

CAPITAL UNIVERSITY OF SCIENCE AND
TECHNOLOGY, ISLAMABAD



**The Impact and Association
among Innovation Types and
Performance of
Telecommunication Companies in
Pakistan**

by

Asim Ali Shah

A thesis submitted in partial fulfillment for the
degree of Master of Science

in the

Faculty of Engineering

Department of Mechanical Engineering

2018

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I would like to dedicate my thesis work to my Parents for being my most solid leading hand, my teachers who tirelessly guided me towards my goal, and my friends who were there every inch with me.

I would like to especially thank the pillar of my life, my father Imran Shah, who is the main reason behind my success and prayed for this accomplishment time and again.

Thank you all for believing in me.



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CERTIFICATE OF APPROVAL

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Acknowledgements

In the name of Allah, the most merciful, I am grateful to my creator for making me strong enough to tackle this tough job and finishing my thesis. Foremost, I would like to express my sincere gratitude to my supervisor Mr. Rizwan Ali Khan and those friends and fellows for motivating and strengthening me in completing this thesis.

It was an experience worth writing in memory book. Without the help of all those who stood by me it would be very difficult to complete this thesis in proper time.

My parents, who were there and are there, supported me and make sure that everything is achievable if you don't lose, hope in Allah. Parent's support was like a teacher to me. I owe all my work to all my well-wishers

Asim Ali Shah.

Abstract

Significance of innovation management has been presented in several studies by different authors around the globe. When it comes to innovation management related to telecommunication field in Pakistan it is best interpreted by the climbing growth rate of telecom companies in Pakistan.

The general objective of this study, carried out in Pakistan, explores the impact of different types of innovation and its association with customers and financial performance of telecommunication companies in Pakistan. Apart from general, some specific objectives were to know the association of product innovation, process innovation, organizational and marketing innovation with financial and customer performance of the firm in telecommunication sector. In total, eight hypotheses are included in the study to draw conclusion. The product process marketing and organizational innovation were taken as independent variable while financial and customer performance were taken as dependent variables.

For this quantitative and exploratory study, questionnaire is being used as a research tool. Questionnaires were distributed among the participants of this study (Mobilink, Telenor, Zong, Ufone). Most of the data was collected in the federal capital of Pakistan. SPSS has been used as a tool to analyze data statistically.

The study has shown an affirmative relationship between the innovation types and performance parameters. Moreover, among eight hypotheses seven were accepted and one rejected (correlation of organization innovation with financial performance).

The findings of this study have important implications on the telecom sector, policy makers, researchers and academic coordinators. These results can work as a filter for strategy developers in order to boost the performance by including more and more relevant items in policies and vision.

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Chapter 1

INTRODUCTION

1.1 Background

In this document, we intend to examine the associations between organizational performance and innovation in the field of telecommunication. Schumpeter 1934 coined the association between innovation and organization performance, it is in receipt of awareness in the educational world; nonstop innovation activity is the major foundation for extensive expression of compact accomplishment [1]. Considerate the association amongst innovation performance of the organization in mutually small and large companies is suitable for researchers, as well for the directors, conclusion makers and strategy makers of large and small companies. In current precedent years, the topic of thoughtful innovations and their association among organization performance turns out to be even more significant; underlying principle is to give confidence to the companies to do innovation to guide and enhance monetary performance [2]. Researchers have disagreed with those organization that does not refer to the innovation process of their firm at peril [3]. To get better performance the level of competition to generate innovations are significant in permitting organizations to uphold spirited benefit and capability of companies to produce innovations for reduced life series [4]. There are two kinds of innovations characteristically gauged by Shqipe, Gadaf, and Veland namely radical and incremental innovations. The radical innovation though focuses on the

procedures, manufactured goods, and services with unparalleled performance facial appearance and incremental innovation is one that focuses on characteristic manufactured goods and procedures or expenditure developments of previously existing services. Innovation is beneficial in numerous ways for organization progress. There are four dimensions which are applied to determine innovation performance in organizations explained by Yilmaz [5]. These contain innovative performance, market performance, organization performance and financial performance. Innovations have a consequence on business performance by manufacturing improved market position that demonstrates better performance and spirited benefit [6].

The dimension of compact performance has frequently been a multifaceted one for intellectuals and investigators. The results for compact performance are meeting the internal and external objectives of an organization [7].

1.2 Innovation

Innovations which make a diagnosis, scrutinize reduce or avoid ecological troubles and where organizations become accustomed or extend innovations. At the same time as an adventurously numerous economists and executives considered innovation as an additional load of the price for the company, this is no longer the case nowadays [8]. Researchers explained that the innovation refers to the procedure of developing and generating thoughts, a method of operation, products, and techniques that help in the attainment of environmental sustainability objectives or lessening ecological loads [9].

Beginning the ages of darkness till the subsequent you will understand this, the modifying, innovations, thoughts and imagination have rehabilitated human being in never-ending achievable ways. Overlooking or not bearing in mind innovation as an essential element of the development of all characteristic of survival is similar to refuting worldwide reality. In a few divisions of the sphere centuries ago it was as noteworthy to innovate as it is to the entire world at present. Its significance can be calculated as of the detail, that at the near the beginning ages of human beings, they were trying to create each day easy and simple behaviors by thoughts

and charitable form to the thoughts. From the development of winch with integral security brakes by Elisha Graves Otis back in 1861, till the current idea of intelligence scything idea approaching from Silicon Valley, stitching mechanism by Elias Howe in 1846 increase and strengthen the distinction of innovation.

Not merely manufacturing life activities similar to a bed of roses other than as well in performance and very important position in enhancing the monetary situation of any country which clutches the deliberations of all government and private monetary spiritual managers to strengthen economic circumstances of the area. The sport of survival is flattering harder and tougher for corporations to mount to the pinnacle of the field; innovation facilitates corporations to keep on appropriate level [10]. To look for the factor that leads to innovation organizations are investing additional and researchers are highlighting it [11]. Though, a few variables in circumstances of Pakistan has not been assumed significantly to scrutinize how this fraction of the world relations to innovation. In case of Pakistan presently are unusual features similar to unevenness and on distress safety circumstances which confine brains to believe in an exceptional technique.

1.2.1 Types of Innovation

The innovation types are product innovation, process innovation, marketing innovation and organizational innovation [12]. Each type is briefly illustrated as follows:

1.2.1.1 Product Innovation

There are a few important developments made to the existing manufactured goods, or it is fresh to the marketplace if a company developed a fresh item for consumption, this is recognized as product innovation.

Product innovation is the enhancement of original goods; work out of new materials in the creation of familiar goods, or amend in drawing of standard goods [13]. Product innovation which is newest and in the precedent, it was unknown to the market as the trade function. Product innovation is identified as the latest

manufactured goods which are entirely dissimilar from the older product, and there is an inspiration that expression of product innovation goes with an expression of freshness [14].

1.2.1.2 Process Innovation

If the company builds up a fresh technique for manufacturing and providing its goods and the latest method of secretarial and delivering, this method is known as process innovation. Process innovation is a term explained as latest or improved materials, equipment, apparatus and other skills that directly influence the companies that are working innovations; those companies' manufactures the products that are supplementarily sold in the marketplace. There is large dissimilarity among process innovations and product innovations, which is; latest or enhanced manufactured goods skills that the organization put on the market for the pleasure of clients or its patrons [15]. Process innovation means the execution of newest or else partly enhanced manufacturing or deliverance technique. It permits the production of a known quantity of amount produced, which are goods and services with fewer inputs. The afterward can be understood in expressions of the eco-efficiency [16].

1.2.1.3 Organizational Innovation

"Organizational innovation is the execution of latest governmental technique put into practice, place of work organization, or exterior relationships. This category of innovation is grouped into: structural innovations which are destined to collision responsibilities, authority outlines, answerability and information streams, as well as the numeral of hierarchical stages the divisional configuration of purpose to explore and growth, manufacture, investing, human resources etc. or the division among line and support purposes and procedural innovations, which consist of alters to procedures, practices and processes of a corporation. Therefore, these innovations put into practice the latest measures, modification, and techniques inside the corporation, such as zero shock absorber rules or concurrent engineering [17].

Those companies which are occupied in organizational innovation or creativeness has several objectives behind it such as to improve the worth of the trade, to get extra revenue, improve the performance of the association and reduce the organizational rate. It as well as endeavors to improve the place of occupation satisfaction and obtain the access to non-tradable resources similar to non-codified information and as well employment efficiency and inferior the price of the merchandise [18]. Supplementary features might be the causes of the organizational innovation associated with a way of the market, ability to gain knowledge of the implementation of transforms in the organization, commodities, and quality [19].

1.2.1.4 Marketing innovation

Marketing Innovation is the development of the existing stage of marketing to advance the stage of competitiveness of the company. The examples of marketing innovation comprise the enclosure of progress in technology and advertising techniques. Marketing innovation can be easier and cheaper if it is put side by side to product innovation for a company. Its strength assists in revitalizing the company's arrangement in a marketplace. A company may go through to its augment, its trade's incomes and marketplace. The manual [12] further describes marketing innovation in such a way "execution of a novel marketing technique connecting momentous modification in manufactured goods plan or manufactured goods position, wrapping, pricing or manufactured goods sponsorship"; to an advertising modernization might release novel markets, it deals with change in the position of foodstuffs in the marketplace to enhance transactions and purchase requirements. Researcher considers marketing modernization consists of marketing methods as well as novel sales [20]. Advertisements that marketing modernization consists of are manufacture method, services marketing, and manufactured goods performance; the researcher also considers marketing modernization is not a technical innovation [21]. Further researches coined the concept that companies create innovation in marketing techniques for enhancement of effectiveness. The marketing innovation is increasing latest procedures and systems for marketing [22]. Researches reveal that developing latest techniques, tools and methods for

marketing encompass major position in organizational accomplishment. He also mentioned in 2006 that marketing innovation is "altered types of gathering client's data" [23].

1.3 Organizational Performance

Innovations encompass a result on commercial performance by manufacturing improved market position which demonstrates spirited advantage and greater performance [24]. The dimension of company performance, one for scholars and researchers, has frequently multifaceted. Meeting the inner and exterior objectives of an organization are the conclusions of company performance [25]. Murphy squabbles that company performance are a multi-dimensional perception whose proportions can be marketing, departmental, money, manufacturing or connected to profit and development [26], it can be calculated by means of a subjective or objective indicator [27].

Organizational performance can be calculated all the way through financial and non-financial means [28]. The mainstream of organization has a preference to apply financial resources to calculate their performance frequently. Average annual occupancy rate, Return on Assets (ROA), net profit subsequent to tax and Return on Investment (ROI) are applied means of determining organization performance frequently [29]. On the other hand, further second-hand procedures are of company performance comprised spirited position, stakeholder pleasure, productivity, efficiency and development, marketplace share [30]. Furthermore, supplementary researchers have wished for additional pointers such as being able to merge non-financial dimensions to get together the transforms of internal and external surroundings [31].

Company's performance can be related to the efficiency and competence of the company. It is an appropriate idea linked with the observable fact being premeditated. Profitability is the main financial gauge applied to conclude organization performance as it is an indicator of equal effectiveness and efficiency of organization procedures; monetary procedures which have been historically used to gauge

organizational performance comprises of return on speculation, profit, marketplace share, income per share, income development and recent ratio [32].

Brewer and Speh (2000) classify viewpoints of the performance detail as under [33]:

1. Financial Perspective: The main significant feature that operates as a method for confirmations and stability.
2. Customer Perspective: Procedures that incarcerate clients' judgments guide the business to accomplish something. They can be precise in cost, reply time, manufactured goods superiority or else common in client preservation, client price, etc.
3. Internal Business Processes: Internal business procedures be supposed to get together and go beyond customer requirements. These are frequently non-financial procedures in quality events which are based on time and elasticity oriented.
4. Innovation and Learning: Belongings completed on an ongoing foundation to assure also maintain clients. Prospect competences are significant than existing capabilities. Procedures can be linked to latest manufactured goods growth, development enhancement rates and proportion of sales as of latest foodstuffs and individual possessions.

1.4 Telecommunication

The telecom business saw an enormous development in 2012 which was anticipated to maintain till 2018. In the subsequently approaching years, the growing permanent line subdivisions and mobile clients are anticipated to manipulate a vigorous development rate in the business. In expressions of asset support and clients, the spirited surroundings of the telecommunications area have seen organization time after time knowledge development. The contest in the telecoms area has significantly greater than before in voice service provision and statistics [34].

We have explored future developments of telecom considering that mutually and by predicting current actions and a few alarming troubles. The telecommunications business will be for the most part compound with the new technology PC business in the coming years. The same matter argued a number of times that there are significant dissimilarities among the two areas that are at the moment disappearing. In the function of consistency, the dilapidated price of hardware and a progressively more main responsibility in Altera's Design explanations will outcome in an expressing substance modification. Latest innovations in this field of telecom services will happen spectacularly more quickly in the prospect, and there will be the propagation of large diversity services. At the same time as the telecommunications technology has been mainly unreceptive, reacting to the requirements of the individual consumer, in the prospect it will turn out to be a great deal. It will not merely facilitate communications amongst individuals, it also aggressively smoothen the progress of them by captivating interested in the description of the wellbeing and timetables of those persons. In addition, the network will contribute to the strength of mind of what communications in point of fact takes place, vigorously disappointing so as to which is surplus or needless [35].

The majority of respondents observe the internet and mobile phones as an optimistic (or, at worst, negligible) authority on the superiority of communications with associates, relatives, and office colleagues. The internet and mobile phones have the maximum optimistic impact on the quality of communications with relatives living in different cities of the country or in any parts of the world, and the smallest optimistic impact on professional communications. Particularly concerning half of the respondents in our analysis experience that new communication technologies have not had an impact on their communications with family members, professional colleagues and family members living abroad. Though, only a small proportion of adults experience that by applying these technologies in our daily life, in fact, reduce the quality of their communications [36].

One-quarter of adult's experience the Internet and mobile phones hadbrought their families nearer to each other than their own family at the time when they were

growing up. Six in ten (60%) experience that these latest technologies haven't made a great deal differentiation in this regard, and merely one-tenth (11%) experience that their family these days is not as close as their babyhood family since of new technologies. The families have at least one mobile phone and an internet connection considered with the most technology are comparatively more probable to say their family is well connected or closer for the reason that of these new technologies that are families with low levels of technology use [36].

Advancement in Telecommunication Technology and Information is an amazing altering strength in the 21st century. This Telecommunication Technology has its authority and redesigning in almost every area of our daily life. In everyday schedule professions, qualified persons or professionals cannot perform the daily routines and duties in their normal life without technology. Information and communication technologies in teaching lives and existence among substantiation support policymaking and this rapidly are changing communication technology of world [37].

It is the reality that this telecommunication technology has provided everyday apparatus of all common peoples' lives. The advancement of Technology has an obligation to transform the community. It is now very important that people have modified themselves in accordance with the progression of technology.

In the future main economy of the world will be the digital economy. The learning techniques and methods have to be learned through Information Communication Technology expert professionals. Consequently, it is the responsibility of all countrywide edification methods or systems to educate digitally educated instructors [38]. The role of the professor is extremely fundamental to apply latest Information and Communication Technologies, as a result, that all community might acquire the compulsory proficiency and acquaintance of communication culture [39]. Research states that the professional growth of educators in Information and Communication Technologies and suitable educational expertise are dangerous.

1.5 Problem Statement

The problem statement of the study is stated as follows: Has telecommunication sector in Pakistan implemented an innovative strategy type which has been found to have a direct association with the customer and financial performance of the firm?

1.6 The significance of the Study

The significance of the research implies to multiple parties including management of telecommunication sector, general public or customers in Pakistan who are using the mobile networks, researchers and policymakers. For the management of telecommunication sector of Pakistan, the study has illustrated the impact and relationship of strategic innovation types on customer and financial performance of firms, with the findings of the study the management can judge the innovation strategies which can enhance their customer and financial performance. For general public or customers in Pakistan, the study reveals the mobile operators who have maximum customer satisfaction and financial gains through their product and process innovative strategies. For researchers and policymakers, the study provided the chief information regarding the variation in the performance of mobile companies in Pakistan.

1.7 Objectives

The general and specific goals of the study are illustrated as follows:

1.7.1 General Objective

The general objective of the research study was to observe the impact and association among Innovation Types and Performance of Telecommunication Companies in Pakistan.

1.7.2 Specific Objectives

The specific objectives of the research study were:

1. Product innovation is directly associated with financial and customer performance of the firm in the telecommunication sector
2. Process innovation is directly associated with financial and customer performance of the firm in the telecommunication sector
3. Organizational innovation is directly associated with financial and customer performance of the firm in the telecommunication sector
4. Marketing innovation is directly associated with financial and customer performance of the firm in the telecommunication sector

1.8 Hypotheses

The below-mentioned hypotheses were framed for the study:

- H1a: Product innovation has an affirmative correlation with customer performance.
- H1b: Product innovation has an affirmative correlation with financial performance.
- H2a: Process innovation has an affirmative correlation with customer performance.
- H2b: Process innovation has an affirmative correlation with financial performance.
- H3a: Marketing innovation has an affirmative correlation with customer performance.
- H3b: Marketing innovation has an affirmative correlation with financial performance.

- H4a: Organizational innovation has an affirmative correlation with customer performance.
- H4b: Organizational innovation has an affirmative correlation with financial performance.

1.9 Variables of the Study

There are two core variables namely dependent and independent variables. The product, process, marketing, and organizational innovation were taken as independent variables; while financial, and customer performance was taken as dependent variables.

1.10 Limitation of the Study

Multiple Mobile Network Operators are available in the telecommunication sector in Pakistan, but the study focused on Telenor and Mobilink. Although several types of innovation and performance are defined in the literature yet the study used only four main types of innovation namely product, process, market and organizational innovation; and two types of performance namely customer performance and financial performance. The study was conducted from April 2018 to July 2018.

1.11 Chapter Summary

The primary aim of the chapter was to give an outline of the research study. The background, innovation, and its types, telecommunication, problem statement, the significance of the study, objectives (general and specific), hypothesis were outlined in the chapter. Limitation of the study and variables are also delineated in the section. In the next chapter, the research depicting impact and relationship of types of innovation and performance will be presented.

Chapter 2

Literature Review

2.1 Relationship between kinds of modernization and Performance

Hypothesis on the association among innovation and companies' performance has its olden times to the effort of Schumpeter (1942), and an extensive amount of research on the subject of this association subsists, which has established that innovation is the main factor for long-standing company accomplishment. In accumulation, numerous scholars disagree that innovative dealings are extra victorious than others. On the other hand, a study has also revealed that innovation can be uncertain and that breakdown is the most probable result of manufactured goods innovations [40]. Numerous studies demonstrate that an optimistic association between innovation and company performance exist [41]. Researches have made known that innovation in the manufacturing industry is further fundamental and has a great impact on performance than it is in examination area [42]. Bowen discovered prospect company performance and an association among innovativeness [43]. Subramanian demonstrated an optimistic outcome of modernization on company performance [44]. Researchers in 2011 anticipated the optimistic association of predictable performance results by means of innovative behavior [23].

Murphy, Trailer, and Hill (1996) declared that company performance is a multi-dimensional perception, and three indicators of it can be manufactured, finance

or marketing [45]. It can be calculated with subjective or objective indicators; in this learning, performance engages four indicators: product, process, market, and financial performance [46]. Innovative performance is the mixture of organizational accomplishments, as an outcome of regeneration and enhancement efforts made taking into consideration different features of company innovativeness, for illustration, procedures, foodstuffs, advertising, organizational arrangement, etc. As a result, innovative performance is a compound based on a variety of performance indicators pertaining, such as the latest copyrights, latest organizational understanding, new procedures, latest manufactured goods declarations and latest schemes [47]. In their learning, Gkkaya and zba bring into being that major impact on organization performance was of innovation. The organization's efforts in mounting procedures and foodstuffs improve the performance of the company together with quantitative and qualitative performance. Presently are learning outcomes which long established to present be an optimistic affiliation among manufactured goods modernization as well as organization presentation together with marketplace development and contribute to and sales percentage are exposed by literature review [48].

2.1.1 Relationship of Product Innovation with Financial and Customer Performance

The manufactured merchandise innovation is launched to promote effectiveness in the business [49]. In product innovation, the manufactured goods are supposed to moreover be considerably improved features of a product or latest product, its user outgoingness, planned to make use of, material and constituent. There are numerous dimensions of manufactured goods innovation. Primary, from the standpoint of the organization, the product is latest to the company. Second, from clients' viewpoint, a product is latest to customers, and third, product modifies which pass on to bringing product dissimilarity in the accessible products of the organization [50].

Research has revealed that product innovation is connected with monetary increase and development in income [51]. There are numerous Meta-analyses that have maintained the optimistic consequence if product innovation influence on company performance [52]. Chiva(2006) designated that the proportions of product innovation (competence and effectiveness) are optimistically and strongly connected to organization; and Bayus, Erickson, and Jackson (2003) demonstrated that product innovation had important and optimistic associations with company performance; Hernandez-Espallardo and Ballester (2009) also discovered a momentous and optimistic outcome of product innovation and organizational performance [53].

The plan of product innovation is to demand to fresh clientele. Organizations amend obtainable products or bring in latest products according to the fresh clientele [54]. Nowadays, in the worldwide spirited period of new companies encompass had to build up latest products for clients' requirements [55]. According to Kotelnikov product innovation is an approach which companies exercise to transport the latest existence to the new approach to addressing clients' difficulty advantage mutually the organization and the client [56].

Latest product innovation and fresh product growth is a momentous policy for ornamental, the performance and marketplace contribute to the big business. Therefore product innovation is seen as a single of the mean determinants that guide to the accomplishment of a company.

2.1.2 Relationship of Process Innovation with Financial and Customer Performance

Process innovation is able to be seen as the implementation of enhanced creation or latest deliverance technique that comprise modification in tools, procedures, and software [57]. The organization can build up fresh procedures by itself or by means of the support of an additional company [58]. Organizations usually take on procedure innovation in regulate to manufacture innovative alterations and products in their procedures for them to manufacture the latest products [59].

According to Wong (2004), procedure innovation refers to enhanced or latest organizations procedures which are established through latest apparatus, resources or from side to side the re-engineering of the equipped techniques. Procedure modernization is the accomplishment of considerably enhanced otherwise manufacture technique or else latest release. Process innovation is destined to reduce item costs of release and manufacture, transport latest or to create a new considerably enhanced product and augment superiority [60].

In the process innovation the most frequently described is product cost [55]. Organizations apply new procedures, techniques to contend with new emerging organizations and as well aspire to gratify their clients. Past case readings have revealed that mechanization in the manufacture approaches has greater than before efficiency and competence of the company [61]. As per Sipos and Ionescu companies can get better merchandise excellence and competence in the organization from beginning to end process innovation. Process innovation contributes to the development of convinced features such as release policies, technologies, equipment's and which are able to and also guide to a price decrease [62].

Process innovation dimension is done from beginning to end, client pleasure studies focusing on such fundamentals similar to subsequent to sales service, superiority, release time and support provided to clients [63]. Operational effectiveness and efficiency are also a consequence of process innovation. The results of process innovation permits organizations to begin technological innovative and improved products by means of more price and cost useful for them to gather client's requirements which are less luxurious, dependable; and superiority products are sales development, marketplace standing and representation development [64].

2.1.3 Relationship of Market Innovation with Financial and Customer Performance

Hassan states that market innovation is the latest approach to marketing that comprises main changes in the manufactured goods and pricing, packaging, plan, assignment or support approach [23]. Marketing innovation is seen as an enormous

technique in surroundings as it focuses on plan and extension changes, therefore makes available a rapid, innovative solution and low-risk product alteration [65]

Johne and Davies state that marketing innovations improved sales by escalating consumption of manufactured goods to make additional income to companies [66]. (Ibid) provide explanations that an increase in marketplace innovation is regarding contemporary behaviors of allocation and understanding of existing markets which make certain that organizations to make available suitable tenders that earns better boulevards. Sandvik and Sandvik launched the idea that market innovation has a direct consequence on the expansion of sales of an organization; they also exposed that market innovation has a direct collision on growing the sales of a company [67]. Johne and Davies overcome that market innovation be able to improve sales development by an enhancing in product demands which guides to supplementary revenue to innovative organizations [68]. Market innovation understands the market assortment and combines to get together client's purchasing choice. The client prospects, needs, and requirements modify from time to time. A significant component of business accomplishment is gathering the demands and the receptiveness to an active market which is the modification of client requirements and prospects [69]. Receptiveness to the altering market requisite calls for frequent market innovation and a business motive organism the high scientific marketing apparatus such as the web build it probably for contending companies to be capable of obtaining potential clients crossways the sphere extremely quick. Market innovation plays a significant function in meeting the requirements of the market and reacting rapidly to new market occasions [70]. In the journalism, the plan of marketing innovation, particularly on organization client worth and performance, has been recognized [71].

Market innovation is not a technical innovation for companies that are in commission in the telecoms sector. Though, companies apply market innovation to augment their competence in business procedures [72].

2.1.4 Relationship of Organization Innovation with Financial and Customer Performance

Organizational innovation engrosses the execution of latest techniques of the organization of the schedules and the techniques of implementation of the workings [73]. Cainelli scrutinized the communication among innovation and performance in supplementary feature and winded up that present is a two-way association [74]. The innovative companies do better than non-innovators, but the majority of victorious corporations are also further probable to innovate and dedicate additional possessions to innovation.

Consequently, the confirmation on innovation and performance propose an optimistic result on output and development. Presently confirmation symptomatic of that exterior association in meticulous with the clients who have an optimistic collision on innovation and further confirmation viewing that innovation absolutely has an effect on performance [75]. In accumulation, a few authors establish that innovation has an optimistic consequence on the trade's development but not on production [76]. Though, this judgment is in disagreement with the outcome established by Mairesse and Mohnen who establish that there is an optimistic association between the level of efficiency and innovation [77].

2.2 Telecommunication Companies in Pakistan

Telecommunications nowadays is manufactured goods of knowledge and political affairs. In 1965 the primary electronic phone buttoning was established in the USA. It only used a processor for management. Other than rapid development in this sector it also makes use of microwave means of communication, broadcast media global copper wire, satellite and optical fiber currently encompass supplied numerous associations as well as radio, DSL, DXX, ISDN, MAN, LAN, WAN, and VSAT16, etc. for connectivity [78]. The fast augments in telecom sector corporations inside Pakistan demonstrate so as to resources of connections like handset, Web as well as portable connections increasing incredibly rapidly. Pakistan has

turned out to be the third telecom marketplace that is growing extremely speedy. By including overseas plus domestic portable and permanent systems, speculation Telecom sector of Pakistan is growing rapidly.

Following are the prominent telecom companies providing services within Pakistan.

2.2.1 PTCL

In Pakistan, Pakistan Telecommunication Company Limited (PTCL) is the main telecom corporation providing most excellent services. This company provides quality services of Internet and other telecom services all over the country. This company is the determination of the telecommunication business. PTCL is using the largest CDMA with more than 0.8 million landline clients. This telecommunication company is performing a major part in the development of Pakistani monetary business.

2.2.2 MOBILINK

In 1990, a novel GSM cellular service was providing services within Pakistan is named as Mobilink. This corporation is Pakistan's most excellent corporation which offers packages of statistics and voice services and takes an assortment of public jointly through its most excellent features, products, and services. All the way through the major selection of most excellent services and strongest brand names in the business and with more than 40 million customers, Mobilink for all time persistent its management in the market. This makes available continuous connectivity all over the country. Mobilink is also started a Mobilink Foundation that encouraged and supports learning, ecological schemes, and physical condition. Restricted and personalize tariff strategies are also accessible by Mobilink. Mobilink also presents packages of pre-paid and post-paid, portable web connections, worldwide services, etc.

2.2.3 UFONE

The main telecom company of Pakistan PTCL launched its latest product name Ufone GSM. This mobile company turns out to be the part of UAE telecom group in 2006. During commencement period Ufone has focused Pakistani citizens and make available them an authority to be familiar with regarding the electronic and message levels so as to are straightly linked and build them confident that they be capable do supplementary than merely converse in reasonable costs. This mobile network declares itself a most excellent system and services, transparent voice quality, low calling prices. This Ufone offering services to their client's basic tariff with no costs. The Ufone provides its services on entire GT Road, motorways of our country.

2.2.4 ZONG

Another network provider name Zong. This is a Pakistani mobile network named as China Mobile Pakistan Zong. Headquarter of Zong portable system based in the capital of Pakistan, Islamabad. It provides/offering services in the entire country of Pakistan and presenting the packages of post-paid and pre-paid, records services, cellular phone banking, 2-Generation, 3-Generation and 4-Generation services. The mobile company is the earliest China mobile company functioning in Pakistan.

2.2.5 TELENOR

The Telenor is a worldwide group supplier of about more than thirteen market-places within Asia plus Europe, it supplies superior class voice as well as satisfied, provides data as well as announcement services. Telenor is the succeeding biggest transportable network providing its services in Pakistan as per information available to its customers' are more than 3 million. This company got the license for GSM in 2004. Telenor starts providing services commercially in the year 2005. The Telenor created more than 30,000 indirect and 2,500 jobs in Pakistan. Morethan

2.8 billion has invested in this local economy by this corporation. Telenor has a set of connections of the retailer, licensed, sales and services so as to offer many employment prospects and prospects for Pakistani people. The main office of Telenor is based in Islamabad, and it has regional centers and offices in Peshawar, Hyderabad, Faisalabad, Multan, Lahore, Karachi. This mobile network providing services of movable banking, 3G and 4G web technology, low price packages for calls and SMS to the customers’.

2.2.6 NAYATEL (NTL)

Nayatel network (NTL) is a Telecommunication Company of Pakistan which has complete setup in the Capital Islamabad the mainly linked capital of the globe. In fact, Nayatel builds certain the client’s services and purely pay attention to the superiority of service. The approach of Nayatel is the reasonable production as well as decent commerce. The main aim of NTL to make Pakistan a wealthy state that makes use of and provides contemporary Information Technology, apparatus intended for growth. This company providing the worth additional services are EFence, iVOD High-Density Movie Streaming Service, email through eFax, (interruption anticipation and watchful System), NMX TV (Your globe of Entertainment), Channel ranking (TV Channel View ship), BOD (Bandwidth on Demand), Live TV Streaming

2.3 Chapter Summary

The chapter highlights the types of innovation. It also elaborates on the relationship between innovation types and performance in the light of literature. Telecommunication companies in Pakistan have also been highlighted. In the subsequent chapter, the methodology of the major study will be presented.

Chapter 3

Research Methodology

3.1 Introduction

This section elaborates the methodology of the research study. As the study was exploratory, so the main objective of the study was to: identify and explore that whether telecommunication sector in Pakistan implemented an innovative strategy type which has been found to have a direct association with the customer and financial performance of the firm or not. Across the various personal and project characteristics investigation of the risk prospects, and then an assessment of these dimensions, the whole process tangled extensive research on the demographic features and particulars of the respondents. Moreover, to categorize and discover the current operational dimensions those are present in the Telecom sector of Pakistan. This was achieved by detecting the factors with the aid of field survey and relating them to the demographics and relationship of variables. Furthermore, the research also gauged the influence of these risk factors and institute's operational aspects on the attainment. The methodology of the research has to be stout so as to lessen inaccuracies in analysis and collection of data. Questionnaire technique was preferred for the collection of data. This section also explains the instrumentation done for the research study, respondents of the study, process of data collection and techniques deployed for data analysis.

3.2 Research Approach and Design

Usually, there exist two choices in research tactics; either researcher uses qualitative or quantitative approach. A qualitative research approach is based on the abysmal perspective of the idea which is still under investigation. Moreover, qualitative data is appertaining to the fullness & richness subjecting to the researcher's prospect of exploring a subject [79]. The aim of quantitative researchers is to measure and analyze the ordinal relationships among variables. The study explores that whether telecommunication sector in Pakistan has implemented an innovative strategy type which has been found to have a direct association with the customer and financial performance of the firm or not. Hence the research is a statistical study and of quantitative nature.

3.3 Population, Sampling Technique, and Sample Size

In order to determine the estimators of population parameters, sample statistics are used. There are multiple decisions which mandatory to comprehend before obtaining a research sample as there is a unique set of information required for each sample. Actually, the size of the sample is directly proportional to the deviation in population factors involved in the research.

3.3.1 Population

The population of the study encompassed the following

- All Telecommunication Companies of Pakistan
- Employees of Telecom Companies of Pakistan
- Customers/General Public of Pakistan using mobile network companies

3.3.2 Sample

In this research, Stratified sampling technique was deployed through which four Telecommunication companies were selected as a sample, and among them, following samples were taken:

Sample A (Mobilink): 60 employees

Sample B (Ufone): 60 employees

Sample C (Zong): 60 employees

Sample D (Telenor): 60 employees

3.3.3 Sampling Technique

Moreover, in this research, the survey was conducted in Telecommunication companies of Pakistan where we approached our targeted population and got the questionnaires filled in.

3.4 Research Tool

While designing questionnaires, it is easy to overlook mistakes and ambiguities in question layout and construction [81]. The strategy of the questionnaire is directly linked to response rate, the validity, and reliability of the data collected. To escalate the validity and reliability of the instrument, following measures should be taken:

- Cautious proposal of specific questions
- Flawless draft of the instrument
- Well-spoken description of the aim of the questionnaire

The instrument used in this study was designed from multiple previous studies [82], [83], [84] and completed anonymously by the respondents.

3.5 Data sources and Collection

The study aimed at Telecommunication Companies of Pakistan. For the data collection, the offices of Mobilink, Ufone, and Telenor in Federal Capital of Pakistan were selected. Data from Zong was collected from Rawalpindi (Twin city of Islamabad).

3.6 Analysis of Data

SPSS (version 21.0) was conscientiously applied to analyze the data statistically. For interpretation of results coding of variables is of utmost importance in quantitative research. Demographic and variable related data was all coded and were entered into the computer. Using Microsoft Excel software, the questions and their responses were entered and coded on the computer. The compulsory analysis was completed with the assistance of SPSS. Numerous statistical methods were applied to the data to get the results which were analyzed.

3.7 Chapter Summary

The chapter highlights the research methodology applied in this study. It also elaborates on the process to determine the technique of research mechanisms. The developing process of the instrument is emphasized independently in this study. Reliability and validity of all the research mechanisms have also been determined in this study. In the subsequent chapter, outcomes of the major study will be presented.

Chapter 4

Results

4.1 Overview

This chapter presents a thorough account of the results, data analysis, and interpretation. The population of the study comprised of all telecommunication companies of Pakistan, employees of Telecom companies of Pakistan and customers/general public of Pakistan using mobile network companies. In this research, Stratified sampling technique was deployed through which four telecom companies of Pakistan were selected as a sample, and among them, samples of 60 (each) employees were taken.

The general objective of the research study was to observe the impact and association among Innovation Types and Performance of Telecommunication Companies in Pakistan. It further aimed to examine whether product innovation is directly associated with financial and customer performance of the firm in the telecommunication sector or not, whether process innovation is directly associated with financial and customer performance of the firm in the telecommunication sector or not, whether organizational innovation is directly associated with financial and customer performance of the firm in the telecommunication sector or not, whether marketing innovation is directly associated with financial and customer performance of the firm in the telecommunication sector or not.

The below-mentioned hypotheses were tested in the study by Pearson Correlation.

- H1a: Product innovation has an affirmative correlation with customer performance.
- H1b: Product innovation has an affirmative correlation with financial performance.
- H2a: Process innovation has an affirmative correlation with customer performance.
- H2b: Process innovation has an affirmative correlation with financial performance.
- H3a: Marketing innovation has an affirmative correlation with customer performance.
- H3b: Marketing innovation has an affirmative correlation with financial performance.
- H4a: Organizational innovation has an affirmative correlation with customer performance.
- H4b: Organizational innovation has an affirmative correlation with financial performance.

In order to conclude the usefulness of the items, data were analyzed through SPSS; Cronbach's Alpha, inter correlations among scales and percentage analysis was computed to see the internal consistency. Some of the items having low correlations were considered redundant.

4.2 Main Procedure

The final data collected through questionnaires were tabulated and entered in SPSS (Statistical Program for Social Sciences). Mean, Mode, Standard Deviation, percentages, correlations and multivariate analysis were applied to observe the significance level of differences and relationship between the dependent and the

independent variables. The analysis of data in tabular form is presented and discussed below. The product, process, marketing, and organizational innovation were taken as independent variables; while financial, and customer performance was taken as dependent variables. The relation among these variables was examined quantitatively.

4.3 Psychometric Properties of the Questionnaires:

Psychometric Properties of the questionnaires designed for the employees of telecom companies of Pakistan were determined on the main sample by applying Alpha Reliability Coefficient and Inter-scale Correlation of the subscales.

4.4 Characteristics of the respondents

The information regarding the general demographic characteristics of the respondents was analyzed separately by cross-tabulation and frequency distribution. The demographic data included age, gender, level of education, experience in telecommunication, Telecommunication Company, department of service in Telecommunication Company, number of employees in the organization and current position in the organization of the respondent.

TABLE 4.1: Percentage Analysis of Innovation Types and Performance (N=240)

Innovation and Performance		Statements	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)
Part B- Innovation	Organization Innovation	Free and open communication	35	56	9	0	0
		Employees are optimistic	20	43	34	3	0
		Resources	32	58	10	0	0
		Freedom of decision	30	40	24	6	0
		Strategy formulation	15	23	24	34	4
Part B- Innovation	Marketing Innovation	Customer complaints are properly channelized	30	34	36	0	0
		Customers feel like the valuable part	13	56	29	2	0
		To improve the quality of services.	20	51	16	13	0
		Achieving its strategic goals due to its market innovation strategy.	22	46	30	3	0
		Market innovation has increased the knowledge	20	55	19	5	0

Innovation and Performance		Statements	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)
Part B- Innovation	Product Innovation	To increase the quality of products	16	54	30	0	0
		To decrease in manufacturing cost of products	18	35	40	7	0
		Current products customer friendly	19	60	18	3	0
		Attracts customers by giving newness	30	51	14	7	0
		The main purpose of developing new products is to satisfy the customers.	28	49	16	7	0
Process Innovation	Process Innovation	Fast delivery speed in the associated logistic processes.	9	49	33	5	4
		Adopted real time process, advanced programmable equipment	29	39	24	9	0
		Non value adding services are determined and eliminated	29	34	37	0	0
		decreasing variable cost in logistic and service processes	15	45	33	8	0
		The quality of output in-service software has been increased	28	44	28	0	0

Innovation and Performance		Statements	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)
Part C- Performance	Customer Performance	Enhanced the customer satisfaction level	20	66	14	0	0
		A lesser number of customers have left	13	50	29	9	0
		Our number of customers is increased	10	54	24	12	0
	Financial Performance	Market shares are increased due to its innovation strategies.	9	64	17	10	0
		Total sales of our company are increased due to its innovation strategies	12	64	15	9	0
		Revenue Cycle of our company has been increased	19	56	23	2	0
		Increase in limited return on investment and assets of the company have been maintained	15	59	21	3	2

Table 4.1 presents the responses on the inventory used by the researcher to get the opinion of the employees on the Impact of Innovation Types on Performance of Telecommunication Companies in Pakistan. Percentages of employees scores on their perception regarding multiple factors were calculated. This inventory was based on the six subscales including process innovation, product innovation, marketing innovation, organization innovation, customer performance and financial performance. Five ranked Likert Scale of Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree with the statement was conducted to examine the response of respondents. Coding of the responses was done to analyze the responses quantitatively (Strongly Agree = 1, Agree = 2, Neutral = 3, Disagree = 4 and Strongly Disagree = 5).

The first subscale of Organization Innovation comprised of statements related to the encouragement of free and open communication within the teams in the company, optimism and confidence of employees on the top management in the company, provision of resources to the employees for work, provision of freedom of decision to employees for their work and involvement of all parties from the lowest to highest in strategy formulation of the company. The percentages of the subscale of Organization innovation depicted the highest percentage of agree and strongly agree on a response to the statements except for the statement regarding the involvement of all parties from the lowest to highest in strategy formulation of the company. The second subscale of Marketing Innovation comprised of statements related to the proper channelization of customer complaints for service improvement, customer's feeling as valuable part of the company due to marketing Innovation strategy of the Company, improvement in the quality of services is the main objective of the Company's Marketing innovation strategy, market innovation strategy is the reason of achievement of company's strategic goals and increase in the knowledge and skills of employees due market innovation.. The percentages of the subscale of Market innovation depicted the highest percentage of agree and strongly agree on a response to the statements; the neutral response was also noticeable for this subscale. The third subscale of Product Innovation comprised of statements related to increase in the quality of products, decrease in

manufacturing cost of products, manufacturing of the current products customer friendly by improving the technical specifications of the products, attraction for customers is maintained by giving newness and upgrading the functionalities of the products and customer satisfaction is the main purpose of developing new products. The percentages of the subscale of Product Innovation depicted the depicted the highest percentage of agree and strongly agree on a response to the statements; the neutral response was also noticeable for this subscale. The fourth subscale of Process Innovation comprised of statements related to fast delivery speed in the associated logistic processes, adoption of real-time process, advanced programmable equipment, and automatic quality restriction software, determination and elimination of non-value adding services from the service processes by the Company, decrease in variable cost of logistics and service processes and increased in the quality of output of service software in last two years.. The percentages of the subscale of Process Innovation depicted the depicted the highest percentage of agree and strongly agree on a response to the statements; the neutral response was also noticeable for this subscale. The fifth subscale of Customer Performance comprised of statements related to the enhancement of the customer satisfaction level by the innovation strategies of the company, lesser turnover ratio of customers as compared to last 2 years and increase in customers as compared to last 2 years. The percentages of the subscale of Customer Performance depicted the depicted the highest percentage of agree and strongly agree on a response to the statements; the neutral response was also noticeable for this subscale. The six subscale of Financial Performance comprised of statements related to increase in Companys market shares due to its innovation strategies, increase in total sales of the company due to its innovation strategies, increase in Revenue Cycle of the company due to its innovation strategies, and Increase in limited return on investment and assets of the company have been maintained due to its innovation strategies. The percentages of the subscale of Financial Performance depicted the depicted the highest percentage of agree and strongly agree on a response to the statements; the neutral response was also noticeable for this subscale.

TABLE 4.2: Comparison of Measures of Central Tendency (Mean and mode) and a measure of Dispersion (Standard Deviation) of Innovation Types and Performance (N=240)

Innovation and Performance		Statements	Mean	Mode	Standard Deviation
Part B- Innovation	Organization Innovation	Free and open communication	1.74	2	0.61
		Employees are optimistic	2.2	2	0.78
		Resources	1.79	2	0.61
		Freedom of decision	2.07	2	0.88
		Strategy formulation	2.9	4	1.15
Overall Average			2.14	2.4	0.81
Part B- Innovation	Marketing Innovation	Customer complaints are properly channelized	2.07	3	0.81
		Customers feel like the valuable part	2.2	2	0.68
		To improve the quality of services.	2.23	2	0.91
		Achieving its strategic goals due to its market innovation strategy.	2.14	2	0.78
		Market innovation has increased the knowledge	2.09	2	0.77
Overall Average			2.14	2.2	0.79

Innovation and Performance		Statements	Mean	Mode	Standard Deviation
Part B- Innovation	Product Innovation	To increase the quality of products	2.13	2	0.67
		To decrease in manufacturing cost of products	2.36	3	0.86
		Current products customer friendly	2.05	2	0.7
		Attracts customers by giving newness	2	2	0.84
		The main purpose of developing new products is to satisfy the customers.	2.02	2	0.85
Overall Average			2.11	2.2	0.78
	Process Innovation	Fast delivery speed in the associated logistic processes.	2.46	2	0.88
		Adopted real time process, advanced programmable equipment	2.13	2	0.93
		Non value adding services are determined and eliminated	2.08	3	0.81
		decreasing variable cost in logistic and service processes	2.33	2	0.83
		The quality of output in-service software has been increased	2	2	0.75
Overall Average			2.2	2.2	0.84

Innovation and Performance		Statements	Mean	Mode	Standard Deviation
Part C- Performance	Customer Performance	Enhanced the customer satisfaction level	1.93	2	0.58
		A lesser number of customers have left	2.33	2	0.81
		Our number of customers is increased	2.39	2	0.83
	Overall Average		2.22	2	0.74
	Financial Performance	Market shares are increased due to its innovation strategies.	2.27	2	0.76
		Total sales of our company are increased due to its innovation strategies	2.2	2	0.77
		Revenue Cycle of our company has been increased	2.09	2	0.71
		Increase in limited return on investment and assets of the company have been maintained	2.11	2	0.68
		Overall Average		2.17	2

Table 4.2 presents the responses on the inventory used by the researcher to get the opinion of the employees on the Impact of Innovation Types on Performance of Telecommunication Companies in Pakistan. Measures of central tendency namely mean and mode and measure of dispersion namely Standard Deviation of employees scores on their perception regarding multiple factors were calculated which affect the Company Performance. This inventory was based on the six subscales including process innovation, product innovation, marketing innovation, organization innovation, customer performance and financial performance. Five ranked Likert Scale of Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree with the statement was conducted to examine the response of respondents. Coding of the responses was done to analyze the responses quantitatively (Strongly Agree = 1, Agree = 2, Neutral = 3, Disagree =4 and Strongly Disagree =5).

Mean shows the average of coded responses of the respondents; mode shows the most frequently occurring response and Standard Deviation depicts how much each response of the respondents differs from the mean response. Then to get a composite quantified picture subscale average of all three measures (mean, mode and Standard Deviation) was calculated for each subscale which gives the overall average response of the respondents for that particular scale.

The first subscale of Organization Innovation comprised of statements related to the encouragement of free and open communication within the teams in the company, optimism and confidence of employees on the top management in the company, provision of resources to the employees for work, provision of freedom of decision to employees for their work and involvement of all parties from the lowest to highest in strategy formulation of the company. The overall mean and mode of the subscale of Organization Innovation are 2.14 and 2.40 (both 2 approx.) with an overall Standard Deviation of 0.81 which depicted agree a response to the statements as 2 is coded value for agreeing to the statement option. The second subscale of Marketing Innovation comprised of statements related to the proper channelization of customer complaints for service improvement, customer's feeling as valuable part of the company due to marketing Innovation strategy of the

Company, improvement in the quality of services is the main objective of the Company's Marketing innovation strategy, market innovation strategy is the reason of achievement of company's strategic goals and increase in the knowledge and skills of employees due market innovation.. The overall mean and mode of the subscale of Marketing Innovation are 2.14 (2 approx.) and 2.20 (2 approx.) respectively with an overall Standard Deviation of 0.79 which depicted agree a response to the statements as 2 is coded value for agreeing to the statement option. The third subscale of Product Innovation comprised of statements related to increase in the quality of products, decrease in manufacturing cost of products, manufacturing of the current products customer friendly by improving the technical specifications of the products, attraction for customers is maintained by giving newness and upgrading the functionalities of the products and customer satisfaction is the main purpose of developing new products. The overall mean and mode of the subscale of Product Innovation are 2.11 (2 approx.) and 2.2 (2 approx.) respectively with an overall Standard Deviation of 0.78 which depicted agree a response to the statements as 2 is coded value for agreeing to the statement option. The fourth subscale of Process Innovation comprised of statements related to fast delivery speed in the associated logistic processes, adoption of real-time process, advanced programmable equipment, and automatic quality restriction software, determination and elimination of non-value adding services from the service processes by the Company, decrease in variable cost of logistics and service processes and increased in the quality of output of service software in last two years. The overall mean and mode of the subscale Process Innovation are 2.2 (2 approx.) and 2.2 (2 approx.) respectively with overall Standard Deviation of 0.84 which depicted agree a response to the statements as 2 is coded value for agreeing to the statement option. The fifth subscale of Customer Performance comprised of statements related to the enhancement of the customer satisfaction level by the innovation strategies of the company, lesser turnover ratio of customers as compared to last 2 years and increase in customers as compared to last 2 years. The overall mean and mode of the subscale of Customer Performance are 2.22 (2 approx.) and 2 (2 approx.) respectively with an overall Standard Deviation of 0.74 which depicted agree a

response to the statements as 2 is coded value agree to the statement option. The six subscale of Financial Performance comprised of statements related to increase in Company's market shares due to its innovation strategies, increase in total sales of the company due to its innovation strategies, increase in Revenue Cycle of the company due to its innovation strategies, and Increase in limited return on investment and assets of the company have been maintained due to its innovation strategies. The overall mean and mode of the subscale of Financial Performance are 2.17 (2 approx.) and 2 (2 approx.) respectively with an overall Standard Deviation of 0.73 which depicted agree a response to the statements as 2 is coded value agree to the statement option.

TABLE 4.3: Frequency Distribution and Measure of Central Tendency of Age of respondents (N=240)

Code	Age	Frequency	Percent	Cumulative Percent	Mean	Mode
1	Less than 25 years	44	18.3	18.3		
2	26-35 years	133	55.4	73.8	2.1	2
3	36-45 years	58	24.2	97.9		
4	Above 45 years	5	2.1	100		
	Total	240	100			

Table 4.3 depicts frequency distribution and measure of central tendency of the age of respondents. Majority of the respondents belonged to the age group of 26-35 years as maximum frequency (133) was of 26-35 years, mean and mode was also 2 approximately which refers to 26-35 years age group.

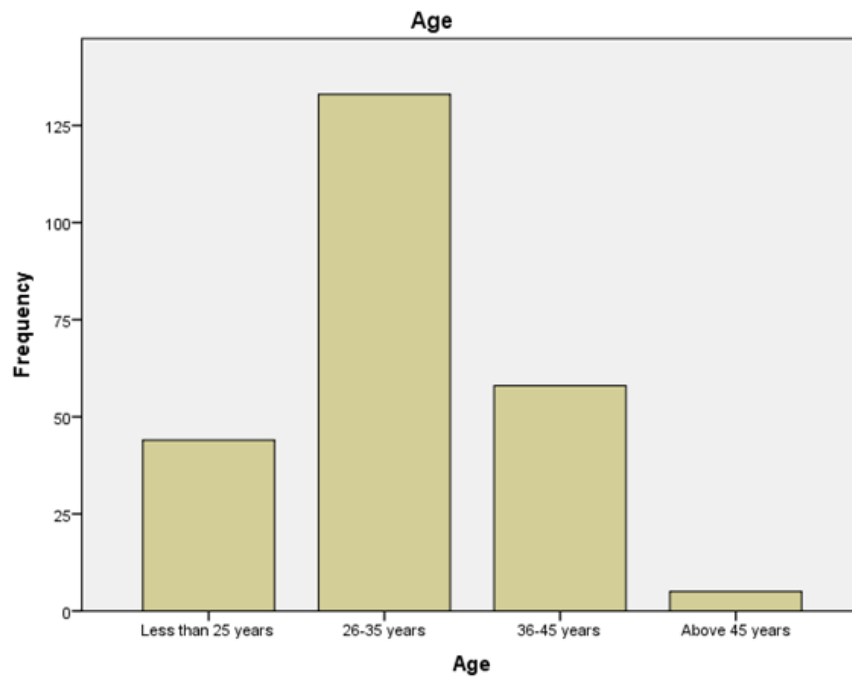


FIGURE 4.1: Bar Chart representing frequency distribution of Age of Respondents (N=240)

TABLE 4.4: Frequency Distribution and Measure of Central Tendency of Gender of respondents (N=240)

Code	Gender	Frequency	Percent	Cumulative Percent	Mean	Mode
1	Male	169	70.4	70.4		
2	Female	71	29.6	100	1.3	1
	Total	240	100			

Table 4.4 depicts frequency distribution and measure of central tendency of the gender of respondents. Maximum respondents were male as maximum frequency (169) was of males, mean and mode was also 1 approximately which refers to a male.

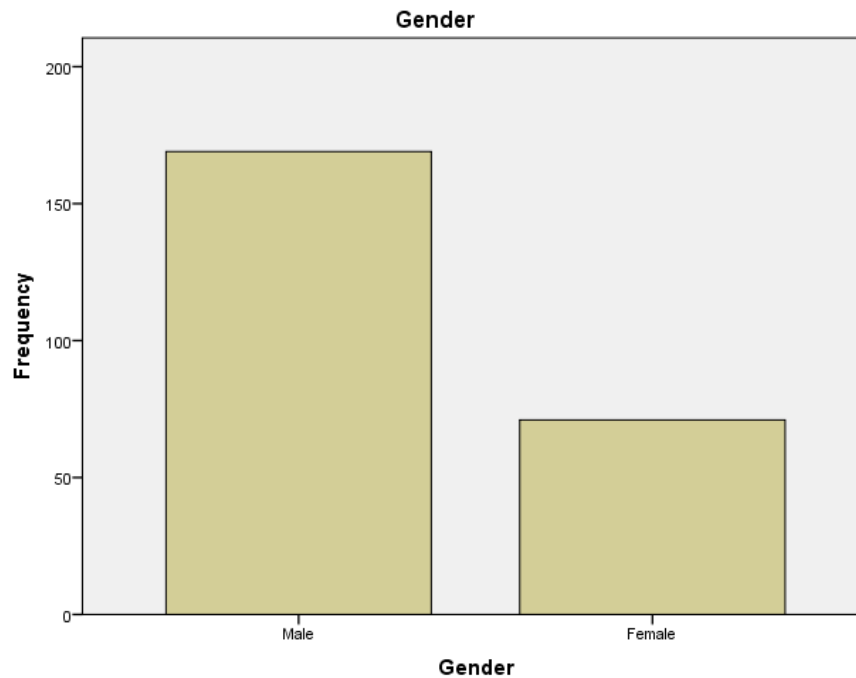


FIGURE 4.2: Bar Chart representing frequency distribution of Gender of Respondents (N=240)

TABLE 4.5: Frequency Distribution and Measure of Central Tendency of Education of respondents (N=240)

Code	Education	Frequency	Percent	Cumulative Percent	Mean	Mode
1	Under Graduate	28	11.7	11.7		
2	Graduate	82	34.2	45.8		
3	Post Graduate	75	31.3	77.1	2.68	2
4	Mphil	50	20.8	97.9		
5	PHD	5	2.1	100		
	Total	240	100			

Table 4.5 depicts frequency distribution and measure of central tendency of Education of respondents. Maximum respondents were Graduates as maximum frequency (82) was of Graduates, and Post Graduates had a second highest frequency (75), mean was 2.68 (approx.. 3) depicting average of 16 years of education (post-graduate) and mode were also 2 which refers to graduates.

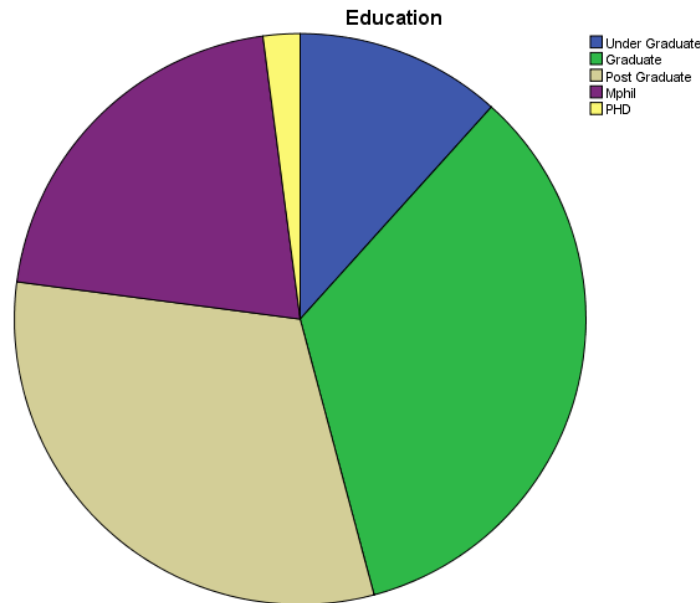


FIGURE 4.3: Pie Chart representing frequency distribution of Education of Respondents (N=240)

TABLE 4.6: Frequency Distribution and Measure of Central Tendency of experience in Telecommunication Company of respondents (N=240)

Code	Experience	Frequency	Percent	Cumulative Percent	Mean	Mode
1	Less than 1 year	28	11.7	11.7		
2	1-3 years	73	30.4	42.1		
3	4-6 years	45	18.8	60.8	3.17	5
4	7-9 years	19	7.9	68.8		
5	Above 9 years	75	31.3	100		
	Total	240	100			

Table 4.6 depicts frequency distribution and measure of central tendency of experience in Telecommunication Company of respondents. Maximum respondents had above 9 years of experience (75) and 1-3 years experience had a second highest frequency (73), mean was 3.17 (approx.. 3) depicting average of 4-6 years of experience and mode were also 5 which refers to above 9 years of experience.

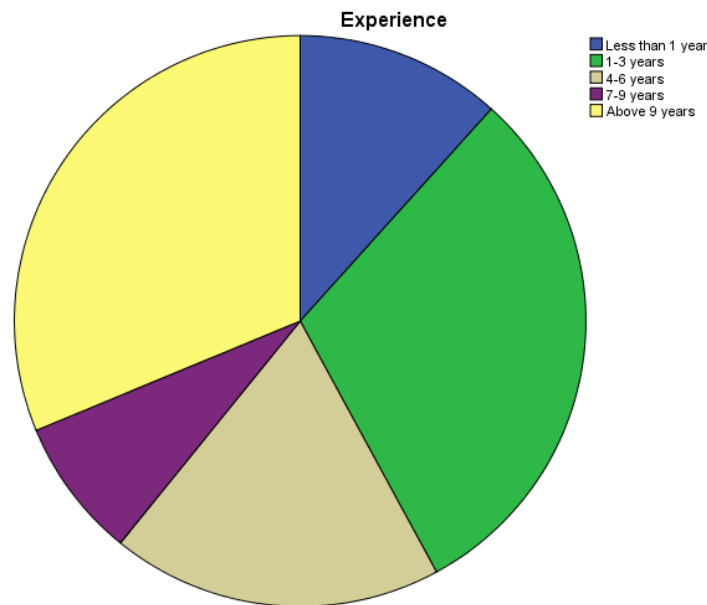


FIGURE 4.4: Pie Chart representing frequency distribution of Job Experience in Telecommunication of Respondents (N=240)

TABLE 4.7: Cross-tabulation of Age and Gender of respondents (N=240)

		Gender		Total
		Male	Female	
Age	Less than 25 years	33	11	44
	26-35 years	83	50	133
	36-45 years	48	10	58
	Above 45 years	5	0	5
Total		169	71	240

Table 4.7 depicts cross-tabulation of Age and Gender of respondents. Out of 240 respondents, only 71 were female remaining 169 were males. Most respondents belong to the age group of 26-35 years.

TABLE 4.8: Cross-tabulation of Age and Education of respondents (N=240)

		Education				Total
		Under Graduate	Graduate	Post Graduate	PHD	
Age	Less than 25 years	23	21	0	0	44
	26-35 years	5	51	53	0	133
	36-45 years	0	10	22	0	58
	Above 45 years	0	0	0	5	5
Total		28	82	75	5	240

Table 4.8 depicts cross-tabulation of Age and Education of respondents. Out of 240 respondents, 28 were Under Graduate, 82 graduates, 75 Post Graduates, and 5 Ph.D. holders. Most respondents belong to the age group of 26-35 years.

TABLE 4.9: Cross-tabulation of Company and Experience of respondents (N=240)

		Experience				Total
		Less than 1 year	1-3 years	4-6 years	Above 9 years	
Company	Telenor	15	9	14	18	60
	Mobilink	7	17	11	20	60
	Ufone	0	14	16	30	60
	Zong	6	33	4	7	60
Total		28	73	45	75	240

Table 4.9 depicts cross-tabulation of Company and Experience of respondents. Out of 240 respondents 75 respondents had above than 9 years of experience. A sample of 60 was taken from each of Mobile network companies namely Telenor, Mobilink, Ufone, and Zong.

TABLE 4.10: Cross-tabulation of Company and Position of respondents (N=240)

		Position			Total
		Manager	Supervisor	Customer Service Representative	
Company	Telenor	10	12	38	60
	Mobilink	15	20	25	60
	Ufone	23	37	0	60
	Zong	7	14	39	60
Total		55	83	102	240

Table 4.10 depicts cross-tabulation of Company and Position of respondents. Out of 240 respondents, 55 were a manager, 83 supervisors, and 102 customer service representative. A sample of 60 was taken from each of Mobile network companies namely Telenor, Mobilink, Ufone, and Zong.

TABLE 4.11: Cross-tabulation of Company and Number of Employees (N=240)

		Employees			Total
		100- 250	250-400	400-550	
Company	Telenor	10	23	0	60
	Mobilink	4	8	3	60
	Ufone	0	0	0	60
	Zong	0	2	12	60
Total		14	33	15	240

Table 4.11 depicts cross-tabulation of Company and Number of Employees. Out of 240 respondents, only 14 organizations had 100-250 employees, 33 had 250-400 employees, and 15 had 400-550 employees. A sample of 60 was taken from each of Mobile network companies namely Telenor, Mobilink, Ufone, and Zong.

TABLE 4.12: Overall Alpha Reliability Coefficient (N=240)

	Overall
Reliability	0.747
Number of Items	27

Table 4.12 depicts the Overall Alpha Reliability Coefficient of employees scores regarding multiple types of innovation influencing financial and customer performance of the organization. Overall employees scores regarding multiple factors which affect organization performance have an Alpha coefficient of .747 for 27 items. The subscale coefficient is significant at 0.01 and 0.05 levels of significance. Table 4.13 depicts the Alpha Reliability Coefficient of employee's scores regarding

TABLE 4.13: Alpha Reliability Coefficients of Types of Innovation (N=240)

	Organization Innovation	Marketing Innovation	Product Innovation	Process Innovation
Reliability	0.622	0.651	0.605	0.721
Number of Items	5	5	5	5

multiple types of innovation namely organization innovation, marketing innovation, product innovation and process innovation which affect the performance of the organization. Scores on Alpha coefficient ranged from .605 to .721; each had five items. Subscale of Process Innovation has the highest value of .721 whereas; product innovation subscale has the lowest value of .605. All of the subscales' coefficients have significant alpha reliability coefficients at 0.01 and 0.05 levels of significance.

TABLE 4.14: Alpha Reliability Coefficients of Customer and Financial Performance (N=240)

	Customer Performance	Financial Performance
Reliability	0.689	0.766
Number of Items	3	4

Table 4.14 depicts the Alpha Reliability Coefficient of employee's scores regarding Customer and Financial performance of the organization. Scores on Alpha coefficient ranged from .689 to .766 both Customer, and financial performance had 3 and 4 number of items respectively. Subscale of Financial Performance has the highest value .766. Both subscales' coefficients have significant alpha reliability coefficients at 0.01 and 0.05 levels of significance.

TABLE 4.15: Correlation of Product Innovation with Customer Performance (N=240)

- H1a: Product innovation has an affirmative correlation with customer performance.

		Customer
Product	Pearson Correlation	.782**
	Sig. (2-tailed)	0.007
	N	240

Table 4.15 presents the correlation of product innovation with customer performance in the perception of employees. The correlation between product innovation with customer performance in the perception of employees is .782 and is significant at $p < 0.01$.

TABLE 4.16: **Correlation of Product Innovation with Financial Performance (N=240)**

- H1b: Product innovation has an affirmative correlation with financial performance

		Financial
Product	Pearson Correlation	.923 **
	Sig. (2-tailed)	0.004
	N	240

Table 4.16 presents the correlation of product innovation with financial performance in the perception of employees. The correlation between product innovation with financial performance in the perception of employees is .923 is significant at $p < 0.01$.

TABLE 4.17: **Correlation of Process Innovation with Customer Performance (N=240)**

- H2a: Process innovation has an affirmative correlation with customer performance.

		Customer
Process	Pearson Correlation	.744*
	Sig. (2-tailed)	0.005
	N	240

Table 4.17 presents the correlation of process innovation with customer performance in the perception of employees. The correlation between process innovation with customer performance in the perception of employees is .744 and is significant at $p < 0.01$.

TABLE 4.18: Correlation of Process Innovation with Financial Performance (N=240)

- H2b: Process innovation has an affirmative correlation with financial performance.

		Financial
Process	Pearson Correlation	.882 **
	Sig. (2-tailed)	0.007
	N	240

Table 4.18 presents the correlation of process innovation with financial performance in the perception of employees. The correlation between process innovation and financial performance in the perception of employees is .882 which is significant at $p < 0.01$.

TABLE 4.19: Correlation of Marketing Innovation with Customer Performance (N=240)

- H3a: Marketing innovation has an affirmative correlation with customer performance.

		Customer
Marketing	Pearson Correlation	.845**
	Sig. (2-tailed)	0.009
	N	240

Table 4.19 presents the correlation of marketing innovation with customer performance in the perception of employees. The correlation between marketing innovation and customer performance in the perception of employees is .845 which is significant at $p < 0.01$.

TABLE 4.20: Correlation of Marketing Innovation with Financial Performance (N=240)

- H3b: Marketing innovation has an affirmative correlation with financial performance.

		Financial
Marketing	Pearson Correlation	.632**
	Sig. (2-tailed)	0
	N	240

Table 4.20 presents the correlation of marketing innovation with financial performance in the perception of employees. The correlation between marketing innovation and financial performance in the perception of employees is .632 which is significant at $p < 0.01$.

TABLE 4.21: Correlation of Organization Innovation with Customer Performance (N=240)

- H4a: Organizational innovation has an affirmative correlation with customer performance.

		Customer
Organization	Pearson Correlation	.811**
	Sig. (2-tailed)	0.005
	N	240

Table 4.21 presents the correlation of organization innovation with customer performance in the perception of employees. The correlation between organization innovation and customer performance in the perception of employees is .811 which is significant at $p < 0.01$.

TABLE 4.22: Correlation of Organization Innovation with Financial Performance (N=240)

- H4b: Organizational innovation has an affirmative correlation with financial performance.

		Financial
Organization	Pearson Correlation	0.533
	Sig. (2-tailed)	0.719
	N	240

Table 4.22 presents the correlation of organization innovation with the financial performance the perception of employees. The correlation between organization innovation and financial performance in the perception of employees is .533 which is not significant at $p < 0.01$.

TABLE 4.23: InterScale Correlation Of The Subscales

		Organization	Marketing	Product	Process	Customer	Financial
Organization	Pearson Correlation	1	.719**	.696**	0.805	.811**	0.533
	Sig. (2-tailed)	0.002	0.001	0.002	0.956	0.005	0.719
	N	240	240	240	240	240	240
Marketing	Pearson Correlation	.719**	1	.694**	.712**	0.845**	.632**
	Sig. (2-tailed)	0.001		0	0	0.009	0
	N	240	240	240	240	240	240
Product	Pearson Correlation	.696**	.694**	1	.530**	0.782**	0.923**
	Sig. (2-tailed)	0.002	0		0	0.007	0.004
	N	240	240	240	240	240	240
Process	Pearson Correlation	0.805	.712**	.530**	1	.744*	.882**
	Sig. (2-tailed)	0.956	0	0		0.005	0.007
	N	240	240	240	240	240	240
Customer	Pearson Correlation	.811**	0.845**	0.782**	.744*	1	.840**
	Sig. (2-tailed)	0.005	0.009	0.007	0.005		0
	N	240	240	240	240	240	240
Financial	Pearson Correlation	0.533	.632**	0.923**	.882**	.840**	1
	Sig. (2-tailed)	0.719	0	0.004	0.007	0	
	N	240	240	240	240	240	240

** . Correlation is significant at the 0.01 level (2-tailed). * . Correlation is significant at the 0.05 level (2-tailed).

Table 4.23 describes the Inter- scale Correlation of the subscales in Employee's perception regarding process innovation, product innovation, marketing innovation and organizational innovation which influence customer and financial performance of the organization. Inter-item correlations scrutinize the magnitude to which scores on one item are interrelated to scores on other items in the same scale. It offers an evaluation of item redundancy: the level to which items on the same scale measure the similar content. Preferably, the overall average inter-item correlation for a complete set of items must be between .20 and .40, signifying that if the items are rationally homogenous, they must comprise of sufficiently distinctive variance so that items not to be isomorphic with each other. When values of inter-item correlation are lower than .20, then it depicts that the items may not be demonstrative of the same content domain. But if the values are greater than .40, then it shows that the items may be only apprehending an insignificant bandwidth of the hypothesis. The result indicates that all subscales have a positive correlation with each other and with the total scale. The highest correlation exists between product and financial innovation.

TABLE 4.24: Multiple Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.732a	0.54	0.479	0.545
a. Predictors: (Constant), Process, Organization, Marketing, Product				

In Table 4.24 the value of R is 0.732, which shows a good level of prediction. The R² or coefficient of determination is 0.540 which depicts that 54% of the variability independent variable 'customer performance' can be explained by independent variables independent variables Process, Organization, Marketing, and Product Innovation.

TABLE 4.25: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	3.986	4	0.997	3.354	.000b
1 Residual	69.824	235	0.297		
1 Total	73.811	239			

a. Dependent Variable: Customer

b. Predictors: (Constant), Process, Organization, Marketing, Product

Table 4.25 depicts the F-ratio and determines the goodness of fit for the overall regression model. Table 4.25 shows that the independent variables Process, Organization, Marketing, Product are statistically significantly calculated the dependent variable Customer Performance, $F(4, 235) = 3.354$, $p < .0005$ (hence the regression model is a good fit of the data).

TABLE 4.26: Estimated Model Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.348	0.262		5.143	0
1 Organization	0.265	0.096	0.182	2.767	0.006
1 Marketing	0.014	0.085	0.012	0.159	0
1 Product	-0.018	0.092	-0.015	-0.2	0.001
1 Process	0.141	0.066	0.147	2.141	0.003

a. Dependent Variable: Customer

From the table 4.26 the general equation form to predict Customer performance from Organization innovation, marketing innovation, product innovation and process innovation is as follows:

$$\text{Predicted Customer Performance} = 1.348 + 0.265 * \text{Organization} + 0.014 * \text{Marketing} - 0.018 * \text{Product} + 0.141 * \text{Process}$$

TABLE 4.27: Multiple Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.741a	0.579	0.518	0.547

a. Predictors: (Constant), Process, Organization, Marketing, Product

In Table 4.27 the value of R is 0.741, which shows a good level of prediction. The R² or coefficient of determination is 0.579 which depicts that 57.9% of the variability independent variable 'customer performance' can be explained by independent variables independent variables Process, Organization, Marketing, and Product Innovation.

TABLE 4.28: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	4.316	4	1.079	3.608	.000b
1 Residual	70.265	235	0.299		
Total	74.581	239			

a. Dependent Variable: Financial

b. Predictors: (Constant), Process, Organization, Marketing, Product

Table 4.28 depicts the F-ratio and determines the goodness of fit for the overall regression model. Table 4.28 shows that the independent variables Process, Organization, Marketing, Product are statistically significantly calculated the dependent variable Financial Performance, $F(4, 235) = 3.3608$, $p < .0005$ (hence the regression model is a good fit of the data).

TABLE 4.29: Estimated Model Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.674	0.263		6.365	0
1 Organization	-0.036	0.096	-0.025	-0.38	0.006
1 Marketing	0.289	0.086	0.247	3.376	0.001
1 Product	-0.037	0.092	-0.03	-0.4	0.006
1 Process	0.031	0.066	0.032	0.461	0.005

a. Dependent Variable: Financial

$$\text{Predicted Financial Performance} = 1.674 - 0.036 * \text{Organization} + 0.289 * \text{Marketing} - 0.037 * \text{Product} + 0.031 * \text{Process}$$

The results of the study were tabulated and interpreted in the chapter. The next chapter will deal with the discussions, findings, summary, conclusion, recommendation, and suggestions for future research.

Chapter 5

Discussion

5.1 Introduction

This chapter aimed to discuss previous chapter's results. It emphasizes the importance of telecom industry in Pakistan in relation to each factor involved in its growth. The underlying relationship is discussed between intricate factors & revenue generation by the telecom industry in Pakistan.

5.2 Findings

The following findings are extracted from the results of the study. The findings are elaborated under hypothesized statements and objectives.

5.2.1 Objectives

Specific Objective 1: Product innovation is directly associated with financial and customer performance of the firm in the telecommunication sector

The following hypotheses were developed for Objective 1.

- H1a: Product innovation has an affirmative correlation with customer performance.

The hypothesis is accepted as the correlation between product innovation with customer performance in the perception of employees is .782 and is significant at $p < 0.01$ (Table 4.15).

- H1b: Product innovation has an affirmative correlation with financial performance.

The hypothesis is accepted as the correlation between product innovation with financial performance in the perception of employees is .923 is significant at $p < 0.01$ (Table 4.16).

Specific Objective 2: Process innovation is directly associated with financial and customer performance of the firm in the telecommunication sector

The following hypotheses were developed for Objective 2.

- H2a: Process innovation has an affirmative correlation with customer performance.

The hypothesis is accepted as the correlation between process innovation with customer performance in the perception of employees is .744 and is significant at $p < 0.01$ (Table 4.17).

- H2b: Process innovation has an affirmative correlation with financial performance.

The hypothesis is accepted as the correlation between process innovation and financial performance in the perception of employees is .882 which is significant at $p < 0.01$ (Table 4.18).

Specific Objective 3: Marketing innovation is directly associated with financial and customer performance of the firm in the telecommunication sector

The following hypotheses were developed for Objective 3.

- H3a: Organizational innovation has an affirmative correlation with customer performance.

The hypothesis is accepted as the correlation between marketing innovation and customer performance in the perception of employees is .845 which is significant at $p < 0.01$ (Table 4.19).

- H3b: Marketing innovation has an affirmative correlation with financial performance.

The hypothesis is accepted as the correlation between marketing innovation and financial performance in the perception of employees is .632 which is significant at $p < 0.01$ (Table 4.20).

Specific Objective 4: Marketing innovation is directly associated with financial and customer performance of the firm in the telecommunication sector

The following hypotheses were developed for Objective 4.

- H4a: Organizational innovation has an affirmative correlation with customer performance.

The hypothesis is accepted as the correlation between organization innovation and customer performance in the perception of employees is .811 which is significant at $p < 0.01$ (Table 4.21).

- H4b: Organizational innovation has an affirmative correlation with financial performance.

The hypothesis is rejected as the correlation between organization innovation and financial performance in the perception of employees is .533 which is not significant at $p < 0.01$ (Table 4.22).

General Objective:

The general objective of the research study was to observe the impact and association among Innovation Types and Performance of Telecommunication Companies in Pakistan.

Table 4.23 result indicates that all subscales have a positive correlation with each other and with the total scale. The highest correlation exists between product and financial innovation.

The R² or coefficient of determination is 0.540 which depicts that 54% of the variability independent variable 'customer performance' can be explained by independent variables independent variables Process, Organization, Marketing, and Product innovation moreover the value of R is 0.732, which shows a good level of prediction (Table 4.24). Results depict that the independent variables Process, Organization, Marketing, Product are statistically significantly calculated the dependent variable Customer Performance, $F(4, 235) = 3.354$, $p < .0005$ hence the regression model is a good fit of the data (Table 4.25).

The R² or coefficient of determination is 0.579 which depicts that 57.9% of the variability independent variable 'customer performance' can be explained by independent variables independent variables Process, Organization, Marketing, and Product innovation moreover the value of R is 0.741, which shows a good level of prediction (Table 4.27). Results depict that independent variables Process, Organization, Marketing, Product are statistically significantly calculated the dependent variable Financial Performance, $F(4, 235) = 3.3608$, $p < .0005$ (hence the regression model is a good fit of the data (Table 4.28).

Over all employees' scores regarding multiple factors which affect organization performance have an Alpha coefficient of .747 for 27 items. The subscale coefficient is significant at 0.01 and 0.05 levels of significance (Table 4.12). Multiple types of innovation namely organization innovation, marketing innovation, product innovation and process innovation which affect the performance of organization have scored on Alpha coefficient from .605 to .721; each had five items. Subscale of Process Innovation has the highest value of .721 whereas; product innovation subscale has the lowest value of .605. All of the subscales' coefficients have significant alpha reliability coefficients at 0.01 and 0.05 levels of significance (Table 4.13). Customer and Financial performance of organization ranged scores on Alpha coefficient from .689 to .766 both Customer, and financial performance had 3 and 4 number of items respectively. Subscale of Financial Performance has the

highest value.766.Both subscales' coefficients have significant alpha reliability coefficients at 0.01 and 0.05 levels of significance (Table4.14). Higher (than 0.70) values of Alpha coefficients depict reliability of tool of research and data.

5.2.2 Answer to Research Question

Following answer to the research question was found after the data analysis:

Problem Statement: Has telecommunication sector in Pakistan implemented an innovative strategy type which has been found to have a direct association with the customer and financial performance of the firm?

Telecommunication sector in Pakistan has implemented an innovative strategy type which has direct association with the customer and financial performance of the firm as increased number of Mobile network users depicts high level of Customer Satisfaction and results show that there is positive impact of organizational innovation, process innovation & product innovation, on customer performance & financial performances.

5.3 Customer Satisfaction- Increased number of Mobile network users

In the context of industrial perspective, the related industries' development can also have enthused by increased subscribers. Taking an example of accentuating trend of mobile phone users tends to increase the demand for software & hardware products. Referring to Porter's Five Forces theory, the number of subscriber's aggrandizement attributed to the strength for competing with its competitors. The crucial information related to the customers can be gathered by telecom industry by making use of subscriber's steady growth. The personal information & databases are maintained by operators, which is collected at the time of registration & cancellation of the process. Customer's personal opinions about the services & product & personal information are obliged to be provided. The segmentation,

preferences & behaviors of customers can be well understood by the industry & company via information provided by them. Such information is very helpful in improving the statistics of the company & in marketing efficiency analysis.

The combination of factors is involved in the dramatic increase in a number of subscribers of the telecom industry in Pakistan. Technology innovation is considered the most significant factor. For instance, smartphones emergence and high-speed networks, the appeal of mobile devices have increased momentarily by consumers and simultaneously personal computers demand is decreased markedly. Increased services at the lowest rates & increased affordability of mobiles are one of the factors in increasing the number of subscribers. The altering demographic profile in emerging economy results in differentiated market population.

Over the last decade technology innovation has enabled in telecom infrastructure from metropolis to rural areas because the majority of the population resides in rural areas of Pakistan. A large portion of the population of the country is covered by the telecommunication industries & with the easy accessibility of telecommunication services, the number of subscribers has increased markedly. Service charges & hardware prices have lowered markedly due to intense competition in the telecom industry. Thus, the entry barrier into the market is lowered & become affordable for a large number of population. Simultaneously, reduced tariffs are attributable to the competition between operators in telecom industry of Pakistan. The continuous price war has witnessed as a result of intense competition. Both in rural & Urban areas growth in subscriber's base & wireless network expansion lead to the enhancement of mobile sets sale across the country [85]. The demographic profile alteration results in the growth of a number of subscribers. A large population of youngsters belonging to middle class, urbanization & growing disposable incomes results in technology adaptation & increasing literacy levels and symbolizes the changed profile.

5.4 Technological Innovations

The broadcast of signals over a remoteness for communication is known as "Telecommunication". Over the years there is a significant change in communicating technology. During ancient times for communication purposes drums & smoke, the signal was used over long distances. Modern telecommunications basis has laid down in late 18th and early 19th century. Today telecommunications are considered as an enormous technical industry, where there is constant invention & progression in technologies for improving the coverage quality & cost of communication. It is well-thought-out one of the most rigorous R&D industries, with leading multinational corporations (MNCs) spending on average 10 and 20% of their revenues in R&D in 2003 [86]. The Pakistani telecom-equipment market is competing for market share & growing rapidly over the globe. In past few decades, tremendous advancement has been seen in the telecom infrastructure of Pakistan. Re-verberating the market growth, the telecom-equipment manufacturing firms which are leading globally started their operations in Pakistan. This results in the facilitation of infrastructure growth; however, in order to provide the benefits of such technologies in remote areas of Pakistan it has a long way to go. With the innovation in 3G technology, broadband content is delivered which is rich in multimedia services including VPN applications, remote access, video calling, services based on the locations, & video on demand.

In future, it is expected that wireless services are driven by next-generation technologies such as Mobile WiMAX or 4G networks LTE (Long Term Evolution). Applications for instance Mobile TV & IPTV will be the legatee of innovations in technologies. For next-generation 4G mobile phone networks in Pakistan, LTE will expand in technology, forecasts market analyst In-Stat [87]. There is rapid growth in the investments in Broadband by the telecom companies in Pakistan. According to the results obtained in previous chapter and investment in technology does render to the growth of the revenues in the telecom industry

5.5 Relationship of Innovation and Financial Performance in Telecom Sector of Pakistan

In the array of the financial instruments & products, financial innovation is considered as the surprising improvement leading to the alteration in tax policy, preferences & needs of the customers, & technology impulses. Schumpeterian arguments lead to the evolution of financial evolution theories concerning the imitation of new products & innovated process of the firm are protected for certain period of time. Competitive trademark position is generated as a result of a successful innovation process imparting a superior performance & competitive advantage on the firm. In internal banking system bank management technologies, management systems of the client relation & various other technologies influence positively on the profitability & performances of the banking.

During the creative destruction of the Schumpeterian process, for maintaining the competitive advantage firm is needed to produce further innovations. It is proposed that the bank services can be accessed by the customers if there is a change in the innovation process leading to the cost reduction in the collection, processing, storage & transmission of information.

5.6 Relationship of Innovation and Customer Performance in Telecom Sector of Pakistan

The relationship between the reputation of corporate & innovations concerning the non-financial performance of the customer is examined in the various literature. No previous examination is done on the combined effect of corporate reputation & innovation on non-financial performance. In a service sector for example telecommunication, path variance testing is necessary because it is difficult in the market of the multi-culture country having oligopolistic nature, determining satisfaction of the customers & long term relationship buildup is very complicated. The importance of accrued reputation & innovation & enhancing non-financial performances

can be determined through results. In view of decision makers' frequent innovation & assembling reputation lead to the satisfaction of the customers & long term relationship buildup which is fruitful for sustaining the competitive environment.

Chapter 6

Conclusion and Future Research

Innovativeness in the Telecom sector of Pakistan is reported here, comprising on the sample of 4 telecom firms. The relationship between innovations & performance of firm has been identified & statistically tested by a theoretical framework. Not only four innovation types affecting the performance aspects of the firm is disclosed by our study, but mediator role of innovative performances between performance aspect & innovation types is also discussed. Our finding supports the claim that there is the significant & positive impact of innovations performed in manufacturing firms on innovative performance.

Today one of the chief donors to the economy of the country is telecommunications industry in the developing countries. Not only these telecommunications industries contribute in economy, progress & growth of many other sectors are also influenced such as education, health, rural development & E-Governance, etc. importance & influence of this industry is recognized by the government of Pakistan evolving at a rapid pace. In order to acquire reforms & adapting regulations & policies government of Pakistan is trying continuously, but to get the benefits of the telecom industry, there is many more to be done.

There is the positive impact on organizational innovation, process innovation & product innovation, on customer performance & financial performances. The marketing innovation positively impacts customer performances & financial performances. Greater sample size may change the finding. In improving the firm

performance, there is an organizational need to conduct appropriate types of innovation. The financial performances & customers performances are explained by innovation neglecting the other dimensions of organizational performance. Hence it is determined that the innovation type of Telecom Companies can improve the performance of the customers. Also, by implementing the innovation strategy firm can improve their growth performances, internal business processes performance, learning performances & financial performance. Limiting factor of our study is a time restriction. In future studies more, data can be gathered for analyzing other types of performances including internal business processes performance and learning and growth performances. For achieving high performances, appropriate innovative types should be chosen by the firms. It is anticipated that this study will subsidize firms & academics in the field of innovation of Telecom sector in Pakistan. These findings offer several managerial implications; also the conceptual model is substantiated by such findings.

In order to achieve sustainable competitive power, innovation possess key importance. Therefore, additional emphasis should be given by the managers of the organization. Improved innovative performance is dependent on the implementation degree of innovations. For more significant market performance & production improvement, more expectations appertained with those firms capable of resources for innovative capabilities improvement & high level of innovation activities.

It is also observed that innovation types support the indicators of market performance such as sales, exports, and market share. In the context of these finding, there is more or less positive association between individual innovation types with some aspects of firm performance, we have also observed that organizational innovation performs fundamental role for developing innovative capabilities as it has the greatest deterioration coefficient having innovative performance. This finding is in accordance with the study results conducted by Lin and Chen [88]. Organizational innovations possess direct & strong impact on innovative performances I addition with the preparation of a suitable milieu for the other innovation types. Therefore, it is proposed that firm innovation need to be considered more by managers possessing a crucial role for innovative capabilities. Innovative performances

seem to be driven greatly by product innovation which acts as a bridge for carrying positive impacts on innovative performance. For these reasons, there is greater investment by managers with innovative capabilities and supporting new attempts of introducing each type of innovations. Innovative performance is like a hub & plays the most important role in this scheme, where positive effects of innovation types are congregated and then conveyed to market, production & financial performances. In observing the positive effects of financial & innovative performances certain amount of time might be necessary. A time lag effect between financial & innovative performance is stated already in the literature [89]. This fact explains why it complains of top managers about affirming enough positive results of their innovative efforts.

Boston Consulting Group's Annual Innovation Report [90] following a senior management survey attests the same fact. Although for the majority of companies, innovation remains a top strategic focus and there is an increased trend of spending on innovation, half of the executives who have conducted the survey remain unsatisfied with the financial returns of investment of their company in innovation. Although our study does not only possess a longitudinal data analysis, we use a clue to explicate time lag issue. There is a positive link of innovations with market performances, financial performance, and production performance. The innovative performance acts as a mediator for positive effects.

It is assumed that innovative performances are the dominant positive effect on market, production & financial performances. It is predicted that depending on the higher innovative capabilities there is increased production & performances which lead to the higher financial capabilities.

The future of the telecom industry is assumed to have evolution & constant excitement. The new technologies and applications are considered as the beginning of the future innovations. PCs are overtaken by the modern gadgets, for instance, smartphones become the special requirement of the daily lives of people around the globe. In the development of the country, the contribution of the telecom industry is interested to be observed.

Our findings support the fact that one of the major drivers of the firm is the innovation strategy. Performance should have accomplished as an integral part of business strategy. Innovations should be managed & recognized by the managers to boost their operational performance. If the innovation's nature is completely understood & known, it will be beneficial for the organizations for production, market & technology strategies prioritization for the implementation of the proper action plan.

The unique event combination, for instance, the huge increase in population base, the national economic boost during the same period, the change in the demographic profile of the population will lead to the amazingly high rate of growth of telecom industry in Pakistan in last decade. There is 3 % increase in the growth of the GDP with 1% increase in the telecom penetration (Ernst & Young, 2010). Additional research should be lead to develop the market strategy for sustaining the growth of the industry regardless of the saturation of the market in the mobile market particularly. As a consequence, rather than conducting the simple analysis it is more significant to analyze the influence of telecom industry on the national economy.

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Appendix

Impact of Innovation Types on Performance of Telecommunication Companies in Pakistan

QUESTIONNAIRE

Part A – Demographics

Q1. Age

1. Less than 25 years
2. 26 – 35 years
3. 36 – 45 years
4. Above 45 years

Q2. Gender

1. Male
2. Female

Q3. Level of Education

1. Under Graduate
2. Graduate
3. Post-Graduate/ Masters
4. MPhil
5. PHD

Q4. Experience in Telecommunication

1. Less than 1 year
2. 1 3 years
3. 4 6 years
4. 7 9 years
5. Above 9 years

Q5. Telecommunication Company

1. Telenor
2. Mobilink
3. Ufone
4. Zong

Q6. Department of service in Telecommunication Company

1. Customer Service
2. Retail
3. Consumer Business
4. IT
5. Finance
6. HR

Q7. Number of Employees in your Organization

1. Less than 100
2. 100 250
3. 250 400
4. 400 550
5. Greater than 550

Q8. Your current Position in Organization

1. Director
2. Manager
3. Supervisor
4. Customer Service Representative

Part B – Innovation

Statements	Strongly Disagree (5)	Disagree (4)	Neutral (3)	Agree (2)	Strongly Agree (1)
Organization Innovation					
Free and open communication is encouraged within the teams in our company Employees are optimistic and confident about the top management in our company					
An employee can get the resources which are required for their work					
Employees have freedom of decision for their work					
In strategy formulation all parties from lowest to highest are involved in our company					
Marketing Innovation					
Customer complaints are properly channelized for service improvement					

Customers feel like the valuable part of the company due to marketing Innovation strategy of our Company.					
Main objective of our Company's Marketing innovation strategy is to improve the quality of services.					
Our Company has achieved/achieving its strategic goals due to its market innovation strategy.					
Market innovation has increased the knowledge and skills of employees					
Product Innovation					
Our company fosters to increase the quality of products					
Our company fosters to decrease in manufacturing cost of products					
Our company makes the current products customer friendly by improving the technical specifications of the products					

Our company attracts customers by giving newness and upgrading the functionalities of the products					
The main purpose of developing new products is to satisfy the customers.					
Process Innovation					
Our company has fast delivery speed in the associated logistic processes.					
Our Company has adopted real time process advanced programmable equipment, and automatic quality restriction software.					
Non value adding services are determined and eliminated from the service processes by the Company.					
Our company focuses on decreasing variable cost in logistic and service processes.					
The quality of output in service software has been increased in last two years.					

Part C – Performance

Statements	Strongly Disagree (5)	Disagree (4)	Neutral (3)	Agree (2)	Strongly Agree (1)
Customer Performance					
The innovation strategies of our company have enhanced the customer satisfaction level					
A lesser number of customers have left us as compared to last 2 years.					
Our number of customers is increased as compared to last 2 years					
Financial Performance					
The Company's market shares are increased due to its innovation strategies.					
Total sales of our company are increased due to its innovation strategies					
Revenue Cycle of our company has been increased due to its innovation strategies					

Increase in limited return on investment and assets of the company have been maintained due to its innovation strategies.					
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