customer a part of co-creation has become difficult and matching the needs of the customer with the company offering is becoming challenging day by day but beyond any doubt there are more avenues to reach customer than what their were earlier.

Table 5.1: Descriptive statistics results for Value Proposition

S.No.	Statements	Median	Mode
VP1	The convenience in product/Service handling has increased	2	2
VP2	The product/service outlook has improved making it more appealing for the customers	2	2
VP3	Meaningful new ways of differentiating the product / service have emerged	2	2
VP4	Created more USP's for products or services	2	2
VP5	Has reduced the time of delivery	2	2
VP6	Information regarding Products/Services is readily available.	2	2
VP7	Have helped in adding more features to the offerings	2	2
VP8	Have simplified the process of acquiring the product/ service	2	2
VP9	Have increased the ease of use	2	2
VP10	Has reduced the overall cost for the customer	2	2
VP11	Increased the number of value added services a customer gets	2	2
VP12	Overall quality of the offering has improved	2	2
VP13	Have made products and services accessible to a wider base of customers	2	2
VP14	Exclusivity of the offering has increased	2	2
VP15	More avenues to establish relationship with customers have been created	2	2
VP16	Have made customer as a part of Co- creation process	3	3
VP17	Matching the needs of customer with the company offerings have become easier	3	3
VP18	More Avenues to pass on benefits to the customer creating a win-win situation for both	2	2

5.1.2. Assets and Capabilities

The influence of technology on the assets and capabilities have been measured by 20 items. The results reveal that in general across all the seven industries respondents seem to disagree with the notion that technology has decreased the number of people working in organizations but beyond any doubt the median and mode values indicate that the skill set and efficiency of the people has increased. The results highlight technological developments have created more channels for reaching the customer thereby making channels more responsive to customer requirements. Respondents also agree that new and reliable information sources have emerged as a result of technological developments (Table 5.2).

The mean and mode statistics also suggests that new opportunities for the development of patents have emerged whereas there is not much clarity as weather technology has resulted in more infringement of patents and weather it has made trade secrets available. The respondents seem to agree that across all the seven industries technology has facilitated the development of intellectual capital. Finally the statistics reveals that capital barriers in business have not been removed that much with the technological developments.

Table 5.2: Descriptive Statistics results for Assets & Capabilities.

S.No.	Statements	Median	Mode
AC1	Number of people working in the organization has gone down without affecting productivity	3	4
AC2	Skill set of the employees has improved over the period	2	2
AC3	Efficiency of the people has increased	2	2
AC4	Technology used is becoming obsolete quickly	3	3
AC5	Facilities have become efficient	2	2
AC6	Coordinating distribution channels have become easy	2	2
AC7	Has created more channels for reaching the customer	2	2
AC8	Channels have become more responsive to customer requirements	2	2
AC9	More efficient product lines have been created	2	2
AC10	Reliable information sources have emerged	2	2

AC11	New information sources have emerged	2	2
AC12	Brand visibility has improved	2	2
AC13	Processes have become more streamlined	2	2
AC14	Facilitates knowledge sharing within the organization	2	2
AC15	Opportunities for development of Patents	2	2
AC16	More infringement of patents	3	3
AC17	Made trade secrets accessible	3	3
AC18	Has facilitated development of intellectual capital	2	2
AC19	Better delivery systems	2	2
AC20	Capital Barriers in business have been reduced to a great extent	3	3

5.1.3 Economic Logic

The economic logic or as some researchers like to call it as revenue logic has been measured using 19 items. Economic Logic mainly covers how the firm generates revenue and its cost structure for delivering value proposition. The mean and mode statistics (Table 5.3) reveal that technological developments have reduced the working capital requirements. New and existing methods of payment have emerged. The results reveal that although fixed cost have reduced as a result of technological developments but respondents don't feel the same about variable costs. When economies of scale is concerned, the results reveal that it's still a highly relevant phenomenon in business and has not become irrelevant due to technological developments. On other hand existing production facilities have been used for many purposes that means scope for economies of scale have increased. The median and mode statistics reveals respondents are not sure about the influence of technology in lending and licensing. The technological developments have also brought more options for revenue sharing. The data also reveals that technological developments have increased the profit margins but have not reduced the risk associated in business. Further the results reveal that although operations

costs have gone down but maintenance costs have not followed the similar trend. Finally the descriptive statistics reveals that margins in each revenue source have not increased.

Table 5.3: Descriptive Statistics for Economic Logic of the Firm

S.No.	Statements	Median	Mode
EL1	Working capital requirements have been greatly reduced	2	2
EL2	New methods of payment have emerged	2	2
EL3	Existing methods of payment have improved	2	2
EL4	Fixed costs in businesses have decreased	2	2
EL5	Variable costs have decreased	3	3
EL6	Economies of scale has become irrelevant	4	4
EL7	Existing production facilities are being used for many purposes	2	2
EL8	Convenience in asset sale has increased	2	2
EL9	Facilitates lending	3	3
EL10	Ease in Licensing	3	3
EL11	New low cost avenues for advertisement have been created	2	2
EL12	More options for revenue sharing are available	2	2
EL13	New pricing models have emerged which were not existent earlier	2	2
EL14	Novel revenue sources have emerged	2	2
EL15	Increased the profit margins	2	2
EL16	Reduced the risks associated in the business	3	3
EL17	Operations cost have gone down	2	2
EL18	Maintenance costs have gone down	3	3
EL19	Margins in each revenue source have increased	3	4

5.1.4 Actors in Business Networks

The last sub-construct of business model innovation which is actors in business network has been measured using 17 items. The inspection of the results in the table 5.4 reveals that technological developments have not only improved the relationship with suppliers but also with the customers and have increased the access to large number of customers. The identification of suppliers have become relatively easy and has reduced the risk in partner selection. Respondents seem to unanimously agree that technological developments have helped firms to focus more on their core activities. Further the communication and coordination with partners have also improved. The mean and mode statistics also reveals that technology has facilitated trust between network members which has helped in customer retention and finally there are more options to create new value networks.

Table 5.4: Descriptive Statistics for Actos in Business Networks.

S.No.	Statements	Median	Mode
AB1	Relationship with suppliers has improved	2	2
AB2	Relationship with customers has strengthened	2	2
AB3	Has increased access to large number of customers	2	2
AB4	Number of channel members have decreased	2	2
AB5	Ability to create meaningful partnerships has increased	2	2
AB6	Better post-purchase customer support	2	2
AB7	Identification of supplier have become easy	2	2
AB8	Reduction of risk in partner selection	2	2
AB9	Has helped firms to focus on core activities	2	2
AB10	Coordination with partners has improved	2	2
AB11	Communication with partners has improved	2	2
AB12	More options for knowledge sharing	2	2
AB13	More options for the acquisitions of data	2	2
AB14	Reduction of risk in developing new markets	2	2

AB15	Facilitates trust between network members	2	2
AB16	Facilitates Customer retention	2	2
AB17	More opportunities to create novel value networks	2	2

5.2 HYPOTHESIS VALIDATION

From the detailed and in-depth literature review, business model was decomposed into four set of components or elements. Therefore four hypothesis were framed to analyse the influence of technology on business model innovation. The analysis of the data was done using Factor Analysis and Chi-Square test.

$H_0$1: There is no significant influence of technological developments on Firm's value Proposition.

The research instrument measuring the influence of technological developments on firm's value proposition has multiple dependent variables. Researchers advocate that this problem can be solved by either taking the commuted scores or the factorial scores of the dependent variables. According to DiStefano et.al, (2009) taking factorial scores is more valid and reliable procedure than simply taking the commuted scores. Therefore this study has calculated factorial scores by conducting factor analysis on the value proposition.

Factor Analysis

Factor analysis was run several times on the data set with the aim of improving the factor structure so as to get a matrix with much clear loadings. Researcher has used principal component matrix and for rotation varimax has been used as inter factor correlations were found out to be insignificant. According to Tabachnick & Fidell, (1996) and (Hutcheson & Sofroniou, (1999) the minimum Kaiser-Meyer-Olkin (KMO) for a good factor structure should be 0.60. After running the factor analysis KMO value for value proposition was found out to be .911 (Table 5.5) which signifies a very good factor structure. On the other hand Bartlett's test of sphericity showed a negligible level of significance. Therefore according to both the measures we can proceed with the factor analysis.

Table 5.5 : KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.911
sBartlett's Test of Sphericity	Approx. Chi-Square	1341.467
	Df	105
	Sig.	.000

A total of 60.692 % variance was explained by three factors (Table 5.7). This highlights that a three factor model is associated with the percentage of common variance of 60.692. The first factor consists of 8 items, second 5 items and third consisted of 2 items.

Table 5.6: Item Communalities

	Initial	Extraction
VP1: The convenience in product/Service handling has increased	1.000	.593
VP2: The product/service outlook has improved making it more appealing for the customers	1.000	.610
VP3: Meaningful new ways of differentiating the product / service have emerged	1.000	.660
VP4: Created more USP's for products or services	1.000	.652
VP5: Has reduced the time of delivery	1.000	.514
VP6: Information regarding Products/Services is readily available.	1.000	.568
VP7: Have helped in adding more features to the offerings	1.000	.661
VP9: Have increased the ease of use	1.000	.642
VP10: Has reduced the overall cost for the customer	1.000	.518
VP11: Increased the number of value added services a customer gets	1.000	.635
VP12: Overall quality of the offering has improved	1.000	.496
VP13: Have made products and services accessible to a wider base of customers	1.000	.717
VP15: More avenues to establish relationship with customers have been created	1.000	.681
VP16: Have made customer as a part of Co- creation process	1.000	.500
VP:17 Matching the needs of customer with the company offerings have become easier	1.000	.658

Extraction Method: Principal Component Analysis.

Communalities

The proportion of common variance within a variable is known as communality (Field, 2009). The principal component matrix used in this study works on a common assumption that all the variance is common. This is the reason why before extraction all the communalities are 1 (Table 5.13). The communalities range from .496 to .717 signifying a good factor structure. The average of communalities can also be found out by adding the number of communalities and then dividing by the number of communalities. The average of communalities comes out to be .607 which is again satisfactory.

Table 5.7: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.378	42.519	42.519	6.378	42.519	42.519	4.073	27.152	27.152
2	1.566	10.437	52.956	1.566	10.437	52.956	2.757	18.377	45.529
3	1.160	7.736	60.692	1.160	7.736	60.692	2.274	15.162	60.692
4	.779	5.196	65.888						
5	.728	4.850	70.738						
6	.674	4.495	75.234						
7	.537	3.577	78.811						
8	.518	3.450	82.261						
9	.494	3.295	85.556						
10	.456	3.038	88.593						
11	.450	2.998	91.591						
12	.373	2.489	94.080						
13	.347	2.312	96.392						
14	.316	2.104	98.496						
15	.226	1.504	100.000						

Extraction Method: Principal Component Analysis.

Table 5.8 Component Matrix[a]

	Component		
	1	2	3
VP1: The convenience in product/Service handling has increased	.555	-.524	
VP2: The product/service outlook has improved making it more appealing for the customers	.581		
VP3: Meaningful new ways of differentiating the product / service have emerged	.795		
VP4: Created more USP's for products or services	.766		
VP5: Has reduced the time of delivery	.677		
VP6: Information regarding Products/Services is readily available.	.750		
VP7: Have helped in adding more features to the offerings	.810		
VP9: Have increased the ease of use	.760		
VP10: Has reduced the overall cost for the customer	.628		
VP11: Increased the number of value added services a customer gets	.773		
VP12: Overall quality of the offering has improved	.536		
VP13: Have made products and services accessible to a wider base of customers	.515		.602
VP15: More avenues to establish relationship with customers have been created	.623		.523
VP16: Have made customer as a part of Co- creation process	.569		
VP:17 Matching the needs of customer with the company offerings have become easier		.787	

Extraction Method: Principal Component Analysis.

a. 3 components extracted.

The SPSS output before rotation in the table 5.8 shows the component matrix. The blank spaces in the matrix are because researchers have supressed all the loading below .5 to get a matrix with high loadings. Although the matrix is not that important for interpretation but it signifies that before rotation most of the variables load in the first factor. This is the very rationale why it accounts for most of the variance (Table 5.7).

Rotated component matrix has been used to classify the items under three factors (Table 5.9).According to Karatepe et al., (2005) the least cut off norm for removal of items is the factor loading >.50.

Table 5.9: Rotated Component Matrix[a]

	Component		
	1	2	3
VP1: The convenience in product/Service handling has increased		.739	
VP2: The product/service outlook has improved making it more appealing for the customers		.733	
VP3: Meaningful new ways of differentiating the product / service have emerged			
VP4: Created more USP's for products or services	.622	.500	
VP5: Has reduced the time of delivery	.654		
VP6: Information regarding Products/Services is readily available.	.580		
VP7: Have helped in adding more features to the offerings	.614		
VP9: Have increased the ease of use	.714		
VP10: Has reduced the overall cost for the customer	.683		
VP11: Increased the number of value added services a customer gets		.535	
VP12: Overall quality of the offering has improved	.703		
VP13: Have made products and services accessible to a wider base of customers			.832
VP15: More avenues to establish relationship with customers have been created			.756
VP16: Have made customer as a part of Co- creation process	.688		
VP:17 Matching the needs of customer with the company offerings have become easier		-.613	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 5 iterations.

Factor Naming: The interpretation of the factors, their interpreted names and the items under each factor are highlighted in the Table (5.10). Scaling the items makes pretty much clear of what each factor entails. Researcher's interpretation of the factors is summarised as below:

Table 5.10: Extracted Factors and their Interpretation.

Factor	Items	Factor Name
1	Created more USP's for products or services	Value Capture
2	Has reduced the time of delivery	
3	Information regarding Products/Services is readily available.	
4	Have helped in adding more features to the offerings	
5	Have increased the ease of use	
6	Has reduced the overall cost for the customer	
7	Overall quality of the offering has improved	
8	Have made customer as a part of Co- creation process	
1	The convenience in product/Service handling has increased	Value Creation
2	The product/service outlook has improved making it more appealing for the customers	
3	Increased the number of value added services a customer gets	
4	Matching the needs of customer with the company offerings have become easier	
1	Have made products and services accessible to a wider base of customers	Customer Relationships
2	More avenues to establish relationship with customers have been created	

Chi-Square Test

The above exercise of factor analysis was done to calculate the factorial scores as there were multiple dependent variable. The construct of value proposition was divided into three main sub components. According to DiStefanoet, al (2009) factorial scores can be added to make analysis more meaningful and simpler. Therefore the individual factorial scores were added to get a common factorial score for value proposition. The data set contains two categorical independent groups and the variables are measured at the ordinal and nominal scales (Field, 2009). Therefore the data set satisfies all the necessary conditions of applying the chi-square test.

Table 5.11: Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	179.353[a]	178	.457
Likelihood Ratio	217.021	178	.025
Linear-by-Linear Association	.169	1	.681
N of Valid Cases	204		

a. 358 cells (100.0%) have expected count less than 5. The minimum expected count is .29.

The results reveal that one of the assumptions have been violated as more than 20 % cells have expected count more than 5. According to Field (2009) if this assumption is violated researchers have to ignore the chi-square value and focus on likelihood ratio instead which gives more accurate results. The table reveals that Likelihood ratio = 217.021, P=.025 (Table 5.11). This signifies that the proposed hypothesis has not been supported as the P value is less than the level of significance. Therefore the results reveal that there is a significant influence of technological developments on firm's value proposition.

Hypothesis $H_0$2: There is no significant influence of technological developments on firm's assets and capabilities.

The research instrument measuring the influence of technological developments on firm's assets and capabilities has multiple dependent variables. Researchers have advocated taking either factorial scores or the commuted scores. According to DiStefano et.al, (2009) taking factorial scores is more valid and reliable procedure than simply taking the commuted scores. Therefore this study has calculated factorial scores by conducting factor analysis on the Assets and Capabilities.

Factor Analysis

Several illative layers of factor analysis were run on the data and at every stage communalities and total variance explained were observed. Factors with low communalities were deleted with the aim of improving the factor structure so as to get factors with much clear loadings. After several iterations items like AC1, AC11 and AC14 were deleted as their communalities were less than 3. Principal component matrix has been used and since inter factor correlations were found out to be insignificant so varimax was used for rotation.

According to Tabachnick & Fidell, (1996) in order to proceed ahead with factor analysis the data set should have a minimum Kaiser-Meyer-Olkin (KMO) of .60. The inspection of Table (5.12) reveals that the Kaiser-Meyer-Olkin (KMO) for Assets and capabilities is .796 which is well over the required norm. Further the Bartlett's test of sphericity showed a negligible level of significance. Therefore the results reveal that the sample is good to go for factor analysis.

Table 5.12KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.796
Bartlett's Test of Sphericity	Approx. Chi-Square	1080.147
	df	136
	Sig.	.000

It was clear by 4th iteration that six factors accounted for 67.192 % of the variance (Table 5.14). The first factor consists of four items, second one consisted of five items, third one consisted of three factors, fourth one consisted of two items, fifth one consisted of two items and the sixth one had only one item.

Table 5.13 Communalities

	Initial	Extraction
AC2: Skill set of the employees has improved over the period	1.000	.725
AC3: Efficiency of the people has increased	1.000	.727
AC4: Technology used is becoming obsolete quickly	1.000	.728
AC5: Facilities have become efficient	1.000	.583
AC6: Coordinating distribution channels have become easy	1.000	.694
AC7: Has created more channels for reaching the customer	1.000	.527
AC8: Channels have become more responsive to customer requirements	1.000	.762
AC9: More efficient product lines have been created	1.000	.697
AC10: Reliable information sources have emerged	1.000	.646
AC12: Brand visibility has improved	1.000	.747
AC13: Processes have become more streamlined	1.000	.671
AC15: Opportunities for development of Patents	1.000	.663
AC16: More infringement of patents	1.000	.742
AC17: Made trade secrets accessible	1.000	.588
AC18: Has facilitated development of intellectual capital	1.000	.653
AC19: Better delivery systems	1.000	.624
AC20: Capital Barriers in business have been reduced to a great extent	1.000	.644

Extraction Method: Principal Component Analysis.

Communalities

The proportion of common variance within a variable is known as communality (Field, 2009). The principal component matrix used in this study works on a common assumption that all the variance is common. This is the reason why before extraction all the communalities are 1 (Table 5.13). The communalities range from .527 to .747 signifying a good factor structure. The average of communalities can also be found out by adding the number of communalities and then dividing by the number of communalities. The average of communalities comes out to be .67182 which is again satisfactory.

Table 5.14: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.902	28.836	28.836	4.902	28.836	28.836	3.018	17.750	17.750
2	1.809	10.642	39.478	1.809	10.642	39.478	2.971	17.475	35.226
3	1.429	8.405	47.883	1.429	8.405	47.883	1.727	10.159	45.385
4	1.177	6.925	54.808	1.177	6.925	54.808	1.317	7.748	53.133
5	1.083	6.372	61.180	1.083	6.372	61.180	1.246	7.327	60.460
6	1.022	6.012	67.192	1.022	6.012	67.192	1.144	6.732	67.192
7	.872	5.127	72.319						
8	.727	4.278	76.598						
9	.671	3.950	80.548						
10	.596	3.505	84.053						
11	.560	3.294	87.347						
12	.496	2.918	90.265						
13	.412	2.421	92.686						
14	.409	2.406	95.092						
15	.327	1.922	97.014						
16	.274	1.609	98.623						
17	.234	1.377	100.000						

Extraction Method: Principal Component Analysis.

Table 5.15 Component Matrix[a]

	Component					
	1	2	3	4	5	6
AC2: Skill set of the employees has improved over the period	.646					
AC3: Efficiency of the people has increased	.679					
AC4: Technology used is becoming obsolete quickly						
AC5: Facilities have become efficient	.668					
AC6: Coordinating distribution channels have become easy	.731					
AC7: Has created more channels for reaching the customer	.597					
AC8: Channels have become more responsive to customer requirements	.599	-.605				
AC9: More efficient product lines have been created	.554	-.535				
AC10: Reliable information sources have emerged	.555					
AC12: Brand visibility has improved					.678	
AC13: Processes have become more streamlined	.576					
AC15: Opportunities for development of Patents	.504			.581		
AC16: More infringement of patents			.763			
AC17: Made trade secrets accessible						
AC18: Has facilitated development of intellectual capital	.641					
AC19: Better delivery systems	.557					
AC20: Capital Barriers in business have been reduced to a great extent						.604

Extraction Method: Principal Component Analysis.

a. 6 components extracted.

The SPSS output before rotation in the table 5.15 shows the component matrix. The blank spaces in the matrix are because researchers have supressed all the loading below .5 to get a matrix with high loadings. Although the matrix is not that important for interpretation but it signifies that before rotation most of the variables load in the first factor. This is the very rationale why it accounts for most of the variance (Table 5.14).

Rotated component matrix has been used to classify the items under six factors (Table 5.16).According to Karatepe et al., (2005) the least cut off norm for removal of items is the factor loading >.50

Table 5.16: Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
AC2: Skill set of the employees has improved over the period		.816				
AC3: Efficiency of the people has increased		.786				
AC4: Technology used is becoming obsolete quickly			.806			
AC5: Facilities have become efficient	.675					
AC6: Coordinating distribution channels have become easy		.508				
AC7: Has created more channels for reaching the customer			.523			
AC8: Channels have become more responsive to customer requirements	.830					
AC9: More efficient product lines have been created	.795					
AC10: Reliable information sources have emerged		.717				
AC12: Brand visibility has improved				.772		

AC13: Processes have become more streamlined					-.511	
AC15: Opportunities for development of Patents			.634			
AC16: More infringement of patents				.752		
AC17: Made trade secrets accessible					.695	
AC18: Has facilitated development of intellectual capital		.720				
AC19: Better delivery systems	.683					
AC20: Capital Barriers in business have been reduced to a great extent						.772

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 7 iterations.

Factor Naming

The interpretation of the factors, their interpreted names and the items under each factor are highlighted in the Table (5.17). Scaling the items makes pretty much clear of what each factor entails. Researcher's interpretation of the factors is summarised as below:

Table 5.17: Factors and their Interpretation

Factor	Items	Factor Name
1	Facilities have become efficient	Facilities
2	Channels have become more responsive to customer requirements	
3	More efficient product lines have been created	
4	Better delivery systems	
1	Skill set of the employees has improved over the period	Human Capital
2	Efficiency of the people has increased	
3	Coordinating distribution channels have become easy	
4	Reliable information sources have emerged	
5	Has facilitated development of intellectual capital	

1	Technology used is becoming obsolete quickly	Channels
2	Has created more channels for reaching the customer	
3	Opportunities for development of Patents	
1	Brand visibility has improved	Capabilities
2	More infringement of patents	
1	Processes have become more streamlined	Operational Effectiveness
2	Made trade secrets accessible	

Chi- Square Test

The inspection of the results in the table 5.14 reveal that one of the assumptions have been violated as more than 20 % cells have expected count more than 5. According to Field (2009) if this assumption is violated researchers have to ignore the chi-square value and focus on likelihood ratio instead which gives more accurate results. The table reveals that Likelihood ratio= 204.263, df= 156, P=.006 (Table 5.18) signifying that the proposed hypothesis has not been supported as the P value is below the level of significance of 5 %. Therefore the results reveal that there is a significant influence of technological developments on firm's Assets & Capabilities.

Table 5.18: Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	169.540[a]	156	.217
Likelihood Ratio	204.263	156	.006
Linear-by-Linear Association	.888	1	.346
N of Valid Cases	203		

a. 313 cells (99.7%) have expected count less than 5. The minimum expected count is .29.

Hypothesis $H_0$3: There is a significant influence of technological developments on firm's economic logic or revenue logic

The instrument measuring the influence of technology on firm's Economic logic or revenue logic has multiple dependent variables. So as per the general opinion of researchers cumulative or factorial scores can be calculated. According to DiStefano et.al, (2009) taking factorial scores is more valid and reliable procedure than simply taking the commuted scores. This study has taken factorial scores into consideration as they are considered to be more valid and rational than the cumulative scores.

Factor analysis

According to Tabachnick & Fidell, (1996) in order to proceed ahead with factor analysis the data set should have a minimum Kaiser-Meyer-Olkin (KMO) of .60. The inspection of Table 5.19 reveals that the Kaiser-Meyer-Olkin (KMO) for Assets and capabilities is .788 which is well over the required norm. Further the Bartlett's test of sphericity showed a negligible level of significance. Therefore the results reveal that the sample is good to go for factor analysis.
Several illative layers of factor analysis were run on the data and at every stage communalities and total variance explained was observed. Factors with low communalities were deleted with the aim of improving the factor structure so as to get factors with much clear loadings. After running factor analysis twice only one item EL6, was deleted as its communality value was less than 3. Principal component matrix has been used and since inter factor correlations were found out to be insignificant so varimax was used for rotation.

Table 5.19: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.788
Bartlett's Test of Sphericity	Approx. Chi-Square	1375.158
	Df	153
	Sig.	.000

It was clear by 2nd iteration that six factors accounted for 67.637 % of the variance (Table 5.21). The first factor consists of the five items, second one consisted of five items, third one consisted of three factors, fourth one consisted of three items, fifth one consisted of two items and the sixth one had only one item.

Table 5.20: Communalities

	Initial	Extraction
EL:1 Working capital requirements have been greatly reduced	1.000	.633
EL2: New methods of payment have emerged	1.000	.831
EL3: Existing methods of payment have improved	1.000	.767
EL4: Fixed costs in businesses have decreased	1.000	.620
EL5: Variable costs have decreased	1.000	.599
EL8: Convenience in asset sale has increased	1.000	.623
EL9: Facilitates lending	1.000	.788
EL10: Ease in Licensing	1.000	.735
EL11: New low cost avenues for advertisement have been created	1.000	.692
EL12: More options for revenue sharing are available	1.000	.807
EL13: New pricing models have emerged which were not existent earlier	1.000	.672
EL14: Novel revenue sources have emerged	1.000	.655
EL15: Increased the profit margins	1.000	.610
EL17: Operations cost have gone down	1.000	.704
EL18: Maintenance costs have gone down	1.000	.679
EL19: Margins in each revenue source have increased	1.000	.662
EL7: Existing production facilities are being used for many purposes	1.000	.549
EL16: Reduced the risks associated in the business	1.000	.549

Extraction Method: Principal Component Analysis.

Communalities

The proportion of common variance within a variable is known as communality (Field, 2009). The principal component matrix used in this study works on a common assumption that all the variance is common. This is the reason why before extraction all the communalities are 1 (Table 5.13). The communalities range from .549 to .831 signifying a

good factor structure. The average of communalities can also be found out by adding the number of communalities and then dividing by the number of communalities. The average of communalities comes out to be .676 which is again satisfactory.

Table 5.21: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.535	30.749	30.749	5.535	30.749	30.749	2.767	15.373	15.373
2	1.956	10.865	41.614	1.956	10.865	41.614	2.363	13.127	28.500
3	1.414	7.855	49.468	1.414	7.855	49.468	2.034	11.301	39.801
4	1.246	6.925	56.393	1.246	6.925	56.393	1.853	10.295	50.096
5	1.024	5.688	62.080	1.024	5.688	62.080	1.700	9.444	59.540
6	1.000	5.556	67.637	1.000	5.556	67.637	1.457	8.096	67.637
7	.880	4.888	72.524						
8	.686	3.810	76.335						
9	.663	3.683	80.018						
10	.638	3.545	83.563						
11	.566	3.143	86.706						
12	.553	3.070	89.776						
13	.442	2.454	92.230						
14	.385	2.140	94.370						
15	.327	1.817	96.187						
16	.298	1.656	97.843						
17	.233	1.294	99.137						
18	.155	.863	100.000						

Extraction Method: Principal Component Analysis.

Table 5.22Component Matrix[a]

	Component					
	1	2	3	4	5	6
EL:1 Working capital requirements have been greatly reduced	.599					
EL2: New methods of payment have emerged	.521					-.652
EL3: Existing methods of payment have improved	.622					
EL4: Fixed costs in businesses have decreased	.585					
EL5: Variable costs have decreased	.674					
EL8: Convenience in asset sale has increased			-.559			
EL9: Facilitates lending	.601					
EL10: Ease in Licensing	.718					
EL11: New low cost avenues for advertisement have been created	.614					
EL12: More options for revenue sharing are available	.549	-.503				
EL13: New pricing models have emerged which were not existent earlier	.695					
EL14: Novel revenue sources have emerged	.694					
EL15: Increased the profit margins	.551					
EL17: Operations cost have gone down			.515		.542	
EL18: Maintenance costs have gone down				.556		
EL19: Margins in each revenue source have increased		.600				
EL7: Existing production facilities are being used for many purposes		-.506				
EL16: Reduced the risks associated in the business						

Extraction Method: Principal Component Analysis.

a. 6 components extracted.

The SPSS output before rotation in the table 5.22 shows the component matrix. The blank spaces in the matrix are because researchers have supressed all the loading below .5 to get a matrix with high loadings. Although the matrix is not that important for interpretation but it signifies that before rotation most of the variables load in the first factor. This is the very rationale why it accounts for most of the variance (Table 5.21).

Table 5.23: Rotated Component Matrix

	Component					
	1	2	3	4	5	6
EL:1 Working capital requirements have been greatly reduced		.656				
EL2: New methods of payment have emerged					.791	
EL3: Existing methods of payment have improved					.767	
EL4: Fixed costs in businesses have decreased				.563		
EL5: Variable costs have decreased		.509				
EL8: Convenience in asset sale has increased			.692			
EL9: Facilitates lending			.816			
EL10: Ease in Licensing			.662			
EL11: New low cost avenues for advertisement have been created	.758					
EL12: More options for revenue sharing are available	.888					
EL13: New pricing models have emerged which were not existent earlier	.573			.531		

EL14: Novel revenue sources have emerged	.519					
EL15: Increased the profit margins		.688				
EL17: Operations cost have gone down				.803		
EL18: Maintenance costs have gone down						.778
EL19: Margins in each revenue source have increased		.624				
EL7: Existing production facilities are being used for many purposes	.602					
EL16: Reduced the risks associated in the business		.691				

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 11 iterations.

Rotated component matrix has been used to classify the items under six factors (Table 5.23).According to Karatepe et al., (2005) the least cut off norm for removal of items is the factor loading >.50

Factor Naming

The interpretation of the factors, their interpreted names and the items under each factor are highlighted in the Table (5.24). Scaling the items makes pretty much clear of what each factor entails. Researcher's interpretation of the factors is summarised as below:

Table 5.24: Factors and their Interpretation

Factor	Items	Factor Name
1	New low cost avenues for advertisement have been created	Revenue Sources
2	More options for revenue sharing are available	

3	New pricing models have emerged which were not existent earlier	
4	Novel revenue sources have emerged	
5	Existing production facilities are being used for many purposes	
1	Working capital requirements have been greatly reduced	Profit Margins
2	Variable costs have decreased	
3	Increased the profit margins	
4	Margins in each revenue source have increased	
5	Reduced the risks associated in the business	
1	Convenience in asset sale has increased	Lending & Licensing
2	Facilitates lending	
3	Ease in Licensing	
1	Fixed costs in businesses have decreased	Costs
2	Operations cost have gone down	
1	New methods of payment have emerged	Methods of payment
2	Existing methods of payment have improved	

Chi-Square Test

The inspection of the results in the table 5.19 reveals that one of the assumptions have been violated as more than 20 % cells have expected count more than 5. According to Field (2009) if this assumption is violated researchers have to ignore the chi-square vale and focus on likelihood ratio instead which gives more accurate results. The table reveals that Likelihood ratio= 197.832, df= 155, P=.011 (Table 5.25) signifying that the proposed hypothesis has not been supported as the P value is below the level of significance of 5 % . Therefore the results reveal that there is a significant influence of technological developments on firm's Economic logic or the Revenue logic.

Table 5.25: Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	162.999[a]	155	.314
Likelihood Ratio	197.832	155	.011
Linear-by-Linear Association	.797	1	.372
N of Valid Cases	204		

a. 312 cells (100.0%) have expected count less than 5. The minimum expected count is .29.

Hypothesis $H_0$4: There is no significant influence of technological developments on firm's actors in business networks.

The instrument measuring the influence of technology on firm's Actors in business network has multiple dependent variables. So as per the general opinion of researchers cumulative or factorial scores can be calculated. According to DiStefano et.al, (2009) taking factorial scores is more valid and reliable procedure than simply taking the commuted scores. This study has taken factorial scores into consideration as they are considered to be more valid and rational than the cumulative scores.

Factor analysis

According to Tabachnick & Fidell, (1996) in order to proceed ahead with factor analysis the data set should have a minimum Kaiser-Meyer-Olkin (KMO) of .60. The inspection of Table 5.26 reveals that the Kaiser-Meyer-Olkin (KMO) for Actors in Business Network is .786, which is well over the required norm. Further the Bartlett's test of sphericity showed a negligible level of significance. Therefore the results reveal that the sample is good to go for factor analysis.

Several illative layers of factor analysis were run on the data and at every stage communalities and total variance explained was observed. Factors with low communalities were deleted with the aim of improving the factor structure so as to get factors with much clear loadings. After running factor analysis twice only one item EL6, was deleted as its

communality value was less than 3. Principal component matrix has been used and since inter factor correlations were found out to be insignificant so varimax was used for rotation.

Table 5.26: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.786
Bartlett's Test of Sphericity	Approx. Chi-Square	724.186
	Df	78
	Sig.	.000

It was clear by 2nd iteration that five factors accounted for 67.637 % of the variance (Table 5.28). The first factor consists of the six items, second one consisted of two items, third one consisted of three items, fourth one consisted of one item, and fifth one consisted of one item.

Table 5.27: Communalities

	Initial	Extraction
AB1: Relationship with suppliers has improved	1.000	.610
AB2: Relationship with customers has strengthened	1.000	.585
AB3: Has increased access to large number of customers	1.000	.628
AB5: Ability to create meaningful partnerships has increased	1.000	.598
AB6: Better post-purchase customer support	1.000	.573
AB7: Identification of supplier have become easy	1.000	.925
AB8: Reduction of risk in partner selection	1.000	.709
AB10: Coordination with partners has improved	1.000	.695

AB11: Communication with partners has improved	1.000	.659
AB13: More options for the acquisitions of data	1.000	.848
AB14: Reduction of risk in developing new markets	1.000	.699
AB15: Facilitates trust between network members	1.000	.623
AB17: More opportunities to create novel value networks	1.000	.610

Extraction Method: Principal Component Analysis.

Communalities

The proportion of common variance within a variable is known as communality (Field, 2009). The principal component matrix used in this study works on a common assumption that all the variance is common. This is the reason why before extraction all the communalities are 1 (Table 5.13). The communalities range from .573 to .925 signifying a good factor structure. The average of communalities can also be found out by adding the number of communalities and then dividing by the number of communalities. The average of communalities comes out to be .674 which is again satisfactory.

Table 5.28: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.235	32.577	32.577	4.235	32.577	32.577	3.202	24.634	24.634
2	1.312	10.091	42.668	1.312	10.091	42.668	1.722	13.247	37.881
3	1.132	8.708	51.376	1.132	8.708	51.376	1.640	12.612	50.493
4	1.084	8.335	59.710	1.084	8.335	59.710	1.159	8.919	59.411
5	1.001	7.697	67.407	1.001	7.697	67.407	1.039	7.996	67.407
6	.789	6.070	73.477						
7	.702	5.397	78.874						
8	.672	5.168	84.042						
9	.547	4.206	88.248						
10	.503	3.873	92.121						
11	.455	3.502	95.623						
12	.324	2.489	98.112						
13	.245	1.888	100.000						

Extraction Method: Principal Component Analysis.

Rotated component matrix has been used to classify the items under five factors (Table 5.29).According to Karatepe et al., (2005) the least cut off norm for removal of items is the factor loading >.50.

Table 5.29: Rotated Component Matrix[a]

	Component				
	1	2	3	4	5
AB1: Relationship with suppliers has improved			.703		
AB2: Relationship with customers has strengthened			.623		
AB3: Has increased access to large number of customers			.773		
AB5: Ability to create meaningful partnerships has increased		.698			
AB6: Better post-purchase customer support	.626				
AB7: Identification of supplier have become easy					.958
AB8: Reduction of risk in partner selection		.830			
AB10: Coordination with partners has improved	.786				
AB11: Communication with partners has improved	.743				
AB13: More options for the acquisitions of data				.896	
AB14: Reduction of risk in developing new markets	.578				
AB15: Facilitates trust between network members	.698				

AB17: More opportunities to create novel value networks	.742				

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 6 iterations.

Table 5.30: Component Matrix[a]

	Component				
	1	2	3	4	5
AB1: Relationship with suppliers has improved	.544				
AB2: Relationship with customers has strengthened	.642				
AB3: Has increased access to large number of customers					
AB5: Ability to create meaningful partnerships has increased		.517			
AB6: Better post-purchase customer support	.676				
AB7: Identification of supplier have become easy					.884
AB8: Reduction of risk in partner selection		.602			
AB10: Coordination with partners has improved	.790				
AB11: Communication with partners has improved	.597				
AB13: More options for the acquisitions of data			.586		
AB14: Reduction of risk in developing new markets	.618				

AB15: Facilitates trust between network members	.744				
AB17: More opportunities to create novel value networks	.727				

Extraction Method: Principal Component Analysis.

a. 5 components extracted.

The SPSS output before rotation in the table 5.30 shows the component matrix. The blank spaces in the matrix are because researchers have supressed all the loading below .5 to get a matrix with high loadings. Although the matrix is not that important for interpretation but it signifies that before rotation most of the variables load in the first factor. This is the very rationale why it accounts for most of the variance (Table 5.29).

Factor Naming

The interpretation of the factors, their interpreted names and the items under each factor are highlighted in the Table (5.31). Scaling the items makes pretty much clear of what each factor entails. Researcher's interpretation of the factors is summarised as below:

Table: 5.31 Factors and their Interpretation

Factor	Items	Factor Name
1	Better post-purchase customer support	Coordination & Communication
2	Coordination with partners has improved	
3	Communication with partners has improved	
4	Reduction of risk in developing new markets	
5	Facilitates trust between network members	
6	More opportunities to create novel value networks	
1	Ability to create meaningful partnerships has increased	Partners
2	Reduction of risk in partner selection	
1	Relationship with suppliers has improved	Value Networks
2	Relationship with customers has strengthened	

3	Has increased access to large number of customers	

Chi- Square Test

The inspection of the results in the table below reveal that one of the assumptions have been violated as more than 20 % cells have expected count more than 5. According to Field (2009) if this assumption is violated researchers have to ignore the chi-square vale and focus on likelihood ratio instead which gives more accurate results. The table reveals that Likelihood ratio= 175.270, df= 128, P=.004 (Table 5.32) signifying that the proposed hypothesis has not been supported as the P value is below the level of significance of 5 %. Therefore the results reveal that there is a significant influence of technological developments on firm's actors in business networks.

Table 5.32: Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	146.056[a]	128	.131
Likelihood Ratio	175.270	128	.004
Linear-by-Linear Association	2.216	1	.137
N of Valid Cases	202		

a. 254 cells (98.4%) have expected count less than 5. The minimum expected count is .29.

Hypothesis 2: There is no significant influence of top management on the business model innovation due to technological developments.

To study the role of top management in business model innovation due to technological developments 14 interviews were conducted with the top management of some top notch multinational firms in India. A structured schedule was used for interviewing the top executives. The duration of interviews ranged from 15-45 minutes. The interviews were conducted face to face and some were conducted via a telephone keeping the occupancy and

the busy schedule of top management into consideration. Researcher prepared transcripts for the every interview and the data was analysed using Atlas Ti 6.0, a well-known and widely accepted software for analysing the qualitative data.

The data analysis of qualitative data from the interviews highlighted that the top level executives are not able to define the term business model. The definition of the term business model by businesses is altogether different from the definition of the academicians. Top management doesn't specifically define business models solely as how a firm creates or captures value but define it as an overall blueprint of an organization. The data from the interviews highlights that business model includes the product strategy, marketing strategy, promotional strategy, pricing strategy, and the overall business strategy. These findings again highlight a very important dimension that there is still lack of clarity on the basic nature of the term business model. These findings are again in line with the findings of Amit & Zott (2011) which highlighted the similar perspective.

The data analysis using Atlas TI 6.0, suggested that the business model innovation cannot be exclusively termed as a top down approach and in fact criticizes organizations for labelling it as a top down approach. Companies are breaking down all the barriers, bringing down hierarchies and empowering employees across all levels of management and feedback is taken across all the levels of management. Further the executive's unanimously feel that bulk of the innovation always happens at the lower levels of management which points out that business model innovation cannot be wholly and solely top management driven initiative. At the same time top management has a much wider role to play looking at the 360 degree view of the firm which they have and their involvement in the daily functioning of the firm.

This study has adopted Foss and Stieglitz, (2014) framework for explaining the different technological developments. They have categorized technological developments into four types viz. incremental, radical, architectural and Knightian. This analysis of the qualitative data highlighted that the role of top management varies as per the nature of the technological development. When the change in technology is incremental in most cases the change would result in a sort of refinement of the existing business model. The previous literature on business model leadership reveals that this role can be passed on to subordinates (Foss & Stieglitz, 2014), but this study argues that no matter how small the change in business model is, it cannot be passed on to the subordinates or the lower levels in organization. The rationale

being that no matter how small a change in business model it's a big change in itself. Top management needs to take an active role and develop management teams or a working group comprising of people from across the departments to take a stock of the change.

Whenever the technological change is radical in nature it puts more demands on the job of top management than the incremental change. Top management has to be very vigilant and active in dealing with this types of technological developments. Under no circumstances a blind eye cannot be turned towards this type of technological change because any leniency by the top management can result in serious loss to the firm which will indeed harm the profitability of firm thereby putting question marks over its survival in the long run. The analysis of the data reveals that the top management has to go for a new business model which will complement this new technological development. Top management needs to bring all the stakeholders together and trigger the search of a new business model which will accommodate this new technological development.

Architectural change is quite demanding and requires loads of commitments and efforts from the top management than any other change. This simply makes the existing way of value creation somehow inappropriate and questionable. Henceforth top management has to pull up their socks and go for a transformation as how a business model can be designed to accommodate the technological change. The CEO needs to provide a comprehensive roadmap and also engage in day to day functioning of the new business model. CEO needs to provide the daily guidance because the whole business model has been changed and employees would not be so familiar with its functioning.

Knightian uncertainty comes when a new technological development makes an existing way of creating value irrelevant, costly and questionable. We have seen in past also as how tech companies have changed and broken down the cost and economies of scale barriers by innovating the business models with the help of technology like Uber, Airbnb, Xiaomi (Bashir, Yousaf & Verma, 2016). If there is a knightian uncertainty the firm has to be a part of the chain. The quickest and the easiest way of this is to simply acquire a new company if the existing firm has the financial muscle or by simply merging with the new firm. Although this can be quite challenging as mergers and acquisitions don't have a good record primarily due to culture issues but despite that this is the only way around. Top management cannot

watch it as a bystander. So organizations has to be a part of it. That is the reason why over the last decade many companies have started investing in small start-ups, so that they can protect their territories and make themselves sustainable over the time.

On the other hand when the top managerial skills are concerned they also play a significant role in business model innovation. Top management skills like entrepreneur skills, management skills and managerial ties do have a positive as well as negative role to play in the business model innovation. Top managerial skills like taking the maximum advantage of the available resources and managing the people by providing a sound leadership skills do have a positive influence on the business model innovation. While on the other hand Entrepreneur skills help firms in converting new opportunities into new business models. Finally the connectivity of top management with the suppliers, customers and other stakeholders knows as the managerial ties plays a significant role on the business model innovation. The more a CEO is involved with the suppliers and customers, chances are high that he will have a better chance of converting new opportunities into new business models. That is the reason why organizations spend a lot of time and energy in getting the feedback system right and aligned with the business models so that every idea at any level of organization reaches to the top management. While any leniency and lack of initiatives by top management will make a firm stagnant thereby making its future growth prospects questionable.

5.3 Impact of Technology across Different Industries

Data has been collected across seven industries like Information Technology, Telecommunication, Banking, Insurance, Media & Entertainment, Publishing and academia covering 42 top notch multinational companies of India as per the revenues and market share. In academia data has been collected from top 5 universities of north India as per the QS ranking of 2014. One of the rationale of collecting data from different industries is to access whether the impact is the same across industries or it varies from industry to industry. To analyse the impact on different industries Kruskal-Wallis H test has been used.

5.3.2 Kruskal Wallis H Test

The Kruskal Wallis H test is an alternative for one way Annova which can be used to determine whether there is a significant difference between three or more than three groups while in some case researchers can even use two groups only. Kruskal Wallis H test is a non-parametric test and simply an extension to Man- Whitney U test. Before proceeding for the further analysis of data using this test researchers made sure to check whether the data satisfies all the necessary assumptions. The test has the following conditions.

1. The dependent variables has been measured using Likert scale which suffices the condition of using ordinal or continuous scale.
2. The independent variable is categorical having seven categories. Therefore the condition of having a categorical variable with more than two groups has been fulfilled.
3. There is an independence of observations as there is no relationship amongst the observations in each group or amongst the groups themselves.

Therefore the data set satisfies all the necessary assumption for applying the Kruskal Wallis H test.

Table 5. 33: Descriptive Statistics

	Mean	Std. Deviation	Minimum	Maximum
FVP	.0000	.57735	-1.51	2.63
FAC	.0000	.40825	-1.64	1.95
FEL	.0000	.44721	-1.27	1.66
FAB	.0000	.44721	-1.61	2.32
Industry	3.69	2.007	1	7

Table 5. 34: Mean Ranks across industries

	Industry	Mean Rank
FVP	Information Technology	111.36

	Banking	89.87
	Telecommunication	126.87
	Insurance	100.42
	Publishing	86.46
	Media & Entertainment	62.38
	Education	137.17
	Total	
FAC	Information Technology	113.82
	Banking	90.16
	Telecommunication	117.62
	Insurance	109.35
	Publishing	97.37
	Media & Entertainment	56.08
	Education	123.78
	Total	
FEL	Information Technology	103.60
	Banking	109.58
	Telecommunication	135.98
	Insurance	101.58
	Publishing	90.12
	Media & Entertainment	57.82
	Education	111.17
	Total	
FAB	Information Technology	99.33
	Banking	98.37
	Telecommunication	120.95
	Insurance	112.92
	Publishing	84.92
	Media & Entertainment	65.04
	Education	128.26
	Total	

The mean rank column (Table 5.34) shows that for the value proposition among the seven industries the highest mean rank is of Education sector followed by Telecommunication, Information technology, Banking, Publishing and then the Media and Entertainment industry. As far as the Assets and capabilities of firm are concerned the highest mean rank is of Education, Telecommunication, Information Technology, Insurance, Publishing, Banking and then the Media & Entertainment. When the Economic logic of the firms is concerned the highest mean rank is of telecommunication followed by education, banking, information technology, insurance, publishing and then the Media & Entertainment. Finally as far as the influence on actors in business networks is concerned the highest mean rank is of education followed by telecommunication, Insurance, Information Technology, Banking, Publishing and then the media and entertainment industry.

Table 5.35: Test Statistics[a,b,c]

	FVP	FAC	FEL	FAB
Chi-Square	28.847	23.963	26.082	21.140
Df	6	6	6	6
Asymp. Sig.	.000	.001	.000	.002

a. Kruskal Wallis Test

b. Grouping Variable: Industry

Value Proposition

The test statistics (Table 5.35) highlights that the Chi-Square value of 28.847, P=0.00 with mean ranks of 137.15, 126.87, 111.36, 100.42, 89.87, 86.46, and 62.38 indicate that there is a statically significant difference on the influence of technology on the value proposition across different industries like Information Technology, Telecommunication, Banking, Insurance, Media & Entertainment and Academia. The effect size can also be calculated by dividing chi-square by N-1. The effect size in this case comes out to be equal to 14.21 which is very significant in case of social sciences.

Assets & Capabilities

The test statistics (Table 5.35) highlights that the Chi-Square value of 23.963, P=0.001 with mean ranks of 123.78, 117.62, 113.82, 109.35, 97.37, 90.16 and 56.08 indicate that there is a statically significant difference on the influence of technology on the assets and capabilities across different industries like Information Technology, Telecommunication, Banking, Insurance, Media & Entertainment and Academia. The effect size can also be calculated by dividing chi-square by N-1. The effect size in this case comes out to be equal to 11.80 which is very significant in case of social sciences.

Economic Logic

The test statistics (Table 5.35) highlights that the Chi-Square value of 26.082, P=0.00 with mean ranks of 135.98, 111.17, 109.58, 103.6, 101.58, 90.12 and 57.82 indicate that there is a statically significant difference on the influence of technology on the assets and capabilities across different industries like Information Technology, Telecommunication, Banking, Insurance, Media & Entertainment and Academia. The effect size can also be calculated by dividing chi-square by N-1. The effect size in this case comes out to be equal to 11.37 which is very significant in case of social sciences.

Actors in Business Networks

The test statistics (Table 5.35) highlights that the Chi-Square value of 21.140, P=0.002 with mean ranks of 128.26, 120.95, 112.92, 99.33, 98.37, 84.92 and 65.04 indicate that there is a statically significant difference on the influence of technology on the assets and capabilities across different industries like Information Technology, Telecommunication, Banking, Insurance, Media & Entertainment and Academia. The effect size can also be calculated by dividing chi-square by N-1. The effect size in this case comes out to be equal to 10.41 which is significant in case of social sciences.

The results revealed that all the four components of business model innovation like the Value Proposition, Assets and Capabilities, Economic Logic and Actors in Business Networks have a statistically significant difference across the seven different industries. Therefore we can conclude that overall the influence of technology on business model innovation is statistically significant across different industries but whether there is a significant difference across the groups cannot be predicted. Therefore in order to know where the difference lies across groups researcher has run a Post Hoc test.

5.3.3 Post Hoc Test

IBM, SPSS as such doesn't have an option to conduct post hoc test like we have in case of Annova. Literature review on Kruskal Wallis test suggests that researchers can use Man Whitney U test on individual groups of two each. However when the researchers use multiple Man-Whitney U tests it enhances the chances of Type 1 error. Therefore researchers have to adjust the level of significance by dividing the actual level of significance with the number of tests to be conducted. This makes the level of significance so small that it becomes next to impossible to make a type 1 error (Field, 2009).

Table 5.36: Information Technology & Banking (Group 2-3)

	Industry	Mean Rank	Sum of Ranks
FVP	Information Technology	39.09	1524.50
	Banking	30.98	960.50
	Total		
FAC	Information Technology	39.64	1546.00
	Banking	30.29	939.00
	Total		
FEL	Information Technology	33.99	1325.50
	Banking	37.40	1159.50
	Total		
FAB	Information Technology	35.32	1342.00
	Banking	34.61	1073.00
	Total		

The table 5.36 reveals that for the firm's value proposition information technology has the highest mean rank of 39.09 as compared to banking which has a mean rank of 31. When the

assets and capabilities of the firms are concerned again information technology has a highest rank of 39.64 while as banking has highest mean rank of 30.29. For Economic logic banking has the highest mean rank of 37.40 while as information technology has a mean rank of 33.99. Finally when the Actors in business network are concerned information technology has the highest mean rank of 35.32 while as banking has a mean rank of 34.61. Despite all this we cannot tell whether this difference is statistically significant or not. Therefore in order to predict whether the difference is statistically significant we will conduct a Man-Whitney U test.

Table 5.37: Test Statistics[a]

	FVP	FAC	FEL	FAB
Mann-Whitney U	464.500	443.000	545.500	577.000
Wilcoxon W	960.500	939.000	1325.500	1073.000
Z	-1.655	-1.910	-.698	-.145
Asymp. Sig. (2-tailed)	.098	.056	.485	.885

a. Grouping Variable: Industry

Man-Whitney U Test

We have used an adjusted level of significance in Man-Whitney U test as we are conducting Man-Whitney U test on 6 independent groups. Therefore decisions would be taken keeping a significance level of 0.0083 into consideration. The results in the table reveal that for FVP Mann-Whitney U value =464.500 and P=.098, FAC Mann-Whitney=443.00 and P=.056, FEL Mann-Whitney U value=545.500 and P=.485 and the FAB with a Mann-Whitney value=577.00 and P=.885 (Table 5.37). All the P values are more than the accepted values of 0.0083. Therefore the influence of technological developments across Information Technology and Banking is not statistically significant.

Banking and Telecommunication (Group 2-3)

The table 5.31 reveals that for the firms value proposition Telecommunication has the highest mean rank of 36.82 as compared to banking which has a mean rank of 25.37. When the assets and capabilities of the firms are concerned again Telecommunication has a highest rank of 35.38 while as banking has highest mean rank of 25.94. In Economic logic

Telecommunication has the highest mean rank of 34.85 while as Banking has a mean rank of 27.27. Finally when the Actors in business network are concerned Telecommunication has the highest mean rank of 33.93 while as banking has a mean rank of 27.29 (Table 5.38). Despite all this we cannot tell whether this difference is statistically significant or not. Therefore in order to predict whether the difference is statistically significant we will conduct a Man-Whitney U test.

Table 5.38: Banking and Telecommunication (Group 2-3)

	Industry	Mean Rank	Sum of Ranks
	Banking	25.37	786.50
FVP	Telecommunication	36.82	1104.50
	Total		
	Banking	25.94	804.00
FAC	Telecommunication	35.38	1026.00
	Total		
	Banking	27.27	845.50
FEL	Telecommunication	34.85	1045.50
	Total		
	Banking	27.29	846.00
FAB	Telecommunication	33.93	984.00
	Total		

Man-Whitney U Test

We have used an adjusted level of significance in Man-Whitney U test as we are conducting Man-Whitney U test on 6 independent groups. Therefore decisions would be taken keeping a significance level of 0.0083 into consideration. The results in the table reveal that for FVP Mann-Whitney U value =290.500 and P=.012, FAC Mann-Whitney=308.00 and P=.036, FEL Mann-Whitney U value=349.500 and P=.096 and the FAB with a Mann-Whitney value=350.00 and P=.141 (Table 5.39). All the P values are more than the accepted values of 0.0083. Therefore there is no statistically significant difference of the influence of technology on business model innovation across Telecommunication and banking.

Table 5.39: Test Statistics[a]

	FVP	FAC	FEL	FAB
Mann-Whitney U	290.500	308.000	349.500	350.000
Wilcoxon W	786.500	804.000	845.500	846.000
Z	-2.518	-2.094	-1.666	-1.472
Asymp. Sig. (2-tailed)	.012	.036	.096	.141

a. Grouping Variable: Industry

Telecommunication and Insurance (Group 3-4)

The table reveals that for the firm's value proposition Telecommunication has the highest mean rank of 36.42 as compared to Insurance which has a mean rank of 24.58(Table 5.40). When the assets and capabilities of the firms are concerned again Telecommunication has a highest rank of 32.05 while as Insurance has highest mean rank of 28.02. In Economic logic Telecommunication has the highest mean rank of 36.48 while as Insurance has a mean rank of 24.52. Finally when the Actors in business network are concerned Telecommunication has the highest mean rank of 31.98 while as Insurance has a mean rank of 28.08. Despite all this we cannot tell whether this difference is statistically significant or not. Therefore in order to predict whether the difference is statistically significant we will conduct a Man-Whitney U test.

Table 5.40: Telecommunication and Insurance (Group 3-4)

	Industry	Mean Rank	Sum of Ranks
FVP	Telecommunication	36.42	1092.50
	Insurance	24.58	737.50
	Total		
FAC	Telecommunication	32.05	929.50
	Insurance	28.02	840.50
	Total		
FEL	Telecommunication	36.48	1094.50
	Insurance	24.52	735.50
	Total		

	Telecommunication	31.98	927.50
FAB	Insurance	28.08	842.50
	Total		

Man-Whitney U Test

We have used an adjusted level of significance in Man-Whitney U test as we are conducting Man-Whitney U test on 6 independent groups. Therefore decisions would be taken keeping a significance level of 0.0083 into consideration. The results in the table reveal that for FVP Mann-Whitney U value =272.500 and P=.009, FAC Mann-Whitney=375.500 and P=.367, FEL Mann-Whitney U value=270.500 and P=.008 and the FAB with a Mann-Whitney value=377.500 and P=.383 (Table 5.41). The results reveal that for value proposition, Assets and Capabilities and actors in business networks P value is greater than the significance level. Thus there is no statistically significant difference across Telecommunication and Insurance on the influence of technology across value proposition, Assets and capabilities and actors in business networks but for the Economic logic P value is equal to the level of significance. Therefore there is a statistically significant across Telecommunication and Insurance on the influence of technology on the Economic logic of the firms.

Table 5.41: Test Statistics[a]

	FVP	FAC	FEL	FAB
Mann-Whitney U	272.500	375.500	270.500	377.500
Wilcoxon W	737.500	840.500	735.500	842.500
Z	-2.625	-.902	-2.654	-.872
Asymp. Sig. (2-tailed)	.009	.367	.008	.383

a. Grouping Variable: Industry

Insurance and Publishing (Group 4-5)

The table reveals that for the firm's value proposition Insurance has the highest mean rank of 30.60 as compared to publishing which has a mean rank of 26.08 (Table 5.42). When the assets and capabilities of the firms are concerned again Insurance has a highest rank of 29.60

while as Publishing has a mean rank of 23.10. For Economic logic Insurance has the highest mean rank of 30.27 while as Publishing has a mean rank of 26.46. Finally when the Actors in business network are concerned insurance has the highest mean rank of 31.73 while as Media & Entertainment has a mean rank of 24.77. Despite all this we cannot tell whether this difference is statistically significant or not. Therefore in order to predict whether the difference is statistically significant we will conduct a Man-Whitney U test.

Table 5.42: Insurance and Publishing (Group 4-5)

	Industry	Mean Rank	Sum of Ranks
FVP	Insurance	30.60	918.00
	Publishing	26.08	678.00
	Total		
FAC	Insurance	29.60	888.00
	Publishing	27.23	708.00
	Total		
FEL	Insurance	30.27	908.00
	Publishing	26.46	688.00
	Total		
FAB	Insurance	31.73	952.00
	Publishing	24.77	644.00
	Total		

Man-Whitney U Test

We have used an adjusted level of significance in Man-Whitney U test as we are conducting Man-Whitney U test on 6 independent groups. Therefore decisions would be taken keeping a significance level of 0.0083 into consideration. The results in the table reveal that for FVP Mann-Whitney U value =327.00 and P=.301, FAC Mann-Whitney=357.00 and P=.588, FEL Mann-Whitney U value=337.00 and P=.384 and the FAB with a Mann-Whitney value=293.00 and P=.111 (Table 5.43). All the P values are more than the accepted values of 0.0083. Therefore there is no statistically significant difference of the influence of technology on business model innovation across Publishing and Insurance.

Table 5.43: Test Statistics[a]

	FVP	FAC	FEL	FAB
Mann-Whitney U	327.000	357.000	337.000	293.000
Wilcoxon W	678.000	708.000	688.000	644.000
Z	-1.035	-.542	-.871	-1.595
Asymp. Sig. (2-tailed)	.301	.588	.384	.111

a. Grouping Variable: Industry

Publishing and Media & Entertainment (Group 5-6)

The table 5.37 reveals that for the firms value proposition among Publishing has the highest mean rank of 28.08 as compared to Media & Entertainment which is 23.84 (Table 5.44). When the assets and capabilities of the firms are concerned again Publishing has a highest rank of 28.79 while as Media & Entertainment has a mean rank of 23.10. In Economic logic Publishing has the highest mean rank of 29.17 while as Media & Entertainment has a mean rank of 22.70. Finally when the Actors in business network are concerned Publishing has the highest mean rank of 27.25 while as Media & Entertainment has a mean rank of 24.70. Despite all this we cannot tell whether this difference is statistically significant or not. Therefore in order to predict whether the difference is statistically significant we will conduct a Man-Whitney U test.

Table 5.44: Publishing and Media & Entertainment (Group 5-6)

	Industry	Mean Rank	Sum of Ranks
FVP	Publishing	28.08	730.00
	Media & Entertainment	23.84	596.00
	Total		
FAC	Publishing	28.79	748.50
	Media & Entertainment	23.10	577.50
	Total		
FEL	Publishing	29.17	758.50
	Media & Entertainment	22.70	567.50

	Total		
	Publishing	27.25	708.50
FAB	Media & Entertainment	24.70	617.50
	Total		

Man-Whitney U Test

We have used an adjusted level of significance in Man-Whitney U test as we are conducting Man-Whitney U test on 6 independent groups. Therefore decisions would be taken keeping a significance level of 0.0083 into consideration. The results in the table reveal that for FVP Mann-Whitney U value =271.000 and P=.309, FAC Mann-Whitney=252.500 and P=.172, FEL Mann-Whitney U value=242.500 and P=.120 and the FAB with a Mann-Whitney value=292.500 and P=.540 (Table 5.45). All the P values are more than the accepted values of 0.0083. Therefore there is no statistically significant difference of the influence of technology on business model innovation across Publishing and Media & entertainment.

Table 5.45: Test Statistics[a]

	FVP	FAC	FEL	FAB
Mann-Whitney U	271.000	252.500	242.500	292.500
Wilcoxon W	596.000	577.500	567.500	617.500
Z	-1.018	-1.366	-1.556	-.613
Asymp. Sig. (2-tailed)	.309	.172	.120	.540

a. Grouping Variable: Industry

Media & Entertainment (Group 6-7)

The table reveals that for the firms value proposition Education has the highest mean rank of 32.00 as compared to Media & Entertainment Industry which is 17.60 (Table 5.46). When the

assets and capabilities of the firms are concerned again Education sector has a highest rank of 31.65 while as media & Entertainment has highest mean rank of 17.92. In Economic logic again education has the highest mean rank of 29.98 while as media and entertainment has a mean rank of 19.46. Finally when the Actors in business network are concerned education sector has the highest mean rank of 30.65 while as media & entertainment has a mean rank of 18.84. Despite all this we cannot tell whether this difference is statistically significant or not. Therefore in order to predict whether the difference is statistically significant we will conduct a Man-Whitney U test.

Table 5.46: Media & Entertainment (Group 6-7)

	Industry	Mean Rank	Sum of Ranks
	Media & Entertainment	17.60	440.00
FVP	Education	32.00	736.00
	Total		
	Media & Entertainment	17.92	448.00
FAC	Education	31.65	728.00
	Total		
	Media & Entertainment	19.46	486.50
FEL	Education	29.98	689.50
	Total		
	Media & Entertainment	18.84	471.00
FAB	Education	30.65	705.00
	Total		

Man-Whitney U Test

We have used an adjusted level of significance in Man-Whitney U test as we are conducting Man-Whitney U test on 6 independent groups. Therefore decisions would be taken keeping a significance level of 0.0083 into consideration. The results in the table reveal that for FVP Mann-Whitney U value =115.00 and P=.00, FAC Mann-Whitney=123.00 and P=.001, FEL Mann-Whitney U value=161.500 and P=.0.009 and the FAB with a Mann-Whitney value=146.00 and P=.003 (Table 5.47). Therefore the P values for Value proposition, Assets

and capabilities, and Actors in business networks there is statistically significant difference across Education sector and Media and Entertainment while as for Economic Logic the difference is not statistically significant.

Table 5.47: Test Statistics[a]

	FVP	FAC	FEL	FAB
Mann-Whitney U	115.000	123.000	161.500	146.000
Wilcoxon W	440.000	448.000	486.500	471.000
Z	-3.560	-3.395	-2.601	-2.922
Asymp. Sig. (2-tailed)	.000	.001	.009	.003

a. Grouping Variable: Industry

6.0 RESEARCH FINDINGS

This chapter includes the major findings from all the objectives, conclusion, managerial implications, limitations and scope for future research.

6.1 Objective 1: To study the influence of technological developments on the firm's value proposition.

One of the basic sub-components of business model innovation is how the firms create value or why a particular consumer buys from a specific firm commonly known as the Firm's value proposition. Current study tried to explore whether technological developments have an influence on the value proposition or it has nothing to do with the firm's value proposition. The data analysis revealed that technological developments do have a significant influence on the firm's value proposition. These results are in line with finding of Bashir, Yousaf & Verma, (2016); Matzler et, al., (2013); Pateli&Giaglis, (2005) which have supported the positive relationships between the technological developments and firms value proposition.

However, going into deeper insights the findings have revealed that although technological developments have helped in differentiating the products and services, reduced the time of delivery, simplified the process of acquiring the products, improved the quality of products, increased the value added services, improved the relationship with customers etc. but matching the needs of consumers with company offering has become difficult. Further there is still significant doubt that whether technology has made the customer as a part of value co-creation process. The findings also revealed that technological developments in general have improved the value proposition across all of the seven industries taken in this study like the Information Technology, Telecommunication, Banking, Media & Entertainment, Insurance, Publishing and Education.

This is one of the vital and strategic findings of this study and a major contribution to the literature on business models. Literature on business models till date, lacked any empirical research which has measured the impact of technological developments on firm's value proposition. This study has gone further ahead by not only measuring the influence of technology but also testing the influence of technological developments statistically. Very limited studies have measured the influence of technological developments on the value

proposition but mainly using a case study or either on a conceptual basis with very little empirical support (Bashir, Yousaf & Verma, 2015; Bashir, Yousaf & Verma, 2016; Matzler et, al., 2013; Pateli & Giaglis, 2005; Amit & Zott, 2010; Raymond, 2010; Amit & Zott, 2001)

6.2 Objective 2: To study the influence of technological developments on the firm's assets and capabilities as resources.

The second component of business model innovation is the Assets & Capabilities of the firm required for creating the value proposition. This objective was achieved in the second part of the data analysis shown above. The findings from the data analysis revealed that technological developments do have a significant statistical influence on the firm's Assets & Capabilities. In addition to this it was found that across all the seven industries like the Information Technology, Telecommunication, Banking, Media & Entertainment, Insurance, Publishing and Education. Chresbrough & Rosenbloom (2002) have also supported the positive relationship between the technological developments and the firm's assets and capabilities.

This is again a very crucial finding as till date the previous researchers have not focussed on the influence of technology on the firm's assets and capabilities. Till date companies and academicians were not able to quantify the influence of technological developments on the firm's assets and capabilities. This study has bridged this gap by not only testing the influence of technological developments statistically but also giving businesses an overall scenario on the influence of technological developments on their assets and capabilities. Some very rare studies have been conducted which measure the influence of technological developments on firm's assets and capabilities and majority of them are based on case studies. The findings of this study are also in line with the some of the other studies conducted (Chresbrough & Rosenbloom, 2002; Bashir, Yousaf & Verma, 2015; Bashir, Yousaf & Verma, 2016a).

In addition to this the results from the data analysis have revealed that despite the technological developments the number of people working in organizations have not gone down while the skill set of employees have increased and so has the intellectual capital of employees. The results further revealed that there is ambiguity associated with the fact that technology causes more infringements of the patents and has made trade secrets available.

Finally the findings revealed that it's unclear that technological developments have reduced the capital barriers in businesses.

6.3 Objective 3: To study the influence of technological developments on the firm's economic logic or revenue logic.

The very reason of the firms to operate in the market and deliver value is to make money by monetizing their value proposition. This is the third and one of the main sub-component of the business model innovation framework used in this study. Current study made an attempt to study what influence technological developments have on the economic logic or the revenue logic of the firm's. This objective was achieved in the third part of the data analysis phase above. The results from the data analysis stage above have highlighted that there is a statistically significant influence of technological developments on the firm's economic logic or the revenue logic. Further the analysis revealed that this difference is statistically significant across all the seven industries like information technology, telecommunication, banking, insurance, publishing, media & entertainments and academia.

This is again a very crucial finding and is in line with the findings of other studies like Chesbrough & Rosenbloom, 2002; Calia, Guerrini, & Moura, 2007; Bashir, Yousaf & Verma, 2015; Bashir, Yousaf & Verma, 2016. What makes this study crucial and ground breaking is the fact that all of the studies which have discussed the influence of technological developments on the economic logic or the revenue logic are based on case studies. This study has the distinction of being the only study which is based on an empirical research. Majority of the other studies have mainly focussed on the conceptualization of the term Economic logic (Dubosson-Torbay, Osterwalder & Pignuer, 2002; Hamel, 2000; Kim &Mauborgne, 2000; Timmers, 2000; Westerlund, 2008).

Going a little deeper into the data analysis the results revealed that technological developments have in fact increased the working capital requirements of the firm's and at the same time fixed costs have increased while variable costs have not increased. When maintenance costs are concerned there is still ambiguity associated whether they have decreased or increased. Technological developments have still not made economies of the scale irrelevant. On the other hand technology has increased the profit margins but whether technology has reduced the risk in business is still unclear.

6.4 Objective 4: To study the influence of technological developments on the firm's relationship with actors in business networks.

The last sub- component of business model innovation includes the various suppliers, strategic partners, intermediaries and other members of value network known as the actors in business networks (Westurlund, 2008). This is the last sub- construct of business model innovation used in this study. This study was an attempt to study the influence which technological developments have on the actors of a business network of a firm's business model. This objective was achieved in the fourth phase of the data analysis phase above (Table 5.24). The results from the data analysis highlight that technological developments do have a statistically significant influence on the actors in business networks of a firm. Previous studies have studied this dimension from different perspective particularly like network perspective (Palo & Tahtinen, 2011) while other have studied it as an integrative framework (Vives & Svejenova, 2011). Despite the different nature of these studies all of them have pointed out to the fact that technological developments have a capacity to disrupt the value networks of a well rooted business models. The results further revealed that this difference is also statistically significant across industries like Information technology, Telecommunication, Banking, Media & Entertainment, Insurance, Publishing and Education.

This is a key finding and a major contribution to the academic literature on business model innovation. Till date the literature on business models has usually focussed on value creation aspect of business model innovation (Amit & Zott, 2011; Amit & Zott, 2012; Bashir & Verma, 2016). There are some other studies which have highlighted the influence of technological developments on the actors in business networks (Bashir, Yousaf & Verma, 2015; Bashir, Yousaf & Verma, 2016). All of these studies are either based on case studies or are conceptual with very little empirical support. Therefore what makes this study special and novel is that it's based on an empirical research.

A little close view of the analysis revealed that technology has improved the relationship with suppliers and as well as the customers. Technological developments have also reduced the risk in partner selection and has helped firms to focus on core activities. Technological developments have also improved the communication and coordination aspects between network members and have also facilitated the trust between network members. On the other

hand technological developments firms have developed better post purchase thereby facilitating the customer retention. Finally technological developments have made identification of suppliers easy and have helped firms to focus on their core activities rather than the overall scheme of things.

6.5 Objective 5: To study the role of top management in business model innovation due to technological developments.

This objective was achieved by analysing the qualitative data collected by means of interviews using Atlas Ti 6.0. It was observed that the role of top management in business model innovation has nothing to do with the depth of the business model change. This is contrary to the findings of Foss &Stieglitz, (2014) who highlighted that if the change is small or incremental it can be delegated to lower levels of management and top management can focus on other changes which are of radical and architectural in nature. It was also found that when the change is radical top management has to trigger the search for a new business model and on the other hand when the change is architectural top management has to go for a transformation of the existing business model. The biggest challenge is when the change is of knightian uncertainty, top management has to search for a new firm with the new business model and make an acquisition if they have the financial muscle or either merge with a firm which have the relevant market expertise of the business model.

When the top management skills are concerned the study has highlighted that they have a positive as well as negative influence on the business model Innovation. The findings have revealed that top management entrepreneur skills will help a firm in converting new opportunities into new business models. The top management ties also enhance the possibilities of developing new business models around new market needs or those needs which were unmet. These findings are in line with the findings of Zhao & Tang, (2013) who studied 146 Chinese firms and found that managerial skills, managerial ties and top managerial entrepreneur skills can lead to business model innovations.

One of the other major findings of the study analysing qualitative data from the interviews has been that business model innovation cannot be labelled exclusively as a top management responsibility. The ideas for business model innovation can come across all the levels of management. Firms are empowering people to take decision by giving them the

accountability and the responsibility and bulk of innovation in business models will always come from the bottom. The findings also revealed that although top management has a much bigger role but involving lower levels of management in business model innovation would reduce the resistance and facilitate its implementation which is very crucial. This is a major contribution to the literature on business models as till date researchers have not studied business model innovation in this dimension.

One of the other findings which has emerged out of the interviews with the top management is that despite the surge of research on business models over the years there is still lack of clarity among executives on what is a business model. There are businessmen and managers who define it as a part of strategy, some may define it as information technology and other define it as how a firm makes money while other define it as a blueprint of an organization which involves product strategy, marketing strategy, promotional strategy and even differentiation strategy. This finding is in line with the findings of Amit & Zott, (2011), Economist intelligence unit, (2012) who have also arrived at the same conclusion.

6.6 CONCLUSION

IBM, (2006) in a survey of more than 750 corporate and public sector executives round the globe found the companies which have grown higher operating margins at a much higher pace in the last couple of years and who have outperformed their rivals were putting twice as much focus on business model innovation than their rivals. The concept of business model innovation has thus received considerable attention both from the academia and the industry over the last half a decade (Schneider & Spieth, 2013; Spieth et al., 2014; Zott et al., 2011). Research has also shown the business model innovation can act as a source of sustainable competitive advantage which existing firms or rivals would find almost impossible to imitate (Bashir, Yousaf & Verma, 2016). Despite all of this surge in academic and non-academic literature on business model innovation the overall concept is still at a budding stage and there are many issues surrounding it.

From the perspective of academicians there is still lack of clarity on what a business model is, and what are its various components or elements. Businesses are more interested in knowing what makes strategy different from concepts like business strategy, innovation management, product strategy and even promotional strategy. Most of the literature on business model

innovation is quite young and as well as dispersed, like its addressed in subjects like strategic management (Matzler et al., 2013; Zott& Amit, 2008), innovation management (Bucherer et al., 2012; Chesbrough& Rosenbloom, 2002; Wei et al., 2014), entrepreneurship (George & Bock, 2011; Malmström et al., 2014) and even in marketing (Clauß et al., 2014; Storbacka et al., 2013).

The present research provides a major contribution and adds to the existing knowledge and the theoretical foundations of business model innovation. This study has made an attempt to link the whole of the literature on business model innovation in a meaningful way. This study is the only of its kind which has developed and validated a framework on business model innovation which is based on an empirical research. The results highlighted that business model innovation can be decomposed into eight factors like Value Proposition, Channels, Costs, Human Capital, Value Network, Linkage with Partners, Assets & Capabilities and Revenue Sources. This has provided scholars necessary tools for the future empirical research on business model innovation. Further the study has concluded that technological developments do have a significant influence on the business model innovation across all the seven industries like Telecommunication, Information Technology, Banking, Media & Entertainment, Publishing, Insurance and Education.

This study has highlighted an important dimension about the monitoring of business model environments. The study has concluded that in today's turbulent, cutthroat and rapid technological advancement it is absolutely crucial for firms to monitor their business model environments along with the general and economic environmental monitoring. The study has suggested that firms need to keep an eye on the government regulations, environment, Competition within and outside industry. The study suggests that firms need to specifically keep an eye on the start-ups across all industries because time and time again it's the small businesses which have a habit of disrupting the business models and converting new opportunities into new business models.

The previous researchers have highlighted that the role of top management regarding business model innovation depends on the depth of the business model change. The study has highlighted that no matter whether the technological change is incremental or architectural

top management has to take an active role in business model innovation. Further the business model change is different from the process innovation and thus requires active consideration from the top management. This study has suggested that even a small change or an incremental change in business models is a big change in itself.

The study has brought an important dimension about the role of top management in business model innovation. The study has contradicted the old age concept about the role of top management in business model innovation which suggested that it's exclusively under the control and ownership of top management. The study has concluded that top management is not the sole authority which has a role to play in business model innovation. Looking at the way people are getting empowered in businesses and how feedback is taken across the different managerial levels, everybody has a role to play in business model innovation. The qualitative data primarily collected by means of interviews with the top management of the firms have highlighted that the concept of business model innovation have a huge potential to be explored further.

6.7 MANAGERIAL IMPLICATIONS

During the last half a decade some of the biggest start-up companies in corporate America and China (Uber, Xiaomi and Airbnb) have been companies with no revolutionary product or a service but an innovative and disruptive business model. The valuations of these companies have touched sky and in no time they have become multibillion dollar enterprises. They all have redefined competition and the very basic building blocks of a business model. This highlights an important implication for managers and businesses that business model innovation can boost not only the financial but the strategic performance of the businesses. The study acmes to the disruptive nature of business model innovation and point out to the fact that any industry which takes considerable investment upfront in terms of fixed cost and generating the supply has a potential to be disrupted by a small start-up which can be within your industry or sometimes outside the industry.

In today's cut throat world business spend considerable amount of time and energy in differentiating their products and services from the competitors in order to achieve some sort of competitive advantage. This study contradicts the old age perspective on competitive

advantage which suggested that competitive advantage lies in innovating products and services reason being that any innovation no matter how efficient and novel can be imitated particularly from countries with cheap labour at a much subsidized cost. Therefore this study highlights that managers should go for business model innovation as a cradle of differentiation which will serve as a source of sustainable competitive advantage because for the existing big guys it would be almost impossible to imitate or change their models as it would involve massive restructuring in the whole value network which becomes almost next to impossible.

Over the last couple of decade's researchers and businesses have stressed to the fact that technology has potential to disrupt any business model and can make some business models altogether obsolete. Despite all the research over the years no study has come up with tools to measure or quantify the impact which technological developments have on business models. This study provides managers the much needed tools to measure the influence of technology on their business models which will help them to prepare in advance and anticipate the impact technological developments will have on the value proposition, assets and capabilities, economic logic and the various actors in business networks.

One of the other and very crucial implications for managers from this study is the role which top management has in business model innovation due to technological developments. The study goes against the traditional perspective that business model innovation is exclusively confined to the top management of the firms. The study points out that although top management has a much wider role in business model innovation but that doesn't mean we can label it exclusively for the top management. People are getting empowered at every level and businesses are removing the hierarchical barriers. Further bulk of innovation these days comes from the lower levels of management. Additionally in order to remove the resistance and facilitate the effective implementation it's necessary to take the lower levels of management along.

The other managerial implications of this study is that the role of top management in business model innovation due to technological developments have nothing to do with the depth of change. No matter whether the change is incremental, radical, architectural or knightian, top management has to take an active role and lead from the front because even a small incremental change in business model is a big change in itself. It's not like a process change

which can be delegated across lower levels and managers can take other assignments or roles. One of the other critical implications for managers from this study is that companies need to invest in small start-ups from time to time and then try to accumulate them in the overall scheme of things at a later stage. This will go a long way in protecting the companies from the disruptive business models and will give companies a cushion of air to compete with their rivals without worrying about the changing nature of business models.

The study highlights that businesses and managers should also monitor business model environments along with general environments because in today's cut throat and disruptive world where business models are being changed on a regular basis across industries it's very important to keep an eye on the changing business models. Managers should keep their antennas open and be vigilant about the government regulations, environment consciousness, customer demand or needs, Competitors within and outside the industry. Continuous monitoring of business model environments would put a firm in a competitive position as the firm would be in a better position to align or change their models with the changing technology and to convert new market opportunities into new business models.

The study highlights that managers should not confuse business model innovation with the firms business strategy. The study stresses to the fact that business model innovation is altogether a different subject and managers should spare out separate time for business model innovation. The study also highlights that although technology is one of the major forces in disrupting and changing business models but business model innovation can happen without technology simply by changing or altering the value networks.

6.8 LIMITATIONS OF THE STUDY

Despite following highly valid and reliable methodological and statistical procedures this study like all other studies suffers from some limitations. Although researchers have a rational and proper literature support for all of the techniques applied in this research but all of these statistical tools used in this study are quite sample size specific. This means that results have a tendency to fluctuate with a higher sample size. Therefore a higher sample size could have given altogether different results that what are being highlighted in this study thereby impacting the reliability and validity of the results.

Second as the data has been collected from only one emerging economy (India) therefore there are questions marks around the generalizability of the outcomes from this research. Therefore it would be very useful to extend or perform a similar study in other emerging markets to see the variations in results if any. Further researchers can go for a comparative study involving some developed and a developing economies to see the differences if any on the influences of technological developments on the business model innovations. The other limitations of this study comes with the literature on business models, bulk of the literature on business models is quite novel dating back to a decade which at times raises questions for theory building.

This study has developed a very novel, valid and reliable scale for measuring the influence of technological developments on business model innovations. This scale is good only for quantifying the influence of technological developments but doesn't dictate why some business model perform better than the other. This study has taken the influence of technological developments on business model innovation but in reality there can be factors other than technology which force a firm to change or align their business models from time to time.

One of the other limitations of this study is that it has just managed to outline the role of top management in business model innovation due to technological developments based on a qualitative data. The findings don't explicitly define the relationship because they cannot be quantified as they don't have any empirical support which further raise questions about their generalizability. The future research on business model innovation should address all of these limitations.

6.9 FUTURE RESEARCH

This study contributes to the business model innovation literature by proving useful insights into the influence of technological developments on business model innovation. This study has not brought other factors responsible for business model innovation into limelight. In reality there can be many factors which can have an influence on firm business models or in other words factors which can force a firm to change or align their business models. Researchers have also pointed out that business model innovation can occur without the

advent of technological developments (Chesbrough, 2007). Therefore both these factors provide a very significant link highlighting that a future study can be conducted to uncover all the factors which have an influence on business model innovation.

There has been a huge surge in the academic and non-academic literature on business model innovation over the last decade as is evident from this study. The results of this research and the previous literature discussed in this study have highlighted that despite this surge in academic literature on business model innovation over the years there is still lack of clarity among researchers and particularly among businesses about the very basic components of business model. Therefore a further study can be conducted to work on the basic building blocks of business model innovation based on an empirical research to highlight how business model innovation is different from strategy, innovation, technological innovation and even entrepreneurship.

The sudden success of some of the start-ups like Xiaomi, Uber and Airbnb have pinpointed that business model innovation has an influence on the firm's performance. The literature review in this study has highlighted that firm performance has an association with the business model innovation. All of the studies conducted so far in this regard have been based on case studies or are conceptual in nature. Therefore a future empirical study can be conducted to determine the impact of business model innovation on the firm's performance. This will be of great help and a significant contribution to the literature on business models as till date this perspective has not been addressed by researchers.

One of the vital findings and a major contribution to the academic literature of this study has been the development and validation of scale to measure the influence of technology on business model innovation. This scale elongates and enriches the future research on business model innovation. This scale is valid and passable for quantifying the technological influence on business model innovation but cannot provide answer as to why some business models outpace others or are better than the other models. Consequently a future qualitative study which would be based on this research can be conducted to uncover all the factors which are responsible behind this difference in the performance.

This study has highlighted that whether it's the top managerial ties, top managerial skills and their entrepreneur abilities all are very much precursors of a successful business model

innovation. Researchers need to devote more time and efforts in uncovering more factors responsible for successful business model innovation apart from the managerial level. According to Demil & Lecocq, (2010) firms have the capacity to align their business models so that they can adapt to its external environments. On the other hand there are researchers who have stressed on organizational learning for business model innovation Sosna et al., (2010). Therefore future research can be conducted to explore the linkage between environmental factors and organizational learning with business model innovation.

This study has discussed how the technological developments change or at times compel businesses to innovate their business models. This is a very initial phase of business model innovation. Researchers can conduct a future research on the overall process of business model innovation and focus more explicitly on stages like business model implementation and evaluation in general. This will go a long way in enriching the research on business model innovation and more specifically on effective implementation which is very crucial as many firms fail not in anticipating or planning the change but in implementation of business model changes. Researchers have also stressed on working on the overall business model innovation cycle (Palo &Tähtinen2011)

In addition to this researchers can also take a bigger sample involving more industries to assess whether there is a difference in the influence of technological developments on business model innovation across industries or it simply follows the same trend. Further the framework presented in this research suggests that it can be applied across different industrial industries but a future research can be conducted to test whether this framework suggested in this research applies to all of the industries or there is a need to modify the framework for different industries. Finally to avoid misinterpretations and misconceptions related to business models, its components and business model innovation and the role of top management scholars need to take bigger exertions for the progression of research in this area.

CHAPTER SEVEN

FUTURE POSSIBILITIES AS AN ARTISTIC MEDIUM

CHAPTER VII

FUTURE POSSIBILITIES AS AN ARTISTIC MEDIUM

Investigating in-depth of specific artists' works to process and contextual development afterwards researcher focus of the artistic perspective in own art process and transitions this chapter includes the documentation of methods and materials with short instructive manner for further implementation in the works of arts. Methods and materials first need to adopt then experimentation and it goes for application in the works of art. It is not a formula which can be learned and immediately apply, it takes time for application from the process of adaptation.

7.1 Innovation and Experiment in the Embossed Art

(Rush, 2005) New media art demolished the barrier of a long tradition of painting as the privileged medium of representation in the twentieth century. The focus shifted towards the 'experimental' nature of its art shifted focus away from 'objective' representation to personal expression; uses of new technological media to render meaning and a new idea of time and space.[1] The art making required an involvement to take challenge which may not be sure to be succeeded, but taken, choice of the medium according to the possibilities to communicate or express internal ambiguity through work of art.

New invention happens that is not the reason for an artist to use particular medium but indeed it required by a particular subject, context and needed results out of it. Researchers have learnt from the childhood which teacher says if one line is bigger than the other one you must not disturb we erase the bigger line the effort should be given in the development of smaller line to extend further heights which cannot be comparable with earlier differences.

The ugliness of Rembrandts figures did not represent the artist shy away from the ugliness, but under his fertile hand everything assumed a fantastic and grandiose expression

[1] Rush Michael, New Media in Art, Thames and Hudson world of art, 2005, ISBN-13: 978-0-500-20378-1, p. 6

Rembrandt brings vulgar forms but draw a very different conclusion, he was an eccentric genius.[2]

The teaching ethos of Shantiniketan formed by its well- known creative trinity tradition, nature and freedom-much impressed the young K. G. Subramanyan, he found inspiration by learning various techniques from professional hereditary craftsmen.[3] The art practice also demands individual efforts to get an identity, may be the path which a first person followed cannot be repeated yet there are so many scopes in these to see the side views to extension and establishment.

"The Fine Arts which no longer fulfil their original functions, and which, for this reason, are becoming degenerate, should disappear like prehistoric animals" -Jean Gimpel

Further possibilities as an artistic medium of embossment depends up on the individual artistic efforts and enthusiasm. The artists have demolished the barrier of methods and techniques to create a new set of language in art practice. Combinations of various medium multiple dimensions have also evolved dimensionality in embossing prints. When we look into the western artist they have already experimented and established works of art with new theory and interpretations. Interpretations are the individual's skills set now one can see and interpret without producing works; non-art background person also interpret even see the works and interpret so the artist's job is very much important at first hand then only people can think with various perspective. Need to give effort from the artist to justify the purpose of art with responsible attempt and that will come as a result of new innovation and experimentation in the field of visual art as an embossing practice.

(Milton, James and Mason, 1970) Man sought unceasingly for new materials, techniques, and ideologies by which to develop his creative abilities in the face of superior natural forces. In the ground level, the nature of which remained a mystery for him produced what he needed by

[2] Julius S. Held , Rembrandts Aristotle and other Rembrandt studies, Priceton, new jersey, Priceton university Press, 1969 ISBN: 691-03862-7, p. 138

[3] Khanna Balaraj and Kurtha Aziz, Art of modern India, 1998, Thames and Hudson Ltd, London, ISBN: 0-500-23755-7, p. 39

exasted labor that entailed a number of equally mysterious and unknown changes beyond the control of man.[4]

Based on the traditional techniques in etching artist have worked to develop line, tone, and texture in printmaking. It is a very basic technique which allows creating imagery on the surface of the metal plate with line etching by soft ground as the hard ground execution of tonal variation and textural qualities of the surface integrate with the artistic intention trough the visual language.

The waves come in the high rise at the sea shore. Researcher want to convey the argument of similar in the human sensory system for instance, when we eat food the taste will be realized at the tongue area itself after the experience *of (Rasa swad)* it goes for the digestive system there it can't give the information to the brain about the every stage of progress as well as when digestive functions complete it force it to come out from a male only that time the sensory organ work. Sea holds the weight of uncountable water but when it meet the ground level or corner of the surface similar to the human functions it comes up with sensational experience which can be explained as the surface tension of the water by winds force. In the middle of sea water keep calm and silent like an experienced person act with very dignified manner.

K.G.Subramanyan (1995), realized that the emotional resonance and semantic nuances of works do not all come from their syntactical structures; they also come from the cultural and experiential associations they invoke.[5] Looking to the sea makes various meanings, persevere only define the perspective, for a fisherman may be a good weather can be chance to get into the water for fishing, a security personnel may identify the clue to investigate, a Philosopher may talk about the Philosophy and concerted thoughts artist may make works of art out of it. So the properties of Physical appearances is same for all but receiving according to the requirement of sensory experience for expressions, that is the significant for the professionals, without any purpose looking into it also looking inside the self as a natural phenomenon. Where we forget

[4] Milton Albrecht, James H. Barnett and Mason Griff (ed.), The Sociology of Art and Literature, Praeger Publishers Inc, 1970, London, ISBN: 0715605046 Merberet Read, p. 40

[5] Dalmia Yashodhara (ed.), Contemporary Indian art: Other Realities, Marg publication, Vo. 53, No. 3, March 2002, ISBN: 81-85026-55-6, p. 19

the all worry and tensions with following the act of watching a child with excitement and liveliness.

Embossing process used since the ancient civilization as we discussed in the previous chapter for creating imprints from the clay molds, seal and other artifacts which having significance quality because is not merely for the utilitarian purpose but also the reflection of their religious belief and admiration of nature. Dimensionality in embossing arouses the sensory experience within the artist's creation but the concern and context given more preference by the contemporary artists.

Embossing is only the process but to take it to the level of artistic approach is more challenging. Art and craft are significantly made difference; if we see the most west art practice it has developed various social and Political situations and practiced by so many schools of thoughts and Philosophy in India context we can see the modern Britishers rules over India for 200 years. After independent as the Indian tradition, folk arts and crafts and Indian architectural crafts skills, Afterwards the various schools of thoughts came with individual identity and developed language in their art practices. Today artists are travelling across the world and socio-cultural influence reflecting in their works of art. Embossing practice we can see into another level not only with the surface of two dimensionalities it's coming across the borderline as an installation project and other experimentations.

Atelier 17 gave artists an opportunity to share ideas and to benefit from Hayter's example and expertise. He adopted automatism concept of surrealism to intaglio printing to obtain unexpected effects. His printing plates engraved meandering lines that often created embossing, as wells composition come up with unforeseen juxtapositions.[6] Artist use materials for their needs not for the demand of medium itself Chola Mandala artist group established near the coastal area in Madras with nationalism thoughts and adopted art and craft orientations in their practices Janaki Ram made metal embossing artworks in the relief sculptures forms afterwards his student Nanda Gopal taken it to the level of these dimensional form with using welding the

[6] Artists and Prints, Masterworks from the Museum of Modern Art, New York, 2004, ISBN: 0-87070-125-8, p. 22

embossed metal sheets with cutting and enameling with the color free flow of lives given life in his 3 dimensional space.

(Walter, 1972) Ready – made and welded surfaces: Relief prints can be taken from many kinds of the surface other than etched metal, the most obvious being the wood block. The essential qualities of material like metal, wood or Lino surface quite apart from the process and completely different from each other, indeed, a more anonymous surface effect may be deliberately sought in preference to others that are more recognizable. Readymade surfaces provide an interesting field of mark and texture of direct printing.[7] According to the thickness of materials, without any sharp edge likely to cut into the blanket or tear the paper, although to some extent this method needs the expertise of skill sets to keep pressures for the desired quality of prints. Other well tried sources include the college type plate, not necessarily etched at all, but made of thin sheets of various metal bonded together, sometimes ornamented with wire or flat fragments of machinery and industrial waste.

This kind of plates referred as metal graphics to refer particular interest in the works of Rolf Nesch. Artist Boris Margo developed cello cut relief printing methods material for repairing or building up entire plate surfaces such as using various forms plastic metal, cd, machines, synthetic, plastics, epoxy and acrylics. In India, R. Ballasubramayam has exposed various medium in these methods of relief making. Etching, engraving and punching the metal can also be used as supplementary methods, reference of relief etching works in Gordon Seniors' work can be taken; his print taken from welded steel plate. This kind of experimental approach and result concern with the desired common sense and technical experiences.

Welded metal plates are inclined to curl up rather when subjected to even moderate embossing (repoussé) with various levels; the works of Janaki Ram has created front facing relief with enameling, subject matters taken from the folk and popular stories. As an artist Janaki Ram worked and taught, he known for the teaching also his disciple S. Nanda Gopal taken an extension of welded – metal embossing into another level and created giant size sculptures with

[7] Walter Chamberlain, The Thames and Hudson Manual of Etching and Engraving 1972, Thames and Hudson Ltd. ISBN 0-0500-68001-9, p. 73

free flow drawing kind of structures in sculptures with decorative and glittering effects with enameling colors. He demolished the repose into the welding techniques for three-dimensional space. Some of his works have dramatic effects on anticipations, sculptors' spontaneous drawing skills easily traced by observing his metal welded works.

The works of several artists who made inkless embossed prints in both geometric form (the Canadian Yves Gaucher) and Pop (the Colombian Omar Rayo).[8]

Baroda-based artist Sandeep Suneria coming up with the new set of stencil cutting skills to create embossing in his artistic practice. Young artist Suneria extending and experimenting with his prints skills acquired within extra efforts, utilizing conventional and the non-conventional objects as a tool in his practices. Bhopal-based artist Balu Choudhary has previous experience of glass foundry work and painting background as an artist which can be easily identified by his current experimental works of Acrylic heat embossing and painting works. He paints the Surface of acrylic sheets with acrylic color and with the help of metallic utensil objects as a mold heat acrylic sheets which come up with the remarkable effect of these dimensional embossed painting. (Tagore, 1961) "When we talk about such a fact as the Indian Art, it indicates some truth based upon the Indian tradition and temperament."[9] L.N. Tallur work with the material and its .and anthropological understanding in his work of art. He uses CNC machine to cut the marble or granite with the conceptual base of the presentation in his practice. Tallur uses the natural decay Phenomenon in his perspective with facilitates of modern technology to create sculptures and embossed qualities of relief works. Interdisciplinary and intercultural background of an artist makes the new contempt art scene in India as well as the developing global village with the connecting via information technology.

7.2 Modern Techniques in Etching

Primarily or basic methods of color etching comes which can be taken in the single plates with reduction process like wood cut promoting the process. Where metal plate zinc or copper

[8] Riva castleman, prints of the twentieth century, 1976, Thames and Hudson Ltd London, ISBN 0-500-20228-1

[9] Rabindranath Tagore on Art & Aesthetics, published for international cultural centre Dew Delhi, edited by Prithwish Neogy, 1961, p. 59

etched with nitric acid according to the required and planned color process; and registration mark on the printing bed, as well as printing paper, is very much impotent to get the similarity in all prints. Collagraph print is the techniques of printmaking where college surface created by found object with & dimensional quality. We cannot print three-dimensional forms from the printing machine there are several other methods developed by the printmakers to reach to that level which will be discussed in next pages.

Viscosity is another printing system of inking a plate with multiple colors two or more and passing by the roller of etching press only once. In this process when a color of high viscosity, or stiff color, is rolled over a color of low viscosity, or an oily color, there are two methods; one is additive methods second is subtractive method. In additive methods inks merge with each other and reactive methods inks viscosity don't allow two or more color to mix together because of the stiffy and oily color and viscosity roller is also play an important part to deposited the color on the matrix of the plate. In subtractive method inks involves removing each other because of the prepared density of the color and applied pressure. Subtractive sculpture is the oldest form of creating works of art as in wood carving or stone sculpture, to create a finished work. This method has developed by Stanley William Hyter and Krishna Reddy at the Atelier 17 studio at Paris. The viscosity method of applying color to the plate is distinct from the other methods combining intaglio and relief because the printmaker's interaction between colors of different viscosity to achieve his results.

The stencil can be used to do multicolor printing for the effective preparation. For viscosity plates required to creates with variations of the layer so that different viscosity roller can be used. The result will appear with an embossed impression of the final print, it can be taken with tint color to expose the relief surface with specific light conditions. Some printmakers prefer to aquatint in the lowest layer of the plate and inked intaglio, on the other two layers have been prepared to relief inking, are left unexecuted, the top layer kept as original surface of the plate and second layer is smooth open plate bite so that roller with variations of viscosity with thick and thin ink utilized with expertise for the final desired results.

Photographic methods and multimedia printmaking are known as modern techniques in etching but we are talking about the embossed surface of printing so we are not going into the depth of these techniques.

7.3 Experiential Techniques in Embossing Printmaking

The technical limitations must continuously expand, and printmaking especially etching and relief printing must become part of an intermedia experience. The following chapters contain suggestions for experimentation in materials and techniques that will lead to a redefinition of the boundaries of the reproduction craftsmanship in printmaking some of these experimentations already have been tried successfully by printmaker's artist, while others are still in the research stage.

7.3.1 New materials and processes

New directions of the embossing will come about as a result of a care full test of the materials, tools and processes that the printmaker or artist use, with a clear intention to alter them to meet new artistic and technological demands. Two surface is the important one in which we take it or create the text used on the surface of the matrix is called mold or debossed surface and another one is printed surface which imprinted the negative impression to the positive with rising surface that is called embossed print. Although some variations have been discussed in the proceeding chapters they have been within the limit of traditional printmaking.

R Balla's process is multi layered, experimental and innovative so as to make an unpretentious attempt to reconstruct the way of expressing an abstract concept. (Fig. 7.1) Standing that when the fundamental scientific concepts are deeply explored, the technological and accomplished parts of the same are only by-products. (Fig. 7.2) These notions of material forms intensify in skill and the multidimensional skills improve themselves in the fundamental concepts. He attempts to establish the material manifestation of an interface between the realization of 'truth' and the guidance to objective practices.

The whole artwork is made of etching on zinc plate and printed on paper, the handmade sheet sandwiched on the paper during the process of printing. The monochromatic color was rolled on the zinc plate.

7.4 The printing surface

The matrix of the etching plate can be printed on any surface that can be embossed and that will take color tint or un-inked and show only the natural relieve surface of the print material.

In the past tradition printing surface for embossing has been paper but in these days of technological invention and discovery there is a wide range of materials available to print on easily adaptable substitutes for paper night include cloth, leather, radium, reflector, foil sheet, latex, flexible resin, plaster, Styrofoam, silicone – other synthetic materials on which the printmaker can print from the regular available in the market. Now fine canvas with texture white coating available in the art market which can be used as a paper for fine surface quality, printing it from the printmaking machine can be flexible for material. Most of the artist use for fine watercolor and pencil drawing on the surface as required.

7.4.1 Collagraphy Print

This print is known as glue epoxy prints refers to a matrix made by adding various materials to a plane surface that can be cardboard, plastic, although sometimes an artist uses metal also; according to the required impression of the material is glued on, sew or pasted with care on the material utilized. This method is significantly different from the all other printmaking methods, in which no surface layer need to remove as etched in the acid, or not required printmaking tools as such used in etching woodcut or aquatint print.

Collagraph word came from cola – means combing the thing together to create matrix surface for printing. It can be applied ink or without ink in plate printing can be taken as per the preference of required result, if we use ink and intaglio print will come along with relief but color will dominate the print quality whereas inkless print makes strong relief impression. Collagraph print is a highly versatile method for making matrix and printmaker must understand the opportunities to use for the artistic purpose.

Collagraph can be made exclusively with metal like iron, copper, brass, zinc, aluminium, etc. there are various options of industrial material can be used as hammered, melted, bitten in acid. It can be added different methods in a single plate for example soldering, welding, brazing,

riveting, glueing. The surface of the matrix can be inked and printed before can be hammered, grounded, filed the surface and polished with lacquer or varnish to the printmaker's satisfaction level.

The artists are adapting new discovery and implementing collagraphy with cast plate where two specific skills merge together for the creation of art one is printmakers and another one is the sculptor. Casting an aluminum as bronze plate, by either the sand – casting or investment method (lost wax process) which original modeling plate made out of either wax or Styrofoam (thermocol) from this process embossed surface can be achieved according to the required plate level, to prepare a wax plate, the printmaker pour a melted wax into a plaster matrix of design or using engraving and carving tools with torch and various required tools, modeling of plates also can be done by sculpting process on the surface. When the matrix is ready we should keep it a while for dry then cover with plaster and brick dust with providing the channel to exit wax and air while casting.

Few artists takes assistant for these kinds of skill full works to do collaborative project works melted metal poured on the matrix which burns out the wax sheet of Styrofoam material as a base and cast in the same procedures as the wax plate. The matrix as final cast plate can be inked intaglio in the usual manner to show the depth of the surface like calligraphy plate. Collagraph with plaster print, resin, latex, alginate a print that can be taken with plaster cast of a college with inked intaglio process and printmaker must ensure there are no undercuts otherwise casting may stick in the matrix of designer works.

The collagraph plate is placed one piece of glass, plastic or acrylic sheet, a wall of clay or thick OHP (x-ray sheet) can because to create restriction according to the matrix. There are two ways to use plaster of Paris; one is in powder form and another one in bandage roll. In the usual manner, plaster mixed properly in the container with adjusted required water and poured onto the inked collagraph surface according to a thickness of two or three inches. Print can be done with inked or without inked as artist desired if final work required strong or in bigger size of collagraph print it needs to be added coconut fibres while stirring plaster. The second way to cast plaster of bandage roll can be dip into the water for a second and kept on the plate of collagraph surface, one by one layer must be covered to get united formation if the patches will come on the

plates to avoid the line if can be taken bigger size of the bandage of plaster so that masks of joint will not appear in the final works of art.

A resin print can be made in a similar manner by the casting resin instead of plaster of Paris. The resin is poured with no undercuts on the collagraph matrix first the surface must be coated with a release agent such as was book polish, varnish, or green soap 50 that the printing material should not stick to the plate according to the required result resin can be used transparent or mixed with color. The plate can be inked intention as well as being based paint local intaglio with separation of color. Resin print can be taken with a variety of experimental effects if needed textured artist adds sand with resin, marble dust, brick dust, dry flowerers, fibers, futile fiber for strong binding and keep thickness depends upon the needs of the artist.

The latex print can be made by pouring latex over a collagraph surface. For advantages of this medium, there are no problems with undercuts but the technical solution will be taken care according to the needs, latex will take impressions of the applied wet or dry intaglio inked on the plate. The flexibility of the material utilized by the artists for the various dimensionalities of prints with the collaboration of painting – printing and sculpting, sometimes installation project also can be done. An artist own research and experimentation required in these areas.[10] Most of the great masterpiece works have been reproduced with latex material which can be taken from any kind of surface print with no problem with undercut plaster and resin prints.

Claes Oldenburg is an American sculptor, profile view 1969, molded polyurethane relief over lithograph the artist Oldenburg created a mold of revolutionary can design over a lithograph, it honors a pioneering design classic the Chrysler Airflow. The artwork reflects the consumerism and the nature of human progress, brought by the concept of mass production, enhanced by using the multiple to explore the irony of reproducing what was already a mass – produced an object.

Chrysler Airflow is seductive form and modern simplified beauty fascinated the artist from his childhood, the works of art given homage to the erotic quality of the automobile. (Fig.

[10] Artists and Prints, Masterworks from the Museum of Modern Art, New York, 2004, ISBN: 0-87070-125-8, p. 26

7.3) Oldenburg has devised non–print-like edition by using methods of a multiple and lithography which makes the sculptor's solution to making a print productively.[11]

Every medium has significance qualities and limitations which will be observed by the artist to find within the scope to utilize individual ways the artists are exploring non-convention medium which used for dental impressions. Common materials are sodium alginate, polyether and silicones, polyvinyl, siloxane, oxides have been used to experiments and few artists are utilizing in their art practice.

Alginate used as a mold making far antiquity restoration reproduction and research purposes because of the easy to use it with a quick time period. The Very sensitive impression has been taken by this medium which can be transferred to the wax application through the last wax process of metal casting there is one more easily available material has been used to take print the collagraph print with m-seal and acrylic paint. This method is applied to the matrix of collagraph with varnish coated plane. First acrylic color is to be painted are ink intaglio then let it dry according to the composition needs and m-seal material come with two packets which need to be mixed properly otherwise final works may not dry for long time and not get desired harden surface, after mixed properly it can be applied to the matrix by completing from one side to the another end. Once the surface will dry the print will come up with the layers of color applied to the matrix with any distinguishing marks.

The artist will take the case m-seal application while its wet need to ensure whether any mark should not come, to avoid this an artist use thumb impression to even apply on the collagraph plate.

7.4.2 Collagraph vacuum form print

This technique of printing is most popular in contemporary packaging design in the industry according to the product package can be created with design as parts to keep aesthetical appearance. Vacuum – farmed Acrylic sheet print can be taken from a collagraph plastic using a vacuum form machine its function is very simple the very first.

[11] http://fineartmutiple.com/blog/oldensurg-profile-airflow, Retrieved on 24 June 2016

The collagraph plate kept on the vacuum machine table the acrylic sheet will be heated to make soft enough to mold or print on the matrix (object) which adjusted a temperature of the heating element by the regulator dials a system of vacuum pressure below the soft acrylic sheet, which molds the acrylic sheet around the matrix.

These process will take only a few seconds to vacuum pressure for casting plastic will not adopt the color from the collagraph plate so that transparent plastic or acrylic sheet can be painted or inked afterwards as required silk screen print on the acrylic sheet can also be applied before doing vacuum form print which comes up with very dimensional and interactive quality of work. Balu N. Choudhary (b. 1984) has been working with this acrylic heat embossing with manual vacuum forming. Before being formed relief print paints the surface of the acrylic sheet with acrylic paints, then with the utensil of metal or other supports cast on the surface of collagraph, his works are the amalgamation of painting and sculpture.

Balu's work focused on shape and form indicates the devotional feeling which identical familiarity of water pouring on the Shiv Ling. (Fig. 7.4) Most of the time artist or creative people get an idea at the time of weird situation because that times you evicted something and immediately not get deviation so that time leads to fresh thinking or ideology.

Metaphoric representation of Prakriti and Purush reflect in the artist work used by the form which relate to these contexts. Rise surface look-like earth or breast which is covered from the dynamic rise activity on calm or from the flat surface and shows it is enthusiastic to touch or feel the paternity. (Suman, 2015) Balu Chaudhari for the latest decade has been involved in inducing a similar transformation to his creative interpretation. Chaudhari's artwork illuminates the unconquerable artistic desire to capture transient moments of the natural and human world and to cast it into various non-definitive pictographs.[12]

There's a lot of effort was created to structuralize forms of the mold; to understand how it functions on an acrylic sheet ascertained by an artist. The feasibilities adapted to have a wide range of prospects from impartially affordable to fairly expensive. Curiosity deal directly with a

[12] Suman Jitendra, Meandering Metamorphosis (Bharat Bhavan, Bhopal), Retrieved on 25 December 2015 from http://www.sutragallery.com/blog.htmlblog

finishing embraces early in the game because these decisions really have a huge impact on the success of artists that involves embossing.

Balu first acrylic paint on the acrylic sheet then heat the surface with Brue-lamp to create relief and with the subsistence of readymade mold of an object creates embossing. Sometimes air pressure also required constructing volume as similar to the process of glass work. Artist empathetic and work experience increase the expertise and skills to create a quality of work. This procedure of painting is called reverse process because painting works done from the back layer by layer. Heat and molding the surface according to the idea taken place as per the decisions by an artist within seconds and that is possible with the involvement of continuous thought process and practice.

Exploration of acrylic sheet for artistic expression is millstones in the art unrestricted. (Fig. 7.5) This material has a vast scope of Artistic exploration, Balu Chaudhari explored with an abstract presentation, now more ways are open to being explored by an artist. The artist has been Painting as well as exploring the substance and giving life to the art with his aesthetical procedure.

The process of painting with a sensible observation from nature and using that surface into relief makes more vigorous which is possible by the artist who meditates and innovates; the effects of the painting used in Acrylic Sheet. The technical aspects and journey to create physical echo will be deliberated by Heat embossing on Acrylic sheet and painting techniques in works of Balu N Chaudhari. Acrylic heat embossing is not a new-fangled, it was used for manufacturing purposes but artist used the medium, developed ideology and thoughts into it to formulate work of art.

The works of Balu Chaudhari can be distinguished as a spirit for innovation. Passionate by his longing to express mysteriously invisible forms of nature, Balu has totally transformed his medium as well as his forms in the last ten years. Balu has used the dry thick base of color as a natural metaphor of subzero shift and provided fluidity through the use of glass pieces in standing rows. Preceding brightness in color has been subdued with forms momentously and this has helped his forms to the flow of inclination. In which an artist enjoy the nature of medium with express conversation within the self.

The artist concentrates on the thought process of the constructing metaphors in different layers to create artworks. Results occurred by materials and techniques used in the creations are given, stressing the modifications as a result of the various interpretations of the works in abstract style.

Experimental techniques of embossing print the approach toward the art practice and purpose of art are the primary artistic concern which artists always try to justify with his expanding enquiry. The expertise comes through the practice and technical boundaries, barriers demolished within the effort of an intermedia experience. As per the technological and informative world, new materials and processes have been developed and practices which need to identify and utilized with new directions to meet the new artistic and technological demand. The traditional practice only prints on the regular defined surface, but new changing interdisciplinary culture demands a variety of materials and processes for application in art forms. They only concentrate on justifying idea with needed materials only it not depend on prints only, sculpture only, painting only, sometimes these all comes together and creates new amalgamation in visual arts.

For the relief printmaking there are two methods one is printmaking with press and second without a press relive printing with a press have several advantages, it made possible a speed and evenness of pressure in printing that is important factors, there are several printmaking machines have been used for printing the mainly press, screw press, cylinder press, Columbian, Albion Washington Press few people who don’t have printing press they go for manual printing methods.

Embossing print without a press can be taken by rubbing the surface in line, wood block and casting process paper pulp, sand cost, resin print, Alginate print, pop print, papier Mache, clay print, there are several artists who complete their graduations and after that lack of equipment they shift toward painting or other graphic (computer oriented) designing area. Though possibilities of the medium are very vast and wide only need to take an opportunity to adapt and experiment in own art practice. this thesis gives insights about the variable scope in embossing and its possibilities to utilized as an artistic practice which is one of the important purpose to bring it into the light of research area cost printing would involve surface that can be

poured, or painted, or sprayed on a mold and pick up ink merely from the contact with the inked surface of the mold.

Some of the material, like latex, can be left as thin as the paper, other like flexible resin can be poured thick pulpy character of the latex utilized for taking very minute details from any types of surface, recently 15th century masterpiece 'Gates of Paradise' by artist Lorenzo Ghiberti 3.5 tons of bronze work made a replica which is famous golden doors of landmark baptistery of St John with panels depicted biblical scenes. Original work exhibited in Florence, Italy, this work is done with similar latex imprint transformation techniques with lost wax process cast in bronze. One another example of the unique bronze cast Millie fire, 2017 by Deborah Butter Field is also the result of the similar process of print and casting.

If the material is soft and the print deeply embossed, the print may have jam in the internal shape much expertise required to handle the new materials and improve techniques for casting printing, but the technique offers a remarkable range of exploration and leads the printmaker into sculptural print solutions. In paper pulp we can see significant works of Somnath Hore, Zarina Hashmi, Dattaraye Apte and Ravi Kumar Kashi, the artist who constantly accepts challenge and expands towards experimentation with determination will achieve the identical visual language. The attempt is to focus the attention of the artist on method, material; processes with innovative quality will be aroused.

7.4.3 Collage, decals, and other transfers

The artist mostly involved in the search of new visual vocabulary are turning to the ready-made printed material and utilized industrially used printing presses radially available sources are magazine pictures and decals which have been printed images can be transferred to another desired surface. The possible approach to integrating commercial, as well as handmade printing in the in college technique, allows for an intense range in the juxtaposition of visual.

Ram Ji Dongre an artist from Bhopal has used Printed fabric and thread to accomplish an art by aesthetical sense on composition. (Fig. 7.6) He adopted formation of handmade bed carpet from the local popular culture that is called *'Kathari'* and implemented for his concerns. Implication and presentation of forms has been easily identical of his approaches as practiced on oil on canvas, his weaving patterns with needle creates a sense of relief and collage with variety

of printed fabric applied however shadow cast by the specific light condition creates more depth of field and seems to be painting because of choice of the color of an artist.

Dongre lives in the village for a long time and quite close to nature. His closeness with nature from village appears in the works. Ram Ji Dongre says- "I consider them a strong medium and element of art and have always tried to give them due respect and special place in my work. The rural famous *Kathadi* (quilt) is My New Canvas and as again village is the source of it. I have used this canvas to express my fantasies about nature and village. Nature is the shelter for all sky for birds, land for trees and water for aquatic creatures. My work is dedicated to these elements of nature." Ashish Kumar worked at department of Fine Arts Amity University under guidance of Mr. Kumar Jaisakiya; used printed fabric kept under the weaved net which appered as a relief image. (Fig. 7.7)

An artist practicing in a global trend nonetheless spontaneously the sensibility of Abhijit Kumar Pathak domain comes to his work unavoidably worldly pictorial essentials, occurrences, concerns and metaphors. His practice with contemporary mode of execution, besides the aforesaid thematic and manner of presenting urge always emphasise the space alignment as a significant part of its technical aspect. (Fig. 7.8)The association of colours, themselves, independently do not mean anything but at a whole, expresses the the natural structure of a beauty by sensitization beyond sensual observation.

A concern of the individual choice of expression had been demolishing the traditional methods of implementation under the embossments while the process of creation even though an artist is not aware to use the techniques but adapted and stimulated for some reason. Dongre says distortion is the elaboration of reality till it gets recognize.

Bangalore based artist Ravi Kumar Kashi had used mesh to work to teach the architecture students to fold the metal mesh plate. So the entire exercise was to take the mesh one by one and create form so that was the classwork exercise; than the papermaking we use mesh you may have seen we put the mesh into the pulp tank so he started wondering what happens when the entire form which Kashi was creating in his studio and dip the paper pulp by mesh. Instead of taking out the pulp from the mesh how the sheet looks like when the pulp and mesh together part of the

work permanently. Kashi decided not to remove the pulp; it was jell with the sculpture so kept it outside for several months and get more rust.

Kashi like the rusting which was coming and how to get it more than older look so he was doing a project at the same time when teaching drawing than thought how the drawing becomes three-dimensional. (Fig. 7.9) Guided students to draw a leaf and then they take wire in one of the workshops; the wire on the drawing and they get drawing in the space with wire, made paper and wraps on that so it became like a leaf than Kashi realise that there are the possibilities and all the works process simultaneously came in his works. (Fig. 7.10) Now techniques which have rusting also becomes part of the idea because Kashi talks about the decay and imparting something which has been not working so the whole boat works are about the system collapsing so rusting and all that; techniques as well as images coming together.

Artist Atul Dodiya had a solo exhibition at Gallery Sumukha in the year 2007 which was included several prints within the industrial production process of paper making worked at Singapore paper studio. While the process of paper making he made the collage with images, fabrics, hair, and artificial found objects in his series of works. In his works, you cannot able to find the joint where the paper starts and merge with clothes and other synthetic objects. He experimented with a variety of object in the paper within his language of art. Litho plate of large size 4'x5' were used with very sensitive touché ink, the effect was remarkable with the dimensionality on the surface of the paper.

The pulp has a lot of possibilities to extend as a painting; medium could not be an art until and unless contextual justification has been imparted with aesthetical concern. (Fig. 7.11) This demonstration was given at the Paper Pulp workshop in Amity University by eminent artist Dattatraya Apte which given a wide range of exposure to utilize medium for artistic concerns. (Fig. 7.12)

Sculptural etchings the new experiments and idea evolved with passion inspires people to work harder and the sculptural print is a big challenge to the printmaker who wishes to works between the printmaking as well as sculpture. It is the interaction to establish a bridge between the relatively two-dimensional world of the printmaker and the relatively three-dimensional world of the sculptor. Some works demand to feel their design more effective by these

dimensional print, when printmaker allows to go far deep etching lines and layers in the metal plate then, the damp printing paper around 300 gsm- 500 gsm is raised even more sharpen and clear as it is pressed in the printing machine with high pressure the edge of the plate must be filed before going for printing otherwise paper will be broken in edge of plates. For that damping of the paper depend upon the paper quality far high rise embossed effects.

R. Balasubramanian's work has very sharp edge in his print works, and if you see Krishna Reddy's viscosity plate, the plate itself feel life valley in the metal. Western artist Omar Rayo worked extensively in his very minimal of object placement in his compositional relieve embossed prints. Works double by Vreda Paris and “Life Cycle” by Fotis Korkis can be referred to the similar approaches.

The embossing surface can be embossed either by being pushed out as in intaglio printing or in as a relief printing in the single plate positive or vegetative space can be applied by metal, cardboard, wallboard, amazonite, Plywood, the surface must be coated with separator and moisture proof. The definition of Space is distance between the objects which can be positive or negative and depends on how an artist wants to approach if we see the Egyptian stone carving and inscriptions, its look like mold which can be taken prints also but the purpose of keeping structure is itself justifying the artist's intention; Prints always depend upon the base surface of matrix and essential requirement for the printing. The Egyptian relief block cannot be called as embossing prints though it is rise surface. Most of the printmaker practices like woodcut that is called relief printing but it depends upon the low-relief or high – relief embossing used in the printing matrix. Higher – relief sculpture by specially constructed out of layers of cardboard or any other suitable material.

Embossment has reached the limits of certain points where paper can be expanded without tearing, therefore, for high relieve, the thickness, softness and expanding the quality of the paper or other printing surface is important.

Practically the hydraulic press will produce very sharp and clear embossing effects because of the direct and vertical pressure given in these press. R. Ballasubramanyam has worked with layers of embossed prints on single works of art for the intaglio prints with

dimensionality can be seen the works in 'Man' by Shiro Ikegawa and ‘frieze’ by John Opie in which be cut and folded etching with stenciled color.

The embossed plates are used from the both side top and bottom with hydraulic pressure. The positive and negative mold slipped printing paper in-between without blanket with heavy, large, force full pressure able to create a satisfactory level of embossed impressions on the paper.

There is another kind of sculpture print is practiced is the cut- and folded or creased and– folded print. These can be either high – relief prints or free-standing sculptural print. First embossing prints were taken into the panel, however, we use packaging box with priority to keep idea of execution in advanced then after print it can be cut, creased, folded, glued or stamped it has been shaped into a dimensional formation the artist may choose to print a surface other than paper like aluminum foiled, vinyl, plastic, wood veneer, latex, metal, reflector, each of these medium has special nature of adaptation of inks and embossed impression and responding to shaping. The sculptural prints may stimulate some artists to explore the potentials of the three-dimensional print and individual efforts given to find new method and techniques which lead to satisfactory levels of the artist.

Humans are fascinated with arts and crafts since, from the ancient age, every individual artist tries to create an artistic journey and remain an artist. But most of the printmakers involved too much in method materials and techniques. To do so an artist must avoid the temptation to become so involved. With techniques that embossing becomes merely a craft; he must see beyond his own specialty and not regards each of the medium and its technique development. The intuition of the artist leads him to represents with indirect ways. Art never specified with just imitations it's conceptually accepted by the people.

The artist uses embossing as a vehicle for self – expression, and when the limits of the craft fail to bring the artist to his goal, the craft must be converted, cultivated with other craft form or abandoned. The future usefulness of embossing practice demand that it remains significance of artist qualities of contemporary trends in a technical innovation, experimentation and applications for the society for inspirational work the solutions of color in etching merge into painting etching in low relief borders on sculpture.

Overall painter's sculptors and printmakers will use embossing printing techniques as a support for the resolution of problems in their specific identical art practice. The artist must achieve an opportunity for experience, experimentation and individuality to self-expression. Intermedia is the contemporary voice of the future world.

7.5 Researcher's art process and transition:

"Your duty lies in practice, continuous practice of self – enquiry"

Sri Raman Maharishi crumbs from his table ch.7

Researchers own art process continuing with the various set of observation like collecting ingredient from the marketplace for the cooking at home which reasons for Paradigm Shift/Reflection-in-action. First, need to collect, conceptually clarify idea what needs to be prepared sometimes without any planning also but the ingredient and composition of putting things together with organized manner make tasty recipes. It happened same with the art practice, medium what we use need to be structuralized, conceptualize and ennoblement of being with the medium an artist forget everything within joy of creations that is actually a labor pain but happiest at the stage when an artist see the result what has come out as a product of art. The product is not the appropriate word but work of art inspires to live again to mesmerize on the beautiful creations of nature because human is the part of nature and when we go near to nature we forget worries like a childlike feel safe under the shadow of her mother. That's the reason we go to the mountain, beach and river sites for surrendering self to realize oneness. These all theoretical concepts and practical experience help to contextualize in the process of making art. These transformations from the simple to extraordinary requires beyond the interest that is called Zeal. Invesigators approaches apply within the context to do practice and research insights of the embossing.

7.5.1 Description-of works, medium, material, theme and techniques

Researcher had great admiration of the commercial hording painters while in the time of childhood, because of the very first encounter with the arts practice. But later realize that world is vast and started learning more and more. Knowledge is something when we say I know everything, we know nothing but when I really understand nothing, I know everything. As an artist and teacher I feel the different skill set is sharpening while being with impulse of knowing something.

When a person is teaching and learning there might be somewhere in the corner something expected through the act as the result in the minds of teacher or learner, however, it goes to the selfless in the level of *'Sadhana'* here it is not sufficient *Sadhak* may get ego of as a great devotee or great or learner. But when a person becomes egoless and without thinking about the result performs duties (Karma) that level is called *'Talpascharya'*.

(Krishnamurti, 1991) A thought is not intelligence. Intelligence can use thought, but when thought contrives to capture this intelligence for its own uses, then it became cunning mischievous, destructive Krishnamurti says intelligence is neither you nor mine. It doesn't belong to the politician, the teacher or the savior. This intelligence is not measurable. It is really a state of nothingness.[13]

Through the *'Tapascharya'* only one might be successes in the life by his/her Karma or worship. Today in the materialistic world most of the people even smile with selfless or with the purpose of something. We can see the methodological difference of teaching in the various schools of thoughts in the context of contemporary students don't' learn the things with the straight way they intend to go with the Zik-Zak procedure.

(Hickman, 2005) This book is not about individual talent or artistic giftedness it is concerned with the notion that the desire to create is a fundamental human urge which often unfolds naturally, but can be stunted or developed by cultural influences, including schooling.

[13] Krishnamurti J., Meeting Life, 1991, Krishnamurthy foundation Trust Ltd. ISBN 81-87326-30-1, from Bulletin Jr., 1971, p. 19

These include a consideration of the nature and purpose of imagination and role of expression in art-making as it relates to personal fulfillment self-identify and self-esteem.[14]

The 'Guru' is not to obtain, it needed to achieve. Teacher and student from the western understanding are different whose as Indian concern of Guru-disciple entirely beyond the lesion based task it all about the knowledge and guru shows the right path, Guru and Shisya example form Mahabharata story well knows, in that story, Aklavya started learning without letting the teacher aware about the knowledge. When he encountered him and confessed by Aklavya to Dronachaya and said he learned from him. Guru Dronacharya unable to understand how can it possible the knowledge is beyond the rationality of understanding with the ego and biases he asked his thumb aa a Guru Dakshina and become the darkest part of the character but with one suggestion Aklavya given his thumb and achieved his name as the role model.

The Guru must be with egoless and without any biased in nature there only we can feel the reflection of an aura of the *Tapascharaya.*

Human is full of ego and errors even we can see the god himself came on the earth with various incarnation and said you may criticize me also with reference to the karma and that wisdom gave through the and good *(karma)* worship must be understood as the final truth. The guru Dronacharya died on the battlefield by his own student because of his bad karma only even though *Guru* and *Shisya* relationship still given example by the Dronacharya and Arjuna, based on karma people get the result.

An analysis is very important to understand and realize the truth. For the instant you cannot eat 25 kg salt in one day, it divided as per the daily consumption and according to the digestive proportion. If you want to attain it the single time you may not able to bare it that and die. Knowledge is big in the border sense where it contents the parts of information through the analysis most of the time people able to separate the things and understand but unable to set entity to get the actual knowledge, that is the lack of analysis in there process. The fascination of

[14] Hickman Richard, Why we make Art and why it is thought, 2005, Intellect Ltd. ISBN 1-84150-929-9, p. 8

terminology or words are fake instead of this one may try to achieve and understand the meaning of words, the core purpose towards reaching the actual truth and knowledge.

The surface level of knowledge is not sufficient with the fragmentation of things it required utter realization with overall as an entity which is only possible through the apart of rationality or logical understating.

With the long duration and continue as practice big difference can be seen in the works of art throughout creative activity. When a child is very young, have more intuition but less understand. As a child become older understanding level increase and intuitive level become less active. The artist is the person who balances the level through creative practice from the chaos only one can reach to the act of creativity.

7.5.1 Researcher's experiment with embossing

Since from the 2005 when researcher join master degree programme at Bangalore University in printmaking specialization, interacted with various medium and methods of approach from the etching, dry point, lithography, viscosity, equating and woodcut because of the graduation in painting so many difficulty found to adapt to communicate what researcher want most of time have been observed printmakers works experiments and try to develop skills towards it but when they get command to handle, pass out from the college and without press or required space they don't continue their printmaking practice. The lack of interest and enthusiasm is the most of the art institutions the printing have reproduction quality but its effect is more interactive that's the reason an artist works with the particular medium.

The woodcut gives the result as wanted an interest in watercolor medium researcher applied to get amalgamated effects and its works. (Fig. 7.13) So in this process experimented various mediums and confirm self for deep study towards the particular area. As a printmaker learn etching from Sudhakar Reddy sir and lithography from V. Nagdas sir, and worked few weeks at Gulbarga University utilize lithography studio with keen interest to learn other medium and procedure also teaching and learning in the art education keeps alive researcher's passion for art practice and inquiry on particular interest in the embossing practice.

The adopting anything new is not an easy task for instance when a person goes for bodybuilding, it can be influential after watching somebody with very fit personality. If it is not

passionate will not go for regular practice and discontinue to adopt idea one need continuity with pain bear till understanding the works, other Physical and mental psyche not support at the beginning but the person who just continue, that beyond the painful realization of the healthy body slowly emerge with the desired outfit. We can learn from them how he survives for the longer period because of the control on the sensory organ. Similarly, in the art practice for the beginner who starts to learn any new medium, it required patience for adoption, understand, continuity, awareness and self-criticism allow to reach experimentation and within finding self-one artist born with his creations.

Knowledge gain through the realization and skills gain through practice if we do small effort every day by day, one day the result will have appeared as a massive. (Fig. 7.14) Analyzing works of art, context and approaches keep an artist living as a creative person which reflect with his action when practice as well as when teaching to the students. Investigator found very interesting of everyday learning experiences.

Teaching and learning simultaneously gives the advantage to be aware of what we are serving to the students must be correct for that more clarity need to understand by masters. The connect from the historical, theoretical, Philosophical and practical experience with consciousness a person who has fifty years of experience and a person who has five years of experience can be very with conscious efforts given by the experience if a person is not aware of his skills and keep with work will not count as knowledgeable but the conscious effort of given time by achiever make a huge difference the art world is also like that every time need to be either practice or enhance the acquired skills with conceptual or theoretical level or keep silent until the inner self not motivate to do any works.

We must understand the job of an artist who produces an artwork, but if you just think and think for five years' continuously you will become Philosopher/thinker the art and artist are separate like a mother and baby if it is in the mind of an artist it can't be considered a work of art idea must be reflected through the farm of any medium or expression.

"When the hands are clapped a sound is produced listen to the sound of one hand If you have heard the sound of one hand you can also make me hear it." - Zen Proverb

Surrendering self in front of nature and realize as the part of nature arouse the feeling of sublime. These give sublime feeling when we come near to the beach because the characteristic of nature developed the personality by three major properties: Physical, Intellectual, and spiritual.

Physics only told about the physical properties, intellect talk away from the existing visible property and spiritual is the higher level which allows thinking from the neutrality as a part of being of nature, which allows talking with nature actually we talk with self through the medium of nature. In epic story Ramayana when Ram wanted to go to Sri Lanka asked King of the sea to give pathway, if you see the things it looks myth, and people may doubt whether Ram exists or not but the message what it conveys is more important than witness and evidential proof.

A poet from Gujarat says.

"There are no ways in Sky and Sea does not mean no one has travelled"

- Rajesh Vyas

In the context of arts also it is not the matter of techniques or methods, down the line technique and method helps to justify or establish thoughts of an artist. So that medium can't be superior for example a person (human being) will identify by personal character but the way dressed or walk, talks and think these all support. The overall dress sense itself is not only identical may be with certain time personal choice works and the dress sense may change similarly for an artistic medium is the tools which may be changed or modified or demolished.

Human nature to represents an idea is coming since from the Prehistoric period in cave painting. First of all, we try to understand the reason to adopt various medium by them only we can predict according to the found inscriptions, seals and various sources of importance provided by the research scholars. Adaptation of 2D images to 3D surface gives various challenges to handal it; and also provided a movability to observe the representation of idea at the time when they worked may not be considered as artworks. But it should give various scopes to do study of human life, culture and the development, between the two-dimensional and three-dimensional surface of embossing lies and gives effects of mediators which helps sometimes to the artist to

approach his creation in early cave painting. They go for hunting wild animals and get injured by them so they know some of the animals but the things they started sharing experiences, ideas to the people in their community and some embossed natural rock parts identical to the wild animal their bit of suggestions created an opportunity to field the dimensional quality of the surface.

In visual arts embossing gives an effect to see and feel relief quality of a surface, second can be touch and feel; the third one is internal eyes can feel without the sensory supports by the intuitive knowledge which acquired by the previous experiences. It is the one part of the whole which cannot be separate and they painted the way it was like that an artist only give so many ideas to see it may be the creator aware of it by viewer an intersect with his own.

Human always admires nature and its beauty for the inspirational things for his creative practice. Rise surface gives dimensional qualities when light falls with different conditions and it gives appealing. We can see coins, seals and linguistic descriptions on the earlier presentation in the latter period an artist taken advantage of it to make the composition to represent various facets of human experience.

Human represents supreme power of natures as the form of God with various forms and worships them. The artworks provide such space where we do our works without disturbing them also for instance if you admiring your teacher and want to remember all the time you cannot call him and even though If he comes you cannot be with him always. Here it comes in form and with convenience, you can see the image of embossed or sculpture and can continue mundane activity because you know it is the image of your teacher and you get power source from him by only seeing the image, so that you get the power and quality of an artwork.

(Ralph, 1957) We have much to learn about this exploratory attitude and the teacher should observe each child's attitude to learn how he uses exploration as a means of organizing experience, the child works effortlessly without being self-conscious in the same way that a mature artist works. This is the time to encourage enthusiasm and help to the child stablish his intention which allows his imagery to mature.[15]

[15] Ralph L. Wickisr, An Introduction to Art Education, world book Company, printed in USA, (1957), p. 203

When a person comes to the corner of sea-beach and asked to taste the water, he may take few drops and check it and say it is salty but can you imagine how big and wider it is. He will not go every corner of the beach or inside the sea; it is beyond the limitation to check the water to conclude anything only assumed from the experience from the small portion. It is the human's own limitations which he takes decisions by his qualitative intelligence already given by birth from nature. Somewhere down the line, we cannot separate the experience when we call it is the edge when becoming a child and when young, and when becoming old it is the overall experience with current situations as well as previous experiences which help to relate human concerns.

The approaches of embossing practice are not important at all important is to convert into the creation of art. To shift towards mundane to non-mundane beyond the physical appearance, it is not easy to accept scientifically or prove it. But the art is not science.

Dimensionality of art not can be fixed within a limit, may be what teacher teach in the school of art is different as per the academic perspective. But art is beyond the class practice in the field which an artist adapts himself without any assignment, without any hope to gain marks it is involvement. A saint does not simply sit he control his sensory desires, deny to use an extra only minimum amount of properties utilize to live and keep thinking towards the goal. These all practice are similar to the Scientist, Philosopher, Singer or any creative person.

The art itself is the evidence of new perspective of thoughts and the new perspective of thinking an artist sculpt his ideas through the practice there we can see the development of cave paintings from the prehistoric time to the modern art scenario which drastically changed. We cannot fix art into the rectangular frame only it covers unimaginable dimensions. The teacher may teach with one dimension but learner has their own perspectives. Teacher only gives instructions with very objective manner but guru gives dimensions of thought which can be lead with tremendous possibilities in the future, for example when we learnt in the school we don’t know what we are going to do in the future but interests and idea sculpted by various teachers (craftsmanship) and guru (wisdom) which helps to develop the thinking levels.

There are two levels of thinking one is convergent and second is divergent. Science or math’s conclude any questions by answering with only specific methods of solving the problems

but the art practice makes dimension of possibilities which is called as divergent thinking. When an artist starts his works it goes with a small origin of an idea but he/she sculpt his thoughts with various contextual and philosophical level to take it away from the mundane thoughts.

The thought process developed by the hermeneutic cycle of learning-practice-teaching; teaching is not in the context of academic it is the self-questioning answering and realization. Such as embossing art doesn't exist in the historical terminology but yes embossments in the art forms being practiced since long time for the craft orientation, the researchers trying to connect the various practice of art making the mediums and contextual approaches by embossing practicing artist for the art.

An art-making is like a conceiving baby in the womb it needed the artist idea with a reflection of any kind of medium/media which come up as the properties of works of art. When mother conceives the baby she doesn't know whether baby becomes a doctor, engineer, scientist or a teacher, she only does her nurturing in the womb and after birth till the establishment and till the death. Mother always concerned for her baby even the baby gets older, thought also developed and sculpted by various experimented and consciousness. When the researcher (an artist) does study these divergent thinking reflected in the approaches which might be understood by the reader or observer. If the assessment structured to evaluate the all wild animals the methods and process of evaluation should be different. Though bird can fly in the sky but don't swim, an elephant can have physical strength but can't fly similarly the art and science methodology must be distinguished to evaluate according to the level of the respected field.

An artist also works like a scientist and philosopher to better understand self when they understand the self they create the new path. Following the already established path is easy but to create a new vision and to satisfy that need process developed and come up with failure and success.

The art practice level is not as easy as we assume it required zeal. Personal level of interest will not help the artist to become the qualitative potential craft making is very easy if a person has interest can learn any kind of skill set with dedication of practice but to become an artist it is hardest job which is not a cup of tea for everyone who just get degree from the art

institution that is the reason very few people in the field live as an artist and another merge in crowd with survival instinct.

Once a person understands the nature of art; personality and produced thoughts make a strong impression in the viewer's mind. When we study the history of arts and aesthetics easily trace the transformations of an idea and influences according to the cultural and political background. At the beginning, every new thoughts and concept has denied but an artwork stands along and gets its own credibility by the deeply involved new aesthetical pleasure without bothering about any other problems in the physical world. Mental strength cherishes the every corner in nature whether it is simple or complex, small or big. The understanding self itself is the concept of sculpting thoughts.

Understanding art cannot ensure to become the artist. A person may be having very good knowledge in theory and able to understand aesthetics, history of art so it is not necessary he will be identified as an artist. Bollywood actor Amitabh Bachchan says that – I may sing a song but not a singer, I may run fast but not a gymnast, I may lead people but I am not a politician, but committed myself as an actor and still being practicing to perform better. Today most of the people fall into the trap of fashion and forget traditional, cultural and spiritual ethics. Fashion comes and goes but ethic has been carried by the vision and individuals goals of life. Why people bored with their work? The interest which needed to extend to the level of zeal, they are unable to create and it cannot be transferred or inject into the other person.

The person who comes from inside out, they work automatically and enjoy the mysterious journey. Nature has created the living and non-living things together, both have their own qualitative and quantitative properties. Have they ever come to guide what to do next? This challenge must be taken by every person when you enjoy doing what you love; you will love what you do. Then there will be no bearing with doing things, laborious, painful things; you enjoy each situation and learn out of it.

This practice is also called as an art of living life with positive attitude. What need to be taught to the students need to be understood by masters for instance how to eat food can be taught to the students rather how food will digest in your intestine. If we try also it will not help to the level of students in the art college so that it can be given as an opportunity to understand

and the process of creating things with small inputs will help more to develop as an individual. To develop the student's personality masters is equally important as the pupil when good thoughts; practice nurtured in the age of foundation students will take the challenge and accept it the entire mysterious journey in the creative field of visual arts.

(Hiriyanna, 1954) Art experiences is well adapted to arouse our interest in the ideal state by giving us for taste of it and thus to serve as a powerful incentive to the pursuit of that state to full filling the need felt by man for restful joy, art experience may impel him to do his utmost to secure such joy finally for worthy purpose.[16]

The author not only does his own practice but also witness the developments of pupils work. That activity sharpens the observation skills and keeps aware of the futuristic possibilities within the stage. An artist's mind engages with his own conceptual works progress and practical execution but an educator being involved with solving any queries from the students even though if master don't know answer (he/she) master tries to refer learn and delivered to justify the Quarry. In that way for a good teacher required eagerness to acquire and zeal which helps to develop further; the author also playing the role as an artist and teacher to serve better language in visual arts as well as nation building with thoughts.

(John, 1950) An Artist is always striving for a higher and higher standard of draftsmanship and it develops with an increasing clarity of vision, together with mastery over technique and materials. It is evident that the mind can be expressed only through the body and it is equally evident that the artist can express the vision of his mind only by means of tools and materials. Therefore the sooner the technique is acquired the easier it will be for the artist to express his vision.[17]

It was a great pleasure to interact with Vadodara based eminent artist Surrendra nair exhibited his 80s-90s works at Kiran Nadar Museum at Noida. During my interaction with Nair

[16] Hiriyanna M., Art Experiences, Indira Gandhi National center for the arts, New Delhi, ISBN -81-7304-180-6, 1954, p. 32

[17] John R, Biggs Illustration and Reproduction, Blandford Press, (1950), Great Britain, p. 49

sir when I asked how he gets inspiration to create historical manipulation of small works he replied it can't be explained or said where it started but yes it is a long journey and experience of enormous environment gives on opportunities to explore creative skills. The small images full of historical visual make strong impact in my mind. Portraits of friends and colleagues were expressed with naturalistic approach to show the state of emotion.

The drawing work title "*Rekha with mosquito"* is smartly played its humorous role in the picture, which connects me with an artist David hackney's painting the *cruel elephant.* These observations articulates cleverly an artist play his role with visual as a great conductor to make a visual dialogue.

After interaction with Surrendra Nair, we met an artist Rekha Rodvitya. She had given an important message to our students. Rekha Rodvitya stated- "don't directly ask questions, do some homework so that you can understand the contextual things. One should know about the historical and cultural background so that it will be easy to connect with an artist idea or context." For instance, when we enter in the unknown hall we cannot just start playing with the switch if we follow the instruction can get direction without interrupting anything. One must practice- first inquire, analyze, then if you have doubt experts can be asked for clarification. The small indication will help to lead the right ways to understand the concept.

To conclude this talk with a quote- "Inquiring is better than criticizing."

In-depth study of embossing approaches for artistic practice gives a broader ideas about the essential aspects of purpose of arts and its functional procedures which help to develop personal level of understanding art, once the artwork product it can't be any more personal; it goes to the viewer and social psychological, cultural, political and spiritual ideology somewhere connects with human mind and that connectivity makes to realize similar experiences.

When we go to watch the movie, the evolvement to achieve the role of the character in the director's view by an artist reach to such level and that emotional level of feeling sympathies the similar context depicted on the screen. Even though we know it is not real we evolve to see the perspectives of the direction and try for the emotional scene, feel thrilling, excited, if we always keep our mind to determine we are just watching people who are actors and just doing acting we should not believe them, it is not true, we cannot feel sympathetically that's why

(Sahridays) the person who has similar emotional experience only can feel the situations. For instance, when we go to marriage for the participation of a ceremony we have observed the bride and her family member cry for expected detachments after marriage when we observe from the distance may be it look funny she got married and happily going to live with her husband's family but crying why?

When the situations come with us the emotional state of observing scene will be different, you may have experienced that similar situations where it can't' be controlled sister who has been attached from the childhood relationship going to live with another family detached from mother and father home and automatically started crying, it is one of the purest emotional expression which you cannot control.

The personal level of emotion when reaching to the so many other people in the society it reaches the social level when concern goes universal concepts and reach with the global context we say global social concerns. Art has such power to connect people with human emotions and psyches. So the personal level of development in art not only personifications of skills in the individual level, the art is broader than it looks when it is in the hands of a teacher to establish the thoughts for future.

At last, the author wants to conclude with a statement of Indian master

Chanakya Says:

"Teacher is not a simple person;

Establishment and destruction of realm envisaged under the lap."

7.5.2 Analysis of works of art, context and approaches applies in embossing practices

Chaos and creativity

Practitioner do meditative, creative act and that state is selfless in the creative expression meditative person do not talk about enjoyment because in the process only person lost in deep involvement if that person says I am enjoying meditation it means it interrupt that is the reason when you involve nothing need to say oriented to express while creation in the early experimentation jumbled things will come up; churning is the best example if someone desired to

get or achieve something start practicing and in the process chaos and worthy thing one may occur by the subconscious states. If you are conscious only you find the connectivity and it is a transitional quality associated with understanding. All the material or nonliving things made by *(Panchtatva)* five elements from nature thus it has no consciousness.

An artist experiments with subconscious states when he became conscious at that time impart form the creation and more see as an observer or critique the jumbled image which made but of the experimental practice must be identify by conscious state of mind of understand what it is and how it can connect and impart as a works of art. After connection deviation is an important stage which brings out as uniqueness where an artist breaks defaults and meandering path to becoming original.

For instance Indian classical singers Pt. Bhimsen Joshi never practice before the stage performance for the purpose of rehearsal. Nevertheless, he does regular practice as the part of *Riyaz*. The subconscious level of meditation takes him into the deep involvement. Sometime Joshi Ji forget about what he is singing and sing about the residential address which merely audience recognize but they enjoy the music if the artist is conscious and aware then only he may reach to the understanding of knowledge through the evolvement the only artist makes his own accountability and language. The language could not make by surface level it imported by in-depth involvement.

For example, if we see the works of Post-Impressionist artist Van Gough's work either paintings or drawings; his approach and accountability we can identify and understand as the form of style but this is the imparted as conscious gesticulation by an artist. Skills reconcile all variety of medium and reflect as individual gesticulation which imparted as style in the works of art.

Another example we can take to understand the style for an actor Amitabh Buchan his own voice is natural and simple but the people recognize his long journey as an actor and able to identify with certain dialogue and style of standing posture and imitate but Amitabh don't imitate he is by nature like that. The only innovative part is by the act of experimentation artist connect consciously and impart something from the subconscious state of an act that is very much important. Most of the people unable to import that such knowledge and unaware of that that's

the reason they are very skillful but not consciously recognize potentiality within subconscious efforts.

Scientist Albert Einstein discovered relativity theory by the process of meditative involvement white playing violin it has not directly connected to the two things music and scientific theory both contrast in nature. But Einstein suddenly got realize the theory of relativity and with that impulsive flow note down all those things in his diary by interpreting playing the violin. An artist involved in such ways to create art by intended nature to acquire knowledge that makes an individual accountability that accountability understood in general style of an artist or his works.

The involvement of creative act and through meditative process reach to subconscious level and import such results which directly not concerned with final outcome but something else, an artist somehow thinking of the result that involvement allows into deep level and come back to conscious state some other deeply rooted unconscious state minds give or express or which can never be been though by the conscious state of mind.

People may have various skills like writing, designing, Singing, dancing, acting or painting but the accountability of an individual reflects in his/her maximum intuitions where an artist get satisfaction to achieve something.

As I said in the beginning child must be more creative in the sense of explorer point of view where everything is under curiosity to know and understand so they only focus on exploration. In different sectors of age group we try to understanding it meaning that is also the conscious thinking when a person is selfless and subconscious they get involve in meditative process and get back something with conscious approach, where intuition and skills easily impart which may look very painful or hard work for the viewer but an artist enjoy and even do with very ease.

An artist never express abut enjoyment while the creation because of deep involvement in process of creation and being part of it. When detached the person will not more creator, he becomes observer or critique; after detachment of your results only become conscious and relate with the meaningful and tries the links from contextual juxtaposition and psychological

understanding that states of analysis an artist found connectivity and impart something for accountability as an artist.

The final results when you review may not believe you have done that, that is the power of intuition and mind where it gets exposure to create something with the meditative process with fighting and struggling all over deviations from life. An artist may stable by very long regular practice and within seconds also which can be discontinuation for a long time so the results may come with less confident in the works. It is only dependent on the ability to impart knowledge out of the selfless meditation. The creative behavior of an artist nature by given space for spontaneity and involvement there creator and observer together comes up with the results not directly, but indirectness an artist realize the accountabilities.

The person to person very his person which make sense and people respond accordingly for instance when we see the class room where pursuing student any course under the degree programme if the peon, teacher or director come in the class which makes various personality ambiance when a peon go to the class room if he talks the knowledgeable thing as teacher speaks student may not pay attention or may think that person is having good thoughts however content is delivered but it would not make attentive because students know the person is not a teacher but when director inter in the class room, he may not speak any relevant to the course but his presence itself make sense of higher authoritative and attitude of the class alter by his presence.

Higher administrator conducts the class or regularly visits the student but the power of administrative authority hold by a person is an important. We can see very easy example of the dress codes and its power when person hold the casual dress it will be general gesticulation of that clothes but opposite to that when a police wear dress and being on duty that power of personality will become bold which may not possible to get by casual dress just before the joining for the duty. Every person has its own dignity and roles which makes him as an important person when performs sincerely.

However teaching art is very difficult by an artist according to the current situation because an artist according to the current situation because an artist having various levels of creative person when it will not give productive result, may shift towards dissatisfaction of the job somewhere experience and realization of creative ability takes its adjustment of sincerity as

an artist and teacher. One of the disciples of K.G. Subramanyan teaching somewhere asked by him are you enjoying teaching than he replied no than master said that's good you can keep some energy for creative expression than only on the artist can be alive otherwise satisfaction of teaching job may kill the artistic potentiality. On of weird example seems fit to this context if a person is satisfied with daily masturbation to get an opportunity a girl in bed may not show enthusiasm and excitement, similarly, an artistic potentiality must be kept safe for correct opportunity to express it. The balancing act of teaching and artistic expression required both things separate so that it can be utilized with full of energy without feeling exhausted from serving only jobs. The work required to be identified to moderate energy for make value.

Most of the time we have seen the going teacher with artistic caliber use spontaneous drawings on their register, question paper and kind of available rough surface but that makes a lot of expressive ideas which required correct connection for instant intuitional quality of artistic potential like waterfall is there but it needs turbine to keep in right position to produce electricity, similar composition demanded for the artistic practice to make value and innovate.

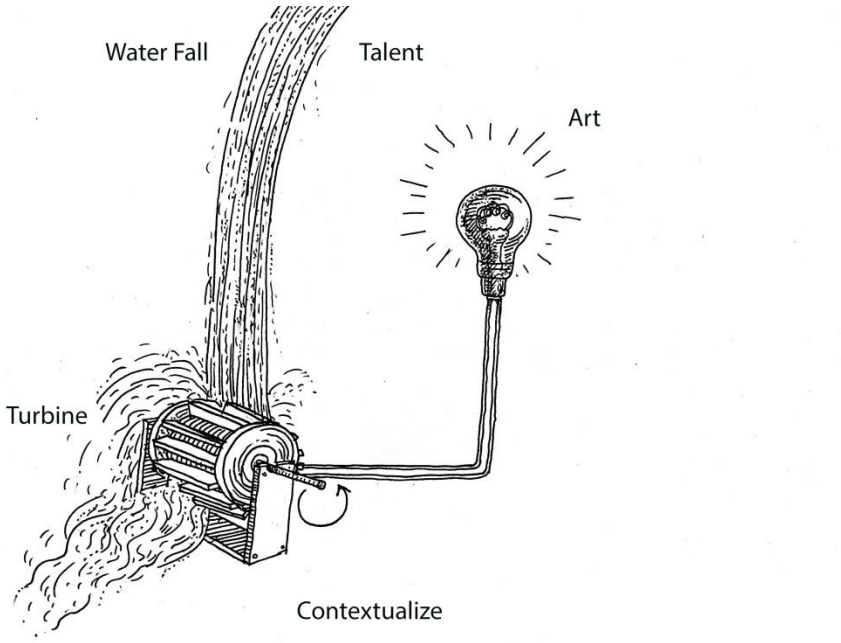


Figure 7.14 Creation of art (Illustration) created on 22 Jan 2017 Sahu T. K.

The moderation of talent with specific materialized things with an idea to contextualize makes an extraordinary expression of art forms. Most often in amity university canteen while lunch break we fine arts faculty group talks about art with different humor and sarcasm. Within a making jokes with problems we face similitude in art practice and teaching area to make sense form various aesthetical perspective however some of the jokes have been developed instantly that also a great creative approach one of the examples given in similar context by Swapan Bhandari once a poor boy went to the toilet and while bathing is soap fell down under the toilet sheet and he do not afford to buy another soap at that movement so pick up soap by using polythene covering on hands. He took a long breath but soap was traveled through the flushed water which cannot be avoided so the person washed again by the soap itself to clean again. This joke makes hilarious situation but often human psychic use to face we do a lot of activity any forget things which contextualize the same approach us washing soap with soap. It gives moral message while practicing art or teaching students.

In art practice good or bad is not defined the process which may we like in today's context it may appear funny in future some time we like the previous attempt us compare to the recent one. So this perception of things may make rigid however an artist always try to break the monotony of approach that is one of the reasons we find new things and challenges within the practice.

The new idea always is weird because no one has seen or it has a different outlook on the currently accepted trends. Regarding the formal dress, two friends were talking one said you don't wear formal dress what it is? then he replied that look like very odd to me when someone opened his bottom and just wear like he doesn't care, or a piece of cloth hanged as a tie. Accepted by the large population become the concept and cultural practice. Mostly we get influenced by the fashion and trends not by the cultural habitation. It is the very drastic change in our life practice more or less influenced by the social standard.

While the independent country of Bangladesh few groups of people migrated from Bangladesh to Bengal for surviving they do not have land even homes so they live in India with limited resources. One of the observations came to my mind where they use to cook vegetables by the outer cover of the guard which Indian people do not use; they have found their innovative cooking skills with developed taste this idea connected scrap metal or found object work. (Fig. 7.15) When artist adopts these resources the new formation emerge which way not possible by

the conscious efforts sometime this kind of practice give expose to get new dimensional in works of arts. (Khanna, 1998) Contemporary Indian art shares many characteristics with the art scene in the West, it remains free from the anxieties Western art faces as it strives for originality in this age of Post Modernity. Indian art today is refreshingly unself-conscious and being essentially indigenous of spirit, it is firmly rooted in the Indian psyche.[18]

Assistant Professor Kumar Jasakia Says "I don't want to become an artist, however, enjoy practicing art" the statement feels diplomatic at first hand but when you analyze, it has very clear and significant meaning. The purpose of art is not surviving or a modifying it as an object it reacts as an infector whenever people come around it has to be infected that is the power acquired by an artist's expression. As an artist and academician most challenging part is that when you teach or give you have to be Braveheart, selflessness, egoless that make you bigger because the concerns full filled with master's vision and following faith by pupils individual artist may satisfied with his own works of art but master satisfy when students perform well and create quality of works of art.

Here we can connect the statement said by Jasakia- master devoted his energy to the students not thinking about an individual but enjoy the creative act. Most of the time master planned and assumed possibilities of the various processed creative works and contributes aesthetical knowledge to impart authentic innovate thinking environment.

Kathy Alcaine writes about the Pollock, he is remembered especially for the large-scale canvases that he spread he spread on the floors of his studio and on which he dripped and dribbled paint in a rhythmic fashion. Energy, emotion and the idea of the artist at work are as important as the finished product itself; in these paintings, the individually of the artist is celebrated.[19]

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[18] Khanna Balaraj and Kurtha Aziz, Art of modern India, Thames and Hudson Ltd, London, ISBN: 0-500-23755-7, 1998, p.6

[19] Kathy Alcaine Edited by Allison Reid, Pop Art, OP Art, Minimalism, Teachers' Manual, The Rosa Mary foundation, p. 11

When a person enjoys practicing art his creative potential reach more mature level and aesthetical sensitivity for the creative person participation of exhibition reorganization, grants, popularity not kept in the top priority if required it comes after works. An image collaged/montage we have to mean it with purpose and understand its context of utilization, an image is not very easy or simple contextual utilization of things need a functional idea and analysis to project-specific means of expression.

Creative genius courage to create without thinking about loss or gain anything but enjoy experiencing new things even at first time. The acceptance of ambiguity and anxiety is one of the important aspects of creative practitioners most commonly people get afraid to do unassociated things to create they get fear to spoiled paper and invest time for being part of creative act, once you cross the boundary only such experience can be gained and one can achieve result out of it.

According to Barron Frank Psychology of creativity can be understood by tow group.
1. Control group, 2. Creative group
Control group follow systematic symmetrical designs where essentially a creative group preferred chaotic designs.

Absorption, being caught up in, involved and the state of the artist when creating or even the child at play creativity is characterized by an intensity of awareness, a heightened consciousness" (Rollo May) most of creative mind works with beyond the conscious states like a sleepwalker and attentiveness of the artist produce amazed work which is impossible in conscious state stimulation is one the key aspects of keep creativity asset by intense work to rest and relaxation, the aim diverted and focused for specific when it needed.[20] Pt. Shri Ram Sharma Says "People don't get tired of the heavy work-pressures, but putting e-regular efforts and assumption of work process like a burden".

An example of collage erudite by sculptor Dhruva Mistry, he says- when you see a girl you may like someone's eye someone's lips and some other one's boobs when you connect together and make another figure that will appear differently from all of them that is the

[20] Patreon.com/academy of ideas, retrieved on 27 Jan. 2018 form www.academy of ides.com

photomontage. People ask him why he is answering so hilarious way he replied you can't make a connection with the soft ways, it has to say with the hardest way when a sculptor do sculpting, cutter, grinder, hammer makes sound and that noise makes towards the creation. The creative process is not so easy or delicate it is the reality, Mistry tried to communicate his students to understand it with deep penetration.

The leaders of the cultural renaissance, of which the Santiniketan experiment was a unique offshoot, felt a need to view al the arts and crafts as a single connected panorama in order to revitalize the roots of their for additions of practice and drive them towards the new horizon.

(Subramanyam, 1995) Associated scholars and people wanted to see art as a part of daily life, not just in the museum, picture galleries or the audience halls of the affluent. Murals of Shantiniketan are more dramatic and there is a kind of healthy whimsical between art and architecture which refurbish environment to gain the functional dimensions.[21]

Communication has always played the essential role of art hence before the language pictorial symbols were functioning to the international language. A picture can be understood without words even today so many languages were used across the world which is not possible to learn by all to grasp immediately that the message of an artwork which shows pain, suffering, and torture. (David, 2005) The ingenuity of creative imagination practiced in adopting imagery can be important to the finished work's success.[22]

The Individual creative thinkers struggle for a conception by time to time and practice to being creative all the time; this dilemma in thrill to look at the empty canvas, or paper for fresh ideas. An idea in the art can take many forms, vary from the particular visual effect to an individual communication of a definite message, ideas encompass other contents and forms.

[21] Jayanta Chakrabarti, R. Shiva Kumar, Arun K. Nag Forward by K.G. Subramanyam, The Santiniketan Murals, Seagull Books, Published in association with Viswa-Bharti, 1995

[22] David A. Lauer / Stephen Pentak, Design Bssics, 2005, Wadsworth, Cengage Learning, ISBN13:978-0-495-9157-5, p. 6

(Benndtson, 1969) Beauty is the final stage in the goal of the artist in creating and of the appreciator in contemplating, but it is not the whole goal beauty therefore may be taken as necessary but not as sufficient to the definition of aesthetic experience.[23]

The process of development occurs within three simple activities-thinking, looking, and doing. In the creative process practitioner consciously stimulate to find out the solution to a problem which may drill in the distinct situation when properly documented, preserved any types of ideas. These activities are not required sequential practice but essentially a moment of sudden insight, for instance, the idea in the shower rarely occurs without an investment of energy into the problem. The main challenge is to grab the chance favors by the prepared mind for creative expressions. Having a talent isn't worth much unless you know what to do with it.

Context and approaches applies in art practices

Through the theoretical aspect of poetry we can understand the contextual level in visual arts because it's all generalized on broader concern of art. Amalgamation of various aspect utilized to impart the theoretical transcended to the accomplishment of works of art. The depth of cognitive approaches on poetry one way or another relevance to practicing and imparting art; the embossment is the techniques triggered out the creative potentials of visual appearance not merely with external but thought drilled in-depth. (Barlingay, 2016) The theory of poetry discussed and developed by Bharta, Bhamaha and Vamana, Anandavardhana and Bhattanayaka. The theories which these and other masters propounded can be grouped mainly as *Riti, Alamkara, Vakrokti, Rasa, Dhavani,* and *Auchitya.*[24]

[23] Arthur Benndtson, Art, Expression and Beauty Rinehart and Winston, Inc., 1969, ISBN: 03-073590-4 Printed in USA, page 10

[24] Barlingay S.S., A Modern Introduction to Indian Aesthetic Theory, Cataloging in Publication Data DK, 2016, ISBN: 978-81-246-0377-2, p. 54

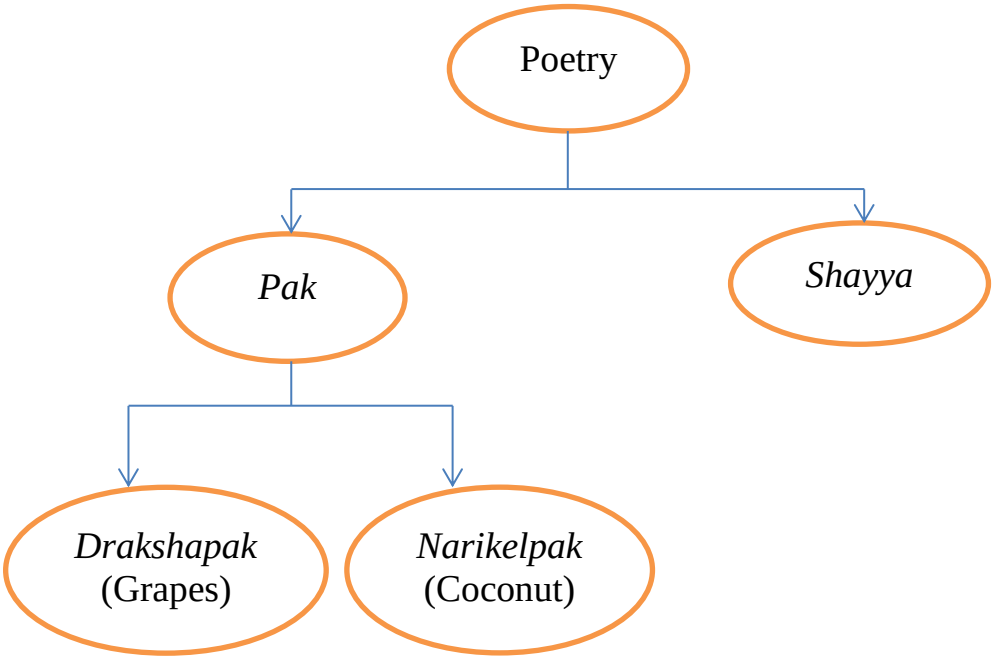

Figure 7.16 The theory of poetry, Diagram created on 22 Jan 2017 Sahu T. K.

Indian scholars Jayant Kothari and Nattu Bhai Parikh (1960) have described *Alamkar* in which *Kavya* (Poetry) discussed with *Gun* (quality) and *Dosh* (error). Natu Bhai Parikh considered Auchitya (Purpose) under the Gun. In the poetry *Auchiya* of wards and through the words in *Auchitya* viewer reach the level of Raga.[25]

In poetry to understand Gun and Dosh it has divided into two parts one is *Pak* and second is *Shayya*. Pak divided into two part one is called *Drakshapak* (Grapes) second is *Narikel Pak* means (coconut).

When a word is important and meaning is not relevant for example of a poem- *"Choudhavi ka Chand ho ya Aaflab ho...."* If we go to the meaning it represents the Moon, no doubt word and meaning together coordinate and reach to the Rasa. However, you are unable to understand the purpose or intention to use words you cannot reach an emotive level of rasa. This

[25] Jayant Kothari and Nattu Bhai Parikh, *Bhartiya Kavya Siddanta*, 1960

becomes an obstruction. If replace word *Chand* by some or *Chandra* which indicates the same meaning ever though poetry will not give that much relished. In these lines the purpose of selecting specific word only fulfills the goal; synonym words will not be suitable except one word. These types of word known as *Pad-Maitry* so many scholars have written about the Pak but scholar named Vidya Das speaks extensively of the style of poetry if the style of poetry is not based on Pak, it can't give complete relished.

The viewer must understand the types of Pak which depend on the ability of understanding style of poetry. The poetry is based on words and meaning but viewer needs to understand the Pak whether it comes under *Narikel-Pak* and *Draksha-Pak*.

In word called *'Arth Gambhirya,'* it means the depth of the meaning or the maturity of the means and sound of the word is equally important. In *Shayya* it's not going towards the meaning that is only sound of the word which set on the stanza (*Pras*) or not it confronts. It will clarify with this example of a poem- *"Choudhavi ka Chand ho ya Aftab ho…."* the word Chand is not going for meaning that is based on the word itself.

Shayya is more focused on the structure of sound where Pak is the level in which focused by word within it or its nature and style exist with poetry first the basic identification of style is important than the viewer can able to try to understand the poetry. For instance Hindi song- *"Tu Tu Tu Tu Tara, Toda Na Dil Hamara…"*

In this song to reach the means is not giving any efforts, if a person trying to find out the meaning and depth of the means, he will not get content at all. The understanding of *Pak* depend upon the viewership how it goes, some poetry will be very tough which age very hard to get into it that looks very heavy to understand that is called as *Narikel Pak* (Coconut) you have to involve yourself to get into first then reach to the nearby will be very big deal in the poetic concern.

The hardest job is to climb a coconut tree than coconut you need to cut, you may get down into the ground but cutting the fruit will be another challenge. If you are able to open it so you will get very few Juice and *Malai* in small quantity. If you are unable to understand the style of poetry by its quality, that will be a big error.

Earlier scholars believe that *Gun* (quality) and *Dosh* (Error) depends on the poem. But Nattu Bhai Parekh says that quality and error (*Gun / Dosh*) depend upon the viewership also. If the viewer is unable to identify their style of *Narikel* or *Drakshapak*; he may able to understand easily *Draksha-Pak* (Grapes) and feel *Draksha-Pak*. On the *Narikel* (Coconut) which may not be adopted or able to accept may felt bad taste and throw it out because the viewer is habituated to eat (Grapes) *Drakshapak*. if we increase up to five times greater efforts, viewer need to climb on to the coconut tree and to get down coconut successfully on the ground before that need to prepared for that need to do exercise to acquire the capabilities because it requires to fold leg at least for minimum 10 minutes so that exercise is necessary.

Gun (quality) and dosh (Error) not only depends on poetry but also in the viewership, if viewer unable to understand the style of the poetry. This poetry comes under which style is it *Narikel-Pak* (Coconut) or *Draksha-Pak* (Grapes) if similar fruit called *'Dhatura'* hanging similarly of the grapes and with misunderstanding, he eats that it will be great problem and trouble for him.

(Barlingay, 2016) In the case of poetry the words and their meanings are changed into a flow and if the flow is significant it further assumes that form of transcendental vision. Jnanesvara, a great saint-poet of Maharashtra brings out these steps in the following verse.[26]

Vache barave kavita, kavitva rasikatva |
Rasikatvvim paramtattva sparsu jaisa||

Scholar Vidya Das speaks about the *Pak* and *Shayya* should not be under the Gun quality because the discussion of quality and error should not be based on only in poetry; it based on *'Rasikatva'* viewership also. The person who may be a *Rasik* but he is not listening to poetry every day he may not able to make poem but practice to listening poem must continue; similarly a person who is a poet, may write poem every day similar way *Rasik* (viewer) also required to

[26] Barlingay S.S., A Modern Introduction to Indian Aesthetic Theory, Cataloging in Publication Data DK, 2016, ISBN: 978-81-246-0377-2, p. 29

practice of listening so that he can decide the handing things is grapes or *Dhatura* or Kiwi which you have picked up it may not be suite in your mouth you feel annoying.

Most of the time it depends upon the spectatorship, the people who eat grapes unable to acquire the coconut because it required lots of efforts to get it; reach the level of rasa is very tough so with boredom comes and thrust it out and say its worthless. So who has the problem or error, either of the poetry or the person who is unable to acquire it?

These things not only scholar Vidya Das spoken but the poetry was under the lesson of grammar. In content of grammar it was shifted towards the aesthetical perspective, after, discussion of *Alankar* scholar's discussed on *Gun* (quality) and *Dosh* (error); only *Alankar* cannot do everything. Few scholars considered *Achuitya* (purpose) as a separate theory if there is no (purpose) *Auchitya* the *Gun* (Quality) will be ineffective. Some Scholar Believe in the *Alankar* the purpose itself a quality and no bigger quality than *Auchitya* (Purpose).

So there are different opinions discussed by the scholars. Vidya Das says the quality and error should not be poetic orientation or poetry based, it is based on *'Rasikjanya'* viewership also, the error may occur from the onlooker sides. If someone tries to eat coconut as similar as grapes so these type of error is neither from the poet or poem. Scholar Bernard Bosanki also speaks about the same thing. He is not going to the poet, or poem, or the artist or art and not even to the viewer. Immanuel Kant said at the beginning if you understand art through ever-changing idea so idea also changes randomly with the idea explanation change, an entire vision and thought to interpret differently, Kant denied these ways to understand.

If beauty is an idea, beauty can be understood through an idea. If less understand the idea then understanding beauty with any materialistic things cannot be possible, yesterday's art today will not be accepted these kinds of a way or through the example, art cannot understand.

Scholar Bernard Bosanky speaks about- Easy beauty, difficult beauty. Easy beauty demands very fewer efforts were difficult beauty demands maximum effort. Actually, these are the same in *Draskhapak* (grape) and *Narikel Pak* (coconut) which Vidya Das talks about Pak is one type of style in poetry. Some poem style will be *Narikel-Pak* example from the film 'Rang de Basanti.'*"Luka chipi bahut hui samne aa jana…"* The thing ought obtained are able to understand but simple ways to speaking not able to create Rasa.

In *Drakshapak* the thing has been said, the way it has presented, a viewer is the immediate reach to the meaning and appreciates. For example, most of the Bhajan will be lucid and it said in the single level when words you know but there are no direct meaning exist. You are unable to reach to meaning if you reach also you cannot enter into the level of '*Gudhata'* (depth). You describe and get– length and breadth, you feel various things within variations of time and viewers interpret as per his *Rasik* nature because of the void depth that is called in Hindi *'Gudhata'*. These types of poetry similar to the *Narikel Pak*, to open it is very heavy, but in *Drakshapak* (Grapes) you reach to it keep in the mouth and within one or two bites you are able to relish rasa.

Whereas in *Narikel* you get cream separately, water separately and taste also get with variation with fluid nature of water you enjoy. Here you get two types of variation when you drink water the unknown taste of cream enhance up your desire to know what you are enjoying right now with that another curiosity developed for possibilities. I will drink but how would be the taste of cream *(Malai)* there will be variations of cream. If coconut creams you get without giving efforts you may not enjoy the process and relishment of rasa.

(Panofsky, 1997) Analysis of structure at this level transcended not only history but also questions of function or value, beauty or meaning. Structural analysis revealed a pattern behind the temporal sequence of works of art, an internal motivation or artistic will.[27]

Professor Deepak Kannal (Baroda) given examples in his lectures to communicates.

How do you feel when you eat *Pan* as a *Laddu* and *Laddu* as a *Pan*?

The *Laddu* will dissolve in your mouth with larva and you feel disgusted. Where you eat *Pan* as *Laddu* within few bites only *Pan* will be finished and you cannot able to get the overdue relished of rasa by chewing.

Another example you cannot do exercise in as per that you need to get sweat which comes after hard labor than you enjoy the exercise. *Pak* is the particular nature of poetry if

[27] Panofsky Erwin, Perspective as Symbolic Form,1997, Urzone Inc., ISBN: 978-0-942299-53-3, p. 8

someone is inhabited to eat grapes he will not touch *coconut*, with anger, say don't like eat and consider as ineffectual. Few artists use red, yellow and green in their paintings, they are actually the viewer or spectator, habituated to make and eats grapes and they wanted to produce that only if you eat grapes morning, afternoon and evening one day you get bored and abandoned it.

The *Rasik* (viewer) must know the things which you are taking are it comes under the *Narikel Pak* or *Draksha Pak*.

Actually, 'Pak' word derived from cooking, Pak-Kala means the mastery in cooking. After having food rasa will be obtained, rasa came after the Pak, after having food Rasa will be relished.

What is the difference between Brahma's creation and poets' creation?

Brahma's Shristi (Creation) is made by physical things, a poet create its own universe (Brahmand) and Brahma has created the world which has own universe, there are people told that almost subtle and no exaggerated. The people have said about the poets' creation.

"Jahan na pahunehae Ravi, vahan tak pahunche Kavi."

It means poets imagination reached into the depth where sunlight also cannot reach.

Few places we evaluate poets creation is greater than the Brahma's creation but if Brahma's creation doesn't exist how come poet brings his metaphor. This has not been quoted according to the spiritual point of view, it is the sources of a poet where we live and poet is the part of the world.

The Nature of Art- The poet amplifies by racial melody and rhythm the penetrative power of his message, as this 'makes its way into the inward places of the soul', and there exercise its uniquely persuasive power, its educative charm, poets are the nation's natural teacher's.[28]

Plato talks about something which exists in the physical form and we talk about the art so both of the things important with "*Tadatmya"* (the significant comprise) and transition exchange.

[28] Plato's Theory of Art, Routledge, New York, (2001), ISBN: 0-415-22521-3, p. 76

The bird called in Hindi *Bagula* (Heron) cannot able to drink water from the flat like a table if you keep water there because of the peak. The peak of *Bagula* (Heron) made to lift water from the deep water to catch fish, a bird cannot able to drink water from these similarly big scholars cannot able to get small things. If your logic only lying on the roots of logic, have you seen any tree which stands only on the roots?

What are the important things required to stand a tree? People may answer only roots very few people will come up with an answer on soil this question is very logical and you can try to make a survey in your surrounding answer of the question given by question only which answer one who gets with the question but from another person.

Tree stand on the roots after survey answers get but if you give an answer with logic you will not get the answer, even not get the right answer. To understand logic by logic is incorrect. You have only logically understood when we talk about the tree, you think a tree is separate and the earth is separate. The question which has been asked in that logical talent is more prominent, even you are learning to give an answer to the logical question by logical answer is not sufficient.

Robert Stecker questioned- Is it reasonable to attempt to define art?

(Carroll, 2000) If water is composed of H_2O molecules that this is necessary to know but empirically discovered truth. It may also be true that the meaning of "Water" is simply its referent, hence, not only water but "Water" is defined by a real essence. Artifacts are as their essence of hidden natures that can be discovered. Hence, artifacts are not defined by real essences.[29]

For instance, water (H_2O) is made of hydrogen and oxygen and it is not only made by the above-mentioned proportion of properties but several minerals include as the part of the water which composes water. Minerals are not the property of water that is the properly of soil from which it has gone through. You say (water) H_2O so it can't become water here you have only logic and logic cannot able to reach to the knowledge. It can take till the level of fragmentation of knowledge that's why science becomes exceptional. It gives great opportunity

[29] Carroll Noel, Theories of Art Today, 2000, The University of Wisconsin Press, ISBN: 0-299-16350-4, p. 59

to reach the fragmentation but no one scientist explains whatever they have urged after fragmentation you need to join together at that time logic can't work.

So that maharishi Ram Krishna Paramhans gave a force of feet in between *(Lalat)* forehead of his disciple Vivekananda and said you cannot get knowledge by the logic. Similarly '*Aghori*' in India, if you go to ask them a logical question they don't respond even they don't give the answer. The question is not *'Rasika'* intention less inquiry in Hindi we call *(Khokhala Rasik*) you meet them over the mountain and ask, have you done bath how many years you have been without a bath? They say-what is bath? When you are in the habit to eat grapes you cannot absorb coconut.

Poet says – "*Abi atadiyan kamjor hai dimag ki sabut gyan kaise pachega*."

Means the ribcage of the brain is very weak, how can it digest the solid knowledge (Ultimate true). The question must be asked with '*Gigyasa'* (curiosity), you ask the question to defeat someone. Your question is not made to get an answer, you are made yourself ready to throw only questions to feel great when someone defeated by your question. How come you get or reach to the knowledge, it is so far?

Embossing approaches brought changes to personal level to socio cultural level

Creation and appreciation of art are the important aspects of human nature; where an artist shares the state of mind with others as an existential reaction from nature. Perhaps sometime creator himself doesn't know about where the aspects came from in the works of art. Awareness with picturesque, intuitive and qualitative experience makes thought as mind and eye coordinates to create the hermetical circle, it will be focused by mind's eye to create an art within the direction of visual grammar. Based on Interpretation and curiosity one can build strong aesthetics experience to distinguish between commercial arts and fine arts.

Art comes first then the critic comes in second, before producing works no one criticises as such one work can get a lot of possibilities to the critic for criticising as well as an artist get another idea. Question asked by the pupil of Plato- Can art inspire? So his answer was yes of course. Art practice, teaching, learning and again practice creates a circle where the creative circuit help to inspire, accomplish and develop strong understanding in visual arts. Through the

practice and positive thinking, one can get a new idea, perspective and new point of view towards creative pathways along with criticism.

According to the saint Kabir, criticism is a tool which can clean the inner dirt without soap and water by self-realization and determination, one must response with consciousness to the role of the individual as an artist, teacher and the observer. Art never defined by the great masters even though they had worked whole life in the field of art; it's ever changing with different human perceptions but art remains the same. Art experience can be given example like a sailing small boat in a magnanimous sea; if we give whole life we cannot experience at all, but yes make effort to contribute beautiful experience of being human, approach to attribute supreme power that created nature and we are the part of the same.

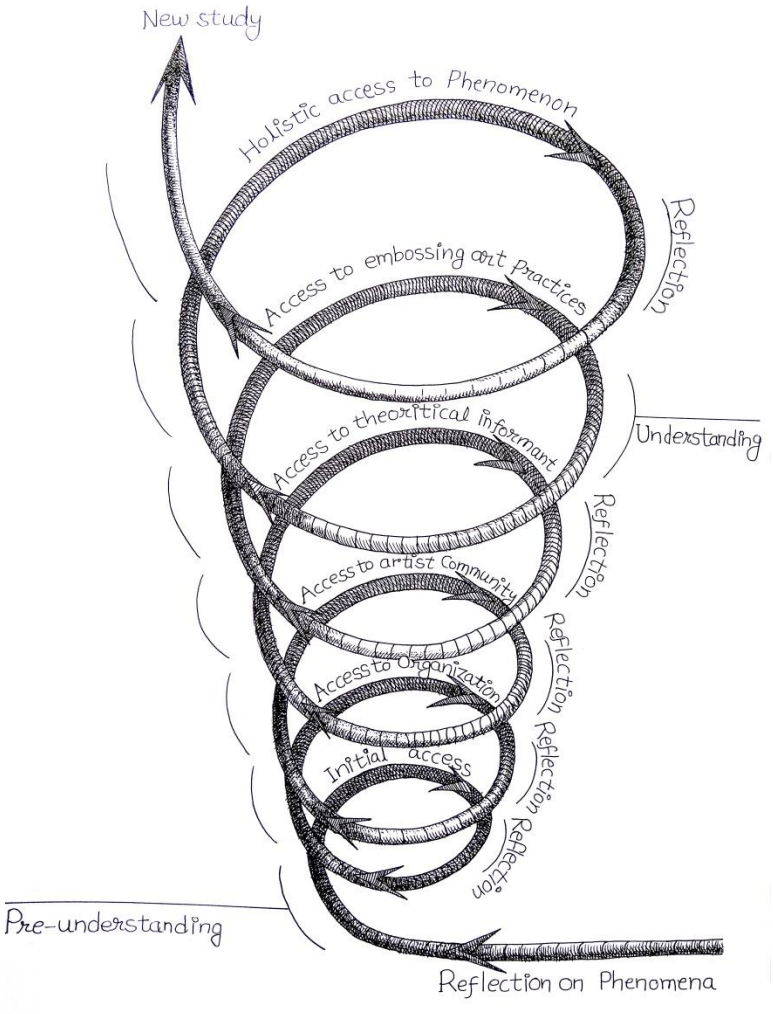

Figure 5.7 Process of reflection on phenomena (Illustration) created on 21 Sep 2018 Sahu T. K.

Research paper focus on balancing value education and skill development in the field of visual arts through the analysis of various examples of the project works. The analysis of the works is to be the part of creative pursuits to benefit students, the art community, and society. The art of creative thinking and practice within teaching-learning aspects enhance visual communication with aesthetic sensibilities which helps to erudite and play the important role as an artist and artisan. Pigeon doesn't know about Aerobiosis, Aeronautics, and Aerodynamics but flies in the sky; I understand the science but can't fly; nevertheless, we should always try to keep creative practicing. Everyone has the intuitive and qualitative knowledge only need to be identified and put efforts to worthiness.

Work itself get recognition and inspire people if it has potentiality. Good effort and positive attitude leads towards the bright future and makes an aura of energy, faith, and growth.

"A Painting to rest the brain or the imagination"

- Vincent Van Gogh

When we talk about learning it is not just an experience of sharing knowledge and adaptation of erudition; illiterate women also teach her children in the womb before Childs birth. Sometimes we don't know whether it's teaching or learning but unknowingly one gets an experience from mundane activities.

A newborn baby starts learning by an activity of certain things unknowingly similitude artist also being involved in the creative activity to satisfy the inner desire of expression. Sometimes baby tries to stand and walk but fell down and get heart by him, the experience of that pain is also learning in human nature. (Adams, 1996) All the creative arts including the visual arts separate the human from the nonhuman. Animals build only in nature, and their buildings are determined by nature. Molluscs, from the lowliest snail to the complex chambered nautilus, build their houses around their own bodies and carry them wherever they go. Human effort is to create distinct from, and related to, its natural environment.[30]

[30] Adams Laurie Schneider, 1996, *The Methodologies of Art*, ISBN 0-06-430312-8, p. 5

Usually, people ask a question to an artist what he painted in works of arts and certainly replies by an artist is don't know; people think how could be a person answer, in that context Picasso said why people don't ask the question what birds are talking about. Mother does not need to learn how to conceive a baby nor do sperm decide when it reaches the final destination or wins race to get laurels for birth.

These exercises intend to explore the relief process which they can use for various purposes like collagraphy, single level, multiple level embossing, blind embossing and viscosity printing under the course of Material Handling. These techniques presented by Assistant professor Bhaskar Vadla in my class and further extended under researchers guidance.

Aspects of learning and teaching always are there; now medium has crossed the limit you do not need to students in front of the teacher. (Hughes, 2002) The sense of a natural order, always in some way correcting the pretensions of the self, gave mode and measure to pre-modern art. Overload and Mass media have changed our art and habitat in last thirty years.[31] Observation, analysis, and interpretation are the keys to understanding the visual language it may take seconds, lifetime or you do not understand anything but enjoy life as you love.

People make love never learn how to do physical relationship but do; while making love they never think about a child, after the pleasure of making love essence of energy called *Prasada* has resulted as a child, nevertheless these instinct comes from ancestral. Art practice is also a kind of making love and the Prasada is works of Art. (Osborne, 2002) The institutional aspect of the artwork was a recurrent concern within conceptual art from its Duchamp beginnings (Fountain) and during the 1960s as a move from an aesthetic of administration and legal organization and institutional validation' to 'the critique of institutions'.[32]

Amity School of Fine Arts provided a great academic scope, studio and allowance utilizing which the recent Workshop on Paper-Pulp has been possible to be structuralized and imparting worthy works of Art from it; the feedback from attendees was very positive. This

[31] Hughes Robert, *The Shock of the New*, 2002, Thames and Hudson, ISBN 0—500- 27582-3, p. 324

[32] Osborne Peter, *Conceptual Art*, 2002, Phaidon Press Inc., ISBN 0 7148 3930 2, p. 42

Workshop was aimed to let the students perceive the dynamic possibilities of the Painting Discipline by introducing one of the unconventional mediums coordinated by Tikendra Kumar Sahu. (Fig. 7.16)

The Paper Pulp Workshop conducted by eminent artist Dattatraya Apte, for the Fine Arts students from 14 Sep 2016 to 17 Sep 2016. Group of students experienced in the paper making process demonstrated the steps, making pulp from waste paper, then carefully straining out the water with filters and towels, before setting out to dry, the new hand-made paper. (Fig. 7.17) Paper that has minimal pulp and papermaking emissions - and does not use chlorine bleaching and is manufactured in a closed loop system for instance full effluent recycling; it was also lesson to the students for waste management. (Fig. 7.18)

On display were the experimental found objects impressions, Pop carving and casting, various texture explorations, Pulp painting, Paper making process, Machine handling, Paper dye color preparation, and other small artifacts made from waste paper at this workshop-cum-exhibition. It is special also for the Fine Arts students who recycle paper, made creative expression and create wealth from waste. Their efforts, though small, are inspiring and certainly worth emulating. The recycled handmade paper and office paper and follow the ideology of "waste to wealth" and integrate this in process, product and practice.

The outcome of workshop exhibited for public view at department of fine arts Amity University Noida. (Fig. 7.19), (Fig. 7.20), (Fig. 7.21), If many more of us started recycling paper, and cut down on our use of paper made from virgin pulp, perhaps the billions of trees that are gleaned every year to make paper, could be spared and left standing to perform a more important task – that of absorbing carbon dioxide from the atmosphere.

Now people think about why should buy a painting they go for the smartphone because it has functional values of utility but they don’t find interest in art; because our cultural system has not created that value. And no one is responsible for that we have to face the challenge and change the scenario of our circle, it will take the time to create a reputed environment of art practice in culture. (Subramanyan, 1978) articulates other artists may have greater vocabulary or powers of

expression, but few could create a new language in the field of visual arts.[33] Ones the positive culture builds it to transfer from one person to another one. (Fig. 7.22), (Fig. 7.23) Visual art Institute required lots of effort to create a space and environment then only a few of them can survive as an artist.

Professional learning is very hard in the field that why it's balanced by laws of nature's, for instance, human produces sperm in thousands of number but merely rare will survive. (Morley, 2015) Students may focus on dimensions of research that are practical, empirical, concrete and performative (involved in actions rather than analysis). These involve planning, acting, observing and reflecting, and practice-based projects invite ways of thinking that respond in an immediate trend and are more fully immersed in a living, bodily and participatory context.[34]

In future, Visual art will have been more scholars practicing in the Practice-based research. (MacLeod, 2000) The artwork is propositional of advanced thinking in this new culture of higher degree research in Fine Art. We could say that the demonstration of the intellectuality of making or realizing artwork is effected, through the combination of artwork and written text.[35]

"A lot of people are so used to just seeing the outcome of work. They never see the side of the work you go through to produce the outcome."

—Michael Jackson

(Klein, 2014) The artist has been trained to regard the creative process as something that should be kept to the self. To you and you alone, what matters is the process: the experience of shaping the artwork." The artist must understand the roots of inspiration and truth should be

[33] Subramanyan K.G., *Moving Focus- Essays on Indian Art*, 1978, Lalit Kala Academy, New Delhi, p. 62

[34] Morley Simon, *Keywords and Concepts*, 2015, ISBN 978-1-118-76889-1, p.118

[35] MacLeod, K., 2000, *The functions of the written text in practice-based Ph.D. submissions*, Working Papers in Art and Design, ISSN 1466-4917

reflecting in work of art.[36] Delhi-based artist Abhijit Pathak practicing art as well as teaching, so the idea of collage making workshop has given him stimulation to think about utilizing possible approaches in project based on a variety of fabrics and another nonconventional medium; art inspires people and its positive activity. There is always gap exist when an artist creates works other can see the visual apprehension because of the distance in art; fresh eye easily catches the problem in first hand rather involved producing works by an artist himself.

(Adams, 1996) Picasso made such leaps as a child is suggested by his account of the problems he had learning math in school. He read number seven upside down nose it was translated from the abstract number to the concrete picture, reversed like bicycle seat of the Bulls Head and similar in form to the noses of his early cubist figures.[37] The way we see the things make difference makes works of art. (Baala, 1997) Art making in just not limited to the painting, sculpting or performing; now interdisciplinary and collaborative activity makes a more interactive project in the modern era. The 'life' can never be located in the constituents of any living form or organism; the only and inevitable criterion is the 'holistic perception', the perception that of a human form is the realization of the life as a whole.[38]

Every teacher having different qualities of teaching involvements, methods and that is required if we considered ourselves as a part of the intimate. (Fig. 7.24) The different strategy is required for example a mother teaches with care, delicacy, and emotion; where father holds strong, discipline and practical. Both needed in various circumstances to develop overall knowledge for mental as well as physical level through the theory and practical exercises of pupils growth.

[36] Klein Austin, *Show Your Work*, 2014, Workman Publishing Company, ISBN 978-0-7611-8136-1

[37] Adams Laurie Schneider, 1996, *The Methodologies of Art*, ISBN 0-06-430312-8, p. 13

[38] Baala R, *Time Proof Art Studio*, 1997, Accessed 08 Jan 2016 from http://www.timeproofart.com/works.html

This mural works executed under the researchers supervision and that is only happen because of the study on historical roots from Indus Valley seals and sand casting mural of the KG Subramanyan analyzed technical aspects as well as conceptual orientation which imparted as a results on teaching pedagogy and thought connotations. (Fig. 7.25)

This mural is an exploratory study in forms; this collective exercise was developed from an compositional frame works on texture and space The relief mural was created in clay by taking impressions of readymade object especially toys, jewellery, comb, etc. and later was casted in Plaster of Paris. This impression of our paraphernalia embossed a part of our self and identity along with the objects. It weaved different personal stories into a larger narrative; these trivial objects find new meaning in the composition. This work executed by five students group from BFA 3rd year painting at Department of Fine Arts in Amity University Noida.

(Okwu, 2004) The shared effort, collaborative practice and the collective conceptualization of artistic work have been understood as the critique of the reification of art and the commodification of the artist. The aesthetic quality is distinct from an art work's political theory nevertheless, we can find an effort of a grain of truth to the idea through experience.[39] A creative exercise handled with tactile and visual experience to visualize texture of an object. These exercises enhance the tactile sense by experience as well as coordination of mind to visualize.

Artist LN Tallur taught such creative exercise 'Touch – Drawing' at Sungkyunkwan University, students drew these without having a look at the object. Instead, they were allowed to touch and feel the object; students designed these boxes and exchanged them with each other to draw. Finlay at the end of the class, they got to see the real object which they drew. (Ducasse, 1996) The deliberate creating of beauty is not art. That the characterization of art as the attempt to create the beautiful is incorrect, is shown by the fact that some things to which it would be quite arbitrary to deny the name of works of art are ugly.[40]

[39] Okwu Enwezor. *The Artist as Producer in Times of Crisis,* Accessed 12 Jan 2004 from http:/www.16beaveragroup.org/mtarchive/archieves/000839.php

[40] Ducasse Curt John, *The Philosophy of Art*, 1996, Dover publication, Library of Congress Catalog Card Number: 66-14554, p. 19

In the study by Fletcher Alan, Ring doves instinctively sing the song of their species even if they have never heard another dove. A young cuckoo may never see its parents (who parked the egg in another bird's nest), but a month after they have left the nest, the young ones get together and intuitively take off for the same place. The baby swift never learns to fly; it just instinctively launches itself into the air and then spends the next two years in the flight without touching the ground.[41] Art is not that which we can define in lines but it's all concerned with the interplay between the verbal and visual, and the limitless resources of the human mind. It's an exploration of the working of the eye, hand, brain, and the imagination.

Krishna Reddy says "art making is a living process expressed through once lived life and learning."[42]

The author tried to make an effort to share collective ideas; which may help to understand art in sideways of teaching and learning perspective in visual arts. We always found a solution where the problem exists and for learning, we must always keep our eyes and minds open so that able to grasp from any resources. Art cannot be learned in the classroom there are so many things in the surrounding can teach if you are ready to receive and respond in positive ways. Researcher obliged to cooperation of faculty friends, teachers and students participation support, strength and prospects; so that I am involved in getting a deep level of understanding of practice-based art. It is one of my small efforts.

And investigator strongly believes in the following statement by Goldsmith:

"If you work on something a little bit every day, you end up with something that is massive."

—Kenneth Goldsmith

[41] Fletcher Alan, *The Art of looking sideways*, Phaidon Press Publication, ISBN: 978 0 7148 3449 8, p. 91

[42] Sengupta Ratnottama, *Krishna Cosmos: The creativity of an Artist, Sculptor & Teacher*, 2003, Mapping Publishing Pvt. Ltd, ISBN: 81-88204161, p. 77

An artist uses certain kind of effects and style in works which are not used to solve directly the purpose of printmaking. It reflects spontaneous approach towards the expression with a medium by the artistic choice to represent in a specific way. The artist use medium as needed not only because of the things invented some time artist is precisely engrossed and eliminate the experimental or accidental result from the final result as works of in academic institutions as the methodology to teach to students what to do? Opposite of that, not to do philosophy also work. In most of the art college masters never demonstrate, they teach according to the theoretical requirement; they don't show even the poor students in class if they don't work. Master only create an environment, if students want to work they do themselves even they don't also. No one bothered; at last, they get a degree after pass out.

One has to take the decision whether he wants to continue working or discontinue so automatically they will learn not to do on their own and accept the result everyone cannot be flourished as an artist with force. For instance once upon a time spiritual guru Rajneesh (Osho) traveling on a train and one of his disciples found him at the midnight when Osho was sleeping. His disciple started doing massage very hard without taking permission of him; without thinking whether he required massage or not. He was not bothered at all, he says you sleep I will do my job *(seva).* How can one sleep when someone is pressing very hard and giving the unwanted massage? It has been taken the unnecessary advantage without thinking its reaction which makes sense of irresponsible.

The pupil listens to a lot of things which have been not thought by the master (guru). The master can't say what has not said been listen; similarly, misinterpretation happens in this context. People don't want to inquire and directly criticize because it is very straight and easy to do that, but to know the facts by understanding requires the level of mature enough to analyze. Ultimately people do what they want to do, with their own rigid understanding.

In the context of embossing prints or image required more clarity on the purpose of making an embossed as a final image or it can be the process itself comes under the embossing. Researcher interacted with Professor Sudhakar Reddy at his residency at Kala Gram Andhra Pradesh Visakhapatnam he served as a teaching at Andhra University According to Sudhakar Reddy only an artist concern with technical aspects but viewer sees only works of art. Reddy explains further with the example of his graduation time at the Department of Fine Arts Baroda

MSU these they use to visit Sayaji Rao Museum there people come from the various city and country where a tribal woman looking with keen observation at Statue of the Venus. What she is looking through the process, the image is final result or product? She even doesn't know how it's made, who made, whether it is Indian or western art but enjoy work of art, enjoy the beauty of art. So don't bother about how it has been done may be but only the artist see the works with the technical perspective. The real viewer or *Rasik* never thought through the technique; an image or final product will be most important.

(Sudhakar Reddy, 2017) says- "the art should not be commodified by selling like sold all other things; the value of the poets' poetry become revolutionary works of art, and reach the level to acquire the purpose of art."

If you ask an opinion of others one must analyze and enquire self then take the decision what action can be taken in that situation if you follow everyone you will be followed the end. So that you only trust on what you think and want. If you think I need to learn a lot from others and open up mind, maybe few people through garbage also by a misunderstanding as a dustbin. You cannot please at all, so ever think about what others think but yes down the line your goal of life and responsibility must justify.

The truth and wisdom help to create a qualitative function of the action. When the action comes through the pure heart without biased with sincere efforts outcome will reflect the quality of life lived. Whenever we see the works, it reflects the highest level of emotion, intention towards the qualitative knowledge derived from nature. The works of art lead to the emotional level of experienced felt by the artist and take space as an evergreen popular essential quality. Sublime feelings make human to keep thinking about the supreme power of nature, surrender and egoless in front of the infinite, unexplored, unidentified power.

Indian culture contains the quality of life experience where we tribute nature to different sectors of our routine activity but today we live in so-called modern society and keeping asides of all morals and ethics. We follow the west fashion which has been predominantly affecting our lifestyle but our cultural aspect is in mute mode and fashion is taking the stage at its loud.

The process of Art-creation initiated in Valmiki's Ramayana namely the *'Krauncavadha'* episode. While a couple of '*Kaunca'* birds are engaged in love-making and matting, a hunter

with his arrow shoots the male of the couple. This situation stimulated different kinds of reaction in (1) the male Kraunca (2) female Kraunca (3) hunter and the poet Valmiki. Although the feelings of the couple of Kraunca should indeed be that of grief and distress- the hunter would be feeling of happiness because achieved target. But the feeling of Valmiki would be that of compassion, sadness would be different from each other. It would be a reaction to the grief of the birds, but it would also be arising out of the cruel act of the hunter the reaction could have taken the form of action in challenging the hunter, but it is manifested at the hands of the poet, in the form of poetry.

The poet's state of mind transformed into objective is Kavi-Antargata-Bhava.

The understanding of poetry requires the Sahridaya by the spectator's or readers would be able to evoke similar kind of feeling ad the poet had went through similar experience.

If we see the contemporary artist they get various experiences from the societal act and forget to reflect through the art and expressively respond and react in the form of protest instead of expressing through the power of on art.

The spectator knows that it is only art not reality so although the basic emotional reaction is of happiness or sadness, ultimately it reaches to enjoyment only.

(Barlingay, 2016) Bharata Says, one who knows that Rasas and Bhavas are transformed into three stages-Vibhava, Anubhava, Vyabhicari Bhava and knows them in their right perspective, attain best of the siddhis it is a state where the viewer is silent, without any kind of mild or violent reaction.[43]

An old illustration and painting titled *'Genesis of An Epic'* exhibeted by an artist to being narrated the childhood memories on tale of epic. The illustrations were the initial launching pad so to speak, to bring forth a series of painted images which hopefully have retained the same sense of wonder, pathos and poignancy which the tale had always held for V Ramesh.

[43] Barlingay S.S., A Modern Introduction to Indian Aesthetic Theory, Cataloging in Publication Data DK, 2016, ISBN: 978-81-246-0377-2, p. 92-95

If the human search for supreme truth this all superficial structure must be left aside, demolish, the clear intention of truth and worthiness of action which remain to the clear dirt of the inner as well as outward. The direct purified inner soul will reflect in every action of human and inspire others too.

How a magnet works without physically connected? It affects each other poles and reacts when it comes to the surrounding. When a *guru* (master) comes to life, he destroys the ego and makes you able to focus on the goals of life. Every evidential or physical thing which appears is not true, on the other side of the view makes you think from a different perspective. The scientific way if you look into any part of the human organ its metabolic things act and react according to the laws of energy. For instance, the earth and moon connected with energy which is the reason to make high tide and low tide by the sea water that is the effect of energy imparted by the attraction of *Guru* (master) and *Shishya* (student). Performs the way how a man feels like a heat in the sunlight but when it comes under the shadow of a tree that similar feelings occur when Guru enters in the life.

Artworks give various dimension in the embossing it only looks a very thin one mm of relief but it can show the thousands of layers within it, so that energy of representing on the surface is not only things it holds the magnetic energy within it. The energy representing on the surface level holds the magnetize effect with the physical properties of artworks as well as qualitative properties. That makes an aura and effects people come to live in the surroundings like a fragrance of a flower comes across the boundary, without identifying the farmer actually who planted? Without biasedness Farmer performs his Karma /worships, this research study makes the reader think inside out; motivation and energy will promote to catch the aesthetic level to cherish human life.

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