

Developing Mobile Applications in Pakistan



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ABSTRACT

The thesis is on mobile application development in Pakistan. It was undertaken by Miss Faiza Mahmood and was supervised by Mr. Ali Kamal for the degree requirement of MBA and it consists of about 70 pages.

This thesis begins by reviewing the definition of mobile applications .then gives a step by step analysis of types of mobile applications, and the application stores. The revenues streams that can be generated from applications, how Mobile Application developers can make Alliances and how developers can use applications as a marketing tool are discussed. Globally the Smart phone and network operators have reaped the benefits from application businesses and Pakistani Entrepreneur can also get gains. We have tried to Describe and interpret data from a particular case of Tricast Media. Thesis considers the mobile developers as vendor. Individual users, corporate businesses, smart phone manufacturers, mobile marketer and application stores are the potential purchasers of the applications.

A questionnaire in the light of hypothesis is formulated. This questionnaire was then sent to an International organization working in Pakistan. The result of the survey was used to help testify the validity of the hypothesis. Conclusion was drawn at the end. Our analysis shows that there is market for mobile applications for businesses and network vendors. The market for individual users, mobile marketers and application store is yet to come.

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I offer my sincerest gratitude to my research guide and mentor **Mr.Ali Kamal** who supported me throughout over the last year with patience, extending to me his expert advice. And giving me ample space to develop my own style and flair. I am very grateful to him, for giving me perspective on the subject and helping me think and focus my energy in the right direction.

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I would also like to extend my gratitude to my brothers' sisters and all friends for their sympathy and care for making this journey enjoyable, will always remember the good times.

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DEDICATION

*To my mother, chip, advisor and mentor
Mr.Ali Kamal*

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CHAPTER 1 INTRODUCTION

For number of years Pakistan is considered one of the most successful countries in terms of adoption and use mobile services. The short message service (sms) and voice communication has been dominating the mobile service areas. The distribution and penetration of mobile handsets is highest in Pakistan, hence mobile density grows to 57.90%..Pakistan has passed the landmark point of 100 million subscribers, growing from 90.703 million in January; reports PTA.

The prospect of mobile related industry is depending on various factors. Most highlighted factor now a days is the advancements in mobile internet services. It which denotes that sector is moving from voice-based services towards content based services.

Today the mobile phone is the major device to access the internet .People like to access web on smart phones and are more gravitated towards tweeting rather than long Emails. More applications are demanded that gives users utility and information. Applications are now becoming central part of phones.

We are identifying motivation that encourage mobile application developers to peruse this endeavor in Pakistan

1.1 Broad Problem Area

Businesses dealing in mobile applications are booming internationally. Mobile application developers are reaping benefits in form of pay per downloads, fees and licenses.

The application market is now crammed with competitors.

In order to be on zenith the application developers are now entering into alliances and mergers with advertising groups, wireless, telecom networks and phone manufacturers.

1.2 Problem Statement

In this view the research question can be defined as following:

"Mobile application development will be a success story in Pakistan"

1.3 Significance of the Study

Mobile application development should become priority for IT and telecom industry in Pakistan since it implies significance for the following:

1.3.1 Network Operators

The mobile network operators are providing homogenous services for mobile phones. This is an indication of stagnant services for society .there is lot of room for more advanced and user friendly services. More Unique and useful services can capture much more revenues for telecom operators easy paisa is an example.

To capture more market and revenues network operators offer attractive packages for traditional voice calls and the short message services. The telecom industry is saturated and revenue margins are contracted .it's a challenge for operators to provide more personalized and value added content to the users.

1.3.2 Software Industry

Mobile applications are program codes executed in a mobile terminal. It argues that Software firms developing web pages and applications can extend their existing business into mobile application development.

The firms in IT industry those are designing web applications and doing internet marketing can take a step ahead to develop expertise in this area.

1.3.3 Mobile Marketing

Mobile applications are capable of encouraging mobile marketing, it creates high level B2C markets .mobile cheer one to one marketing since it allows business to send personalized offers and ads regardless of time, space and boundaries.

CHAPTER 2 LITERATURE REVIEW

Trends have changed both for people and the telephony industry. Mobile phones have become palmtops and have replaced laptops, televisions, radio and video games.

Before we look at the line of attraction for the application entrepreneurs, let us briefly look at what are mobile applications, the revenues coming from the applications business, and how these applications run on cells globally.

2.1 Mobile Applications

Mobile application is the program codes that are executed in a mobile terminal. A mobile application may use networking capabilities which makes it part of mobile service. It may also be a standalone application.

The applications are transferred to the mobile from compatible computer software, downloaded during browsing, through multimedia messages, through e mail attachments and via blue tooth devices. (Petteri, 2005, p.65)

The applications are transferred to the mobile from compatible computer software, downloaded during browsing, through multimedia messages, through e mail attachments and via blue tooth devices.

The success of a mobile application is because of several variables that discussed in an article by website magazine, it was published in august 2010. This magazine rates that primary factor behind this rise are the devices that have become more powerful over the number of years

.The further dynamic behind the boom are wireless networks. Today networks are providing consistently high bandwidth and better consumer experiences that is with 3G deployment.

The third cause is that Developers are becoming more inventive and imaginative this is brought because of the availability of indigenous APIs, rich platforms, ease of development and favorable revenue sharing terms.

Final aspects are the Different players in the mobile ecosystem including service providers and telecom operators. These two are pursuing an on-device store front strategy makes the user experience of hunt, discovery and fulfillment better.

North American and in West Europe the saturation of smart phones are low. Nevertheless these countries still have full-size total of feature phones. That population is been used but the amount of revenues made in smart phone downloads is tremendous. (www.Chetansharma.com)Another fact of the main reasons is that there is large number of active information users on smart phones as compared to the feature phones.

Moreover In category of big sum of feature phones used in the countries like India and china are used. These countries have big population. If making comparison of the revenues made by these countries feature phones take the lead because saturation of feature phones in these counties is more. This shows that feature phones will start generating additional income in the course of apps even in the western countries when next generation of feature

phones are available there and more apps are being developed for these phones.

Toolkits like TWUIK make software developers to develop applications. These applications are made simultaneously for feature phones as well as smart phones this done in the case of both phones is embedded with a JVM feature. Though TWUIK is accessible for native application development by the end of 2010. www.techlahore.com

With help of a powerful UI framework like TWUIK Developers can take and market their applications on a enormous playing field of devices .this will help them in keeping the while keeping the privilege of working on smart-phones.

Mobile software development is the scheme of making software these software are deployed can be used on a mobile devices.

This software is the creation of unique web and applications that are made for mobile devices. Mobile simulators is on a computer. Diverse platforms and programming languages based programs make mobile application software. Similarly there are different hardware components a mobile company distinguish makes so that the application made for them is also different so different software are dedicated to different stream of actions.

It is also made more different as cell client of mobile applications have assorted fondness so extensive expansion to traditional system development methodologies are

required in order to keep up with this command.
www.wikipedia.org

Cell applications have boomed and this applies better career opportunities. This suggests occupations for groups with the accurate education and schooling is feasible. There are various steps that necessitate methodological employees and differ as the stages differ in application development. It reports that there are seven stages that are involved in the application making.

Stage one involves the thinking to make an application that people will want to use for a subsequent time. The idea springs from nowhere, one should be careful when drafting the idea that it should have some potential order and reorders of the commodity, which is where an advertising proficient can help. www.Yahoo.net/articles says more. In succeeding part, is the part where the application thinks that to peruse the idea or not to people work along with a development consultant with technical competence to decide whether a new app can be brought to life. Latest technology is used to resolve the computing problems come into play at this point.

Part three involves the Development stage. This stage marks the visualization of an app. A venture designer regards and takes into account the factor that what is appealing to the market eye that he is targeting.

Phase four refers to the concept of Coding and Engineering. In this part apps are created, shaped, evaluated, and tested to make sure they are working properly and accordingly.

Segment five is excellence guarantee during the concluding stages of an applications development. Technical assistance and support is given by specialists.

Part six is the Deployment Time to get the word out that a new app has arrived. The success of companies often depends on how well they endorse their products to markets, stores and consumers.

Chapter seven incorporates Maintenance and Support Once apps are on the market, tracking their success might include compiling user performance data; statistics such as the number of downloads.

In www.slideshare.net the writers Mohit & gundecha states that mobile marketing there are number of players concerned .certain GSM operators declare to propose more than thirty to forty percent revenue share to Value added service partners , which in actuality is compensated after deducting license fee. These are mostly accounting settlements, thus not changing overall proceeds share of seventy to thirty percent between Telcoms and Value added services partner. In India for the year 2006-2007 saw SMS Marketing and challenges getting novel height. Person to application, application to individual SMS services gained fame, driven by status, driven by voting based TV shows. popular TV shows like Indian idol have been targeting youth ,Kellogg's targeting housewives and children while cricket predict and win targeted mass market. Text Marketing generated revenues for the value added services .it's been reported that the two finalists of Indian idol three drew a combined tally of seventy million SMS votes at an average

cost of Indian rupee three, the revenue generated reached around USD five and a half million.

With a boom in the mobile marketing sector new players applied to get operating license including companies with no Telecoms experience but wanting to capitalize on the boom. Companies like at&t, DLF, AIRCEL !dea, India bulls, unitech, spice telecom , Verizon, PARASVNATH DEVELOPERS, and TAtA indicom .

(Gildum and Wilson 2009) in mobile-applications-and-mobile-advertising describe the UK market for mobile ad revenues almost thirty million pounds. That represents ninety nine point two percent year on year growth.

According to Rudy De Waele in his presentation on "*mobile trends for next 10 years (2020) a collaborative outlook*" predicts that over fifty percent of the world's households will hold a mobile device. And mobile internet will exceed the wire line internet in global attain. By the end of the decade mobile devices thought of first of the applications they run rather than their ability to make voice calls. In future mobile phones will offer health care services, mobiles will replace the wallet and every one will become a walking register. Evidenced by the recent notebook phenomenon with seven hours becoming the norm for low cost ten inch laptop the battery technology for mobiles will catch up. Location based advertising will explode and the venture capitalists will make strategic investments in mobile application companies like shazam and samule.big brands will acquire small applications that enhance their product offering like Amazon and snap tell

In an article of www.cnxconsultingpartners.com says in services and markets for mobile solution, two thirds of the

people in the age group of fifteen to twenty seven years cannot think life without of mobile phones Mobile leisure includes Radio /Video Mobile Games Mobile social networks &communities Mobile Music. Whereas Mobile Internet, E-Mail, News (Weather), Mobile Search. Whereas the Mobile Navigation & LBSGPS Navigation, POI Third one is Mobile commerce, payment& ticketing E-Mail fourth one is mobile ticketing NFC,M-Shopping. Mobile Marketing & Advertising includes the Mobile TV & video on demand commercials Mobile search advertising in game and application Advertising Direct marketing by SMS/MMS and by Display/Web advertising. The article says that the Mobile Life encompasses all mobile B2C services & applications

2.2 The Applications Market

Mobile application stores are the new innovative resolutions with revenue streams for operators, handsets OEMs and application developers. A few years ago mobile app stores were alien ideas. As soon as I phone was a hit people adopted the idea of an application store. The application stores have now become mainstream and highlight of I phone states www.appierian.com

www.geek.com reports that now there are many application stores. There are more than 110 application stores. Here are some examples of application stores.

Acer Alive was made to batter the ownership concept of acer allied goods. It gives the consumer loaded and wide-ranging options of substance.

Airtel Application Central is another fresh appstore in the stream that is commenced by Bharti Airtel. It objective is

to target the feature phone users relatively than smart phones.

All Binary Application Store provide serves the android devices and products both (Google approved and unapproved).

Android Market is a software application developed by Google for Android devices, which permits client to surf. It helps then to download applications published by arbitrator developers.

Android.pdassi.de is a German AppStore for Android Apps. Android Gear: Pocket Gear is the world's biggest cross platform. It is an open application store and content market with a directory of more than 140,000 paid and free of charge titles available for search and downloads.

Android pit IS the autonomous store for the whole lot consists of android. Appbackr is the original and single digital wholesale market for the iPhone and iPad.

Appboy facilitates consumer discover grand application for cellular phone devices. Appboy is comprehensive application store. It conducts in depth evaluations. It pulls together consumer ratings and reviews. It takes account of the developers in the population.

AppBrain is a webpage for finding out Android applications. In adding together to providing search .moreover this site gives search engines and facility of browsing.

It offers it users to download the applications. The users can do so by checking the install section on the web page.

The wishlist of the applications is provided by application brain.

A cohort native android app then allow the user ably build all the desired modify on the cell. AppCentral is a multi-platform app store for the project and the enterprise.

It is an ideal site for IT manager and end users to collaboratively find apps for their efficiency. More the user can approve the best mobile apps for enterprise productivity.

AppCity is the first online mobile application store across the world. AppCity recommends monthly and weekly packages for both free of charge and compensated mobile apps to its subscribers.

Appcomments draw in comments on iPhone apps from the App Store. It helps them to find developers and read about more applications.

Appitalism has a social media of its own it also has the online store. Facilitating consumers to find out, talk about and download applications out of a from list of over ten million premium apps, songs, books, games and videos these applications are well-matched with a wide variety of digital devices like smart phones, PDAs, or PCs readers

Appoke is a application store for android. It's a social app store. Appolicious gives out suggestions on applications and recommends. Appsfire helps to share I phone applications.

AppShup is for software developers to build SMS functionality into their applications .the developers use SMS GupShup's platform through its APIs AppsLib offers a unique library of applications for huge screen.

With a variety of new Android-based smart phones on the horizon, AppsLib has been planned for enhancement the Android marketplace with an offering that purposely accommodate for the larger screen device.

AppStoreHQ is the top independent hunt & discovery platform for iPhone apps. AppUp Center is an Appstore for Atom powered pcs .

The AT&T App Center will offer software for underpowered and low-priced mobile phones which be short of the classy computing capabilities of Cell phones.

Another application store is AutoLinQ. It's an open, nonstop vehicle connectivity platform. This stage facilitates vehicle owners to securely connect to what matters in their lives. It pulls out the vehicle possession practice by making an "always connected" environment. Here consumer can have significant contact with their automobile from dwellings, from the workplace, or mobile devices.

BlackBerry App World is application distribution service and application by Research In Motion (RIM) for certain BlackBerry devices. This application store gives users with browsing ,downloading, and update facility for third-party applications.

FastApp Store gives a hodgepodge of application for blackberry, iPad, iPhone, iPod Touch, Android, Nokia, & MySpace applications in the least of clicks. Flypp is a white labeled, ready-to-launch application for cells and operators it allow monetization through ready-to-use experimental applications across devices.

GetJarWorld's is the key, cross platform app store it is helping Android, Blackberry, Symbian, Java and further major platforms. Get Jar makes over 50 million downloads in a month across more than 200 markets. Handango is an online store that trades mobile software. Handango offers worldwide distribution, maintain, e-commerce services to its associates. InHand the application store was brought out in first half of 2007, is an on-device application store for discovering, installing and buying software for its customer's mobile devices.

Handmark is another app store that is ahead in creating and distributing mobile applications. And services. There is an application store with name of handster .this store has its own white label platform .this is a branded store.. House Of Palm based search engine is developed to search and browse the Palm.

Web OS App Catalog from a PC.Idea is another Application Store, Developed by India's leading VAS provider Spice Digital, the Idea App Store. This application store cover up all devices on Idea's network, with a focal point on local applications. Americas Movil based application store is widget.

WIP App Store is the top source catalog app stores for mobile Developers. It informs that in year 2010 only from 32 stores, the number of stores has grown to 110 .that means the store amount has tripled .distributors are now getting more and more supply outlets.

More the www.wipconnector.com reports that now the number of independently run store is increasing. This is because of the fact that Smartphone allows for the open distributors to come in the field, the developers with a decent level of technical skill could plausibly begin their individual app store. But it's worth highlighting the expansion in a few other areas.

The figure of app stores run by platform or device makers has turned double over the year, from eleven to twenty four, the increase comes from the developers of Android devices debuting their personal Products to run together with the Android Market. The number of operator-run stores has tripled as businesses in the region of the world leap on the bandwagon; they are setting up their own stores alongside platform and device makers' offerings. This places the interest what will be a key trend in the app store room for 2011.

The ousted competetors are discussed in www.articlebase.com it says that symbian horizon is an example of a thrown out entrant, by tough competition. These entrants have thrown the horizon out, due to the reason of its third party involvement. While certain features like rev share and user billing should move in the direction of equality, other unsettled troubles like discoverability leave huge scope for rivalry and chance for improvements.

Apple, BlackBerry, Android, ovi store and other service providers sell enormous range of applications in their stores.

Buying these applications makes people get reports on weather conditions, traffic situations .people play games, and not also learn a new language.

Nielsen wire had conducted a survey ("app play book"). Nearly 4200 people participated in investigation. These people had downloaded and used the mobile phone applications The researcher noted that people were more interested in categories like games, music, social networking, news, weather, navigation, search, videos, movies, entertainment, food, sports, communication, banking, finance, shopping, retail, travel and life styles. Face book, I tunes, Google maps, Pandora and Google search were the most sought after applications

Some of the famed achieved applications are reported by www.nielsenwire.com .The Mobile application publishers has introduced interesting apps like I pint app .these applications help users that they can enjoy drinks in the virtual bars .it is for all the users around the world. Another Popular Conversant Mobile application was "white-label" .I PHONE Has developed a tool kit for its bloggers so that they can display their blogs in a stylish and flexible way.

I.J. Ikavalko discusses in Bloomsburg business week that the popularity of mobile applications over desktop web sites. He says that Mobile apps could become even more useful because of their handiness as compared with desktop

Web sites. For example car-sharing service Zip car, whose phone app is defining its business logic by, for instance, allowing customers to unlock their Zip cars with their phones and share the car. People can locate appropriate model, make and reserve the car. (I.J. Ikavalkop 20)

Users are willing to pay for Functionality, utility and for quality content on their handsets. The £2.39 Guardian app topped in terms of downloads and generated more than pounds two fifty thousand in download revenue (business week ,2009,.p53) Business week article says people are spending more time on downloading music applications such as Pandora. Pandora is an online mobile application service that permits people designs their own radio station list on their cell. It is nine year old application .it has 6 Million users .users with on average of 90 minutes per day surf on it The success are moreover described by www.bx.businessweek.com it says that The CEO of Ebay says that volume of its trade on I phone application can increase three times. EBay's mobile applications for apple's I phone have been downloaded ten million times, and according to ebay spokesperson it would put in dollar one point five billion to dollar two billion to ebay. In year 2009 the application added dollar six hundred million in business volume.

Reuters in www.businessweek.com say that emergence of mobile applications has separated the web page development on internet into two halves .one for the traditional sites designed for desktop and laptop screens and second for the use of smart and featured phones. There are now about 400,000 touch-optimized sites.

2.3 Mobile Application Revenues

Discussions on Application development www.junipr.com says brings revenues to its developers in form of sales or else combined revenues. The combined revenues from apps come from pay-per-download (PPD), value-added services (VAS, including premium and subscription) and advertising. This inclination is expected to rise from just under ten billion dollars in 2009 to dollar thirty two billion in 2015. majority of the application downloads like that of apple are free of any fee whereas five to fifteen percent have fees.

A number of applications are free for users while others can be downloaded after paying full price. Applications have version upgrades for more enhanced features.

2.4 Mobile Application developers Alliances

The best example of the shared revenue is the developer's alliance with a certain business. Developers have worked together with sports channels like espn and fox sports and created a hodgepodge of applications.

The application hub called United States App Store. It offers a collection of soccer related programs .it has many applications like for football World Cup 2010, season like LALIGA and mega tournaments like Europe cup, the application like fox soccer, ticket to south Africa, world cup news, vuvuzela are for soccer world cup.. They can track the up next coming matches and their time, the history making building of the playing field. The stadiums used for the purposes and the cost incurred on it.says the www.nytimes.com

The applications provide helpful details and real score card like graphics and instant updates. The scores are refreshed after two seconds. The New York Times journalist jack bell reported that Applications like fifa world cup and espn 2010 with premium upgrade for just 8 dollars has features like live play by play; live auditory from ESPN radio, live commentary, scoring alerts and in-game video highlights.

2.5 Applications as marketing tool

Mobile applications are a good marketing tool. Many companies use hybrid of free mobile applications and paid applications for promotional purposes.

The newyork times in www.nytimes.com says free applications are used to build a big amount of audiences and direct big traffic towards its web site or a certain advertisement. Application providers with a free app that is of good quality and has utility in it, has underlying aim: grabbing audience. A lousy, unattractive application with high price cannot do so.

www.smashingmagazine.com says Marketers and product managers need to address the variety of customer base they want to reach .When selecting only one platform that is making specific application like for BlackBerry, means selecting a mature audience or early adaptors.

The mobile medium is personal, always on, and allows companies to interact with target audience in context. Customers can be motivated to search companies' mobile site or spark 'word of mouth' communications says the Wikipedia. Wikipedia says mobile marketing is meant to describe

selling on the phone. It helps advertisers to sell with a portable gadget, such as cell phone. It is different from other style of marketing. It is type of a contact in that it is often user who makes the first move and requires the express approval of the user to obtain upcoming communication.

Mobile marketing is known as profitable marketing .currently the world market for mobile marketing is \$twenty nine Billion .world market for mobile marketing and advertising is projected to reach fifty Billion dollars by next three years .that represents growth rate of twelve percent.with over four and a half billion people worldwide use mobile phones,it is clear that mobile marketing is essential for every business. And it is becoming obvious that companies of all sizes need to understand. Says Jordan cook in www.mobilemarketer.com

In marketing report in www.mmaglobal.com, says Mobile marketing is rapidly rising further than the experimental and is showing tangible consequences .two examples are Barack Obama's unique mobilization of supporters during his presidential promotion, and the unbelievably successful American Idol reality show, where over twenty million mobile users text their votes each week. The four most prominent mobile marketing tactics are text messaging, multimedia messaging Mobile web, Applications and Mobile Advertising.

First one is through Short codes, Text to win, short text messaging. Like Pepsi & Burger King. Vodafone Turkey ran a well booming text-to-win promotion with fizzy drink Pepsi previous autumn. Consumers pay for a drink and texted

special code to a central number to receive free mobile credits.

Consumers could interact with an enormous poster and design their own shoes with Nike time square application. Short codes allowed customers to respond and download the required software.

Mobile CRM: mobile CRM is a text message that confirms a purchase, delivery time and tells about the delays that a customer experiences. This service was used by Car park operators' .mobile CRM tells its customers of options of payment mechanisms they can adopt. It allows payments from the mobile phone.

Proximity marketing gives highly related contextual information to the consumers in a specific location .Bluetooth and infrared access points are used in this service. This is usually provided by retailers .its aim is to target audiences and inform them with the event and activity spots such as shows, stadiums and cinemas.

Mobile barcodes propose a protected and fee free effective substitute to avoid paper based promotional coupons, devotion schemes, and can contain personal information for access to actions, travel tickets, flight boarding passes. 2 D barcodes featured on face cover of Disney Magazine allowed readers to use their phones to contact Disney special features.

Location-based and location-aware services are providing people with the showing them map on mobile and the location navigation. Maps viewed on mobile site can allow customers

to look for locations of bars in Amsterdam. So that people can participate in special promotion

In close proximity to field of communications and payment facility are the visa alternates. These are known as NFCS .it's the point of sale on mobile. This is mobile Credit card technology that is residing inside a mobile. This allows user to pay for simple services with a simple wave of their phone.

With the opening of 3G and mobile broadband technology, the variety of mobile services on hand to customers has prolonged to include a broad array of interactive, multimedia services, often referred to as content services. These products range from Short messaging and ringtone downloads, amongst others, Multimedia Messaging Services (MMS), instant messaging, music, games, access to information services for example news bulletin, spectator sport, weather conditions social networking sites and the Mobile Internet. Paid search are used by service providers on the traditional pay per click model. Also it used by service providers gradually more on a pay per call. The advertisers give out advertisement in a way that it has a title, the depiction and the site URL, phone digits or both. Advertisers can as a result choose to join to customers by means of either means telephone or webpage so as to they like better, or they can allow consumers decide

Cell phone is the world's most vital individual gadget. The with further than ninety percent of the every country having access to mobile services But the domination of mobile as a marketing means is not now about the statistics it has a community role in our daily lives. Cellular phone

keeps community continuously in contact with their links and family, business and networking sites. Now day communities by no means leave home without mobile phones. They are within easy reach twenty-four hours a day. They have contacts, e-mail, sms, mms, tones, songs, snaps. These are, in reality the only truly adapted mass medium tool

2.6 Smart phones

Smart phones help users reach all web pages without computers .smart phones are cellular converted into a computer that stays in users' pocket. This pocket held computer encourages business to invest in making phones and the providing related services.

www.reportlinker.com says that The smart phone market size is increasing .Among 291.6 million mobile devices sold worldwide ,thirty two million about eleven percent were smart phones that was in year 2008.PDAs lost more and more market share .among thirty one million laptops only 720.000 PDAs were sold.

According to a research people are now preferring multimedia mobile phones with focus on mobile TV, Radio, Music, Games organizers with web browsers office applications (blackberry) and mobile navigation devices like Nuvifone. www.cnet.com says

2.7 Application Related Businesses

(hempel j ,2009,p 62)says that Blackberry curve was the best-selling smart phone in US in year 2009 .while in past ten years the RIM sold some sixty five million phones to its now twenty eight and a half million subscribers. RIM stock market capitalization rose from twenty five million

to forty two billion. RIM had fifty six percent share of total dollar twelve Billion US smart phone market.

Nokia market share dropped from forty nine percent to forty three percent while RIM quarterly sales tripled from seven percent to twenty percent Apple share rose from three percent to eleven percent.

RIM ranked on top at fortune 2009 list of faster growing companies' .Even though at the critical recession RIM shares made total return of forty five percent.

Apple launched it's I phone in 2007 with the logo: "the internet in your pocket", while Google came with nexus one by advertising tag line "web meets phone". Apple with its core business "software" is trying to break in to mobile advertisement. It is advertising text ads and is now working to create applications. Apple is paving new advertisement ways for apple I phone and apple devices.

Apple with fourteen percent market share has hundred and twenty five thousand applications .it has made dollars two seventy five million acquisition of Quattro wireless; an advertising company that excels at targeting ads to mobile phone users based on their behavior. Whereas Google with strength of its android software has eighteen thousand applications .Google has acquired ad mobile for dollar seven fifty million in connection of acquiring network of advertisers and technology to target advertising sector. Google now holds sixty five percent of the search advertisement market.

Smart phones have introduced new business lines for marketers and software industry. Apple uses its user data

and geo location technology to make advertisement more relevant and capture more audience.

(Bloomberg Business Week ,2010,p 25)reports that The smart phone companies are earning topmost ranks in the registers. Like most stock returned on its inventions for 2009/2010, Apple Inc. stood first with annual revenues thirty eight and half billion dollars and growth rates up to thirty percent. Google was on second position. With ten percent stock return the revenue has grown thirty one percent for Google. Microsoft stood third at revenue growth at ten percent.

(Kerry Capell,2009,p-53) says that Google is planning to build the fast speed networks in most cities of USA. Microsoft has invented outlook 2010, which synchronizes e mail contacts and social media applications. Dell and Acer are now making moves to build smart phones. Motorola is going to debut with its two new devices running android. UK market leader vodaphone has world's biggest wireless telecom operator of its own. It has its own web portal "Betavine" for hobbyist to software professionals to create and test one another's mobile application. Voda had acquired forty seven percent of Verizon wireless in 1999.vodaphone now partners with dell.

Smart phones have outperformed the number of laptops sold globally. The demand for smart phones is increasing rapidly despite of cold recession. Companies are expanding their business into smart phones and its related services by partaking mergers and acquisitions.

Larson, William and Wakefield say that Apple computers stretched itself from simple computers to I-pod and I-phone. I pod was later known as invention of the year. To grow bigger; companies are acquiring new products, services and ideas. Google the largest search engine (with fifty three percent market share) is pacing into cell manufacturing business. Google is releasing its own G1 phone by pooling resources with T mobile (table 1.)

The enterprises manufacturing simple and featured cell phones are also adapting their course towards smart phone business. Nokia is one of them. Nokia is World's leader in mobile communications and fifth most recognized brand. Nokia to fend the competition is releasing its smart series of phones capable of three G download speed.

2.8 Pakistan Software industry

In official website www.pasha.com says that the Last quarter of 1992 saw the formation of Pakistan software house association. PASHA was formed to promote and develop software services in Pakistan. It started with size of nine companies'. Now PASHA has more than thousand and eighty two of its registered members. The industry has four thousand six hundred and nineteen employees and more than twelve thousand two hundred and thirty two, professionals, out of whom twenty percentage foreign, qualified.

Pakistan IT and ITES industry size is us two point eight billion dollars with an estimated that annual growth rate of thirty nine percent. The employment of professionals is at growth rate of forty one percent. These growth rate

suggest that it industry will achieve the bench mark of dollar eleven billion within next five years.

Businesses like IBM, CISCO, and MICROSOFT are expanding their operations in Pakistan aggressively. There are many venture capitalists that are backing startups such as e planet ventures, Motorola, adobe and innovacom.

Pakistan IT sector provides its majority services to finance companies with thirty one percent, to energy sector five percent, to government ten percent, to telecom seventeen percent and three percent are miscellaneous. Its international buyers are (export markets) USA (fifty eight percent), UK (nine percent), Far East ten percent, and UAE (two percent) in Canada (three percent).

www.pashanews.org says India software industry size is dollar eleven billion .Pakistan software industry has competitive advantage of lower labor cost that is about thirty percent .Pakistan software industry has highly skilled HR. the cost of setting up and doing business is relatively lower than India and china. Hundred percent ownership of equity, repatriation of foreign investors' profits .there are tax exemptions for businesses on all investments and exported software until 2016.

According to PTA Quarterly report 2010.Sixty percent of world citizens have access to mobile phones according to UN report; Pakistan is among greatest increasing countries for telecommunications sectors. Developing countries like Pakistan, Saudi Arabia, China, and Vietnam have enthused up considerably in the index over the five year time. This is to a certain extent due to high mobile cellular growth,

pooled with an increase in internet consumer. The levels of information and communication technologies have risen more than thirty percent over the five year period. Globally there are more mobile phone subscriptions than the fixed lines and its three times more than the fixed lines. According to Informate mobile intelligence In India the most preferred mobile applications are crickzenga, cricinfo, mobicast, cricket companion and broovaroma.

Mobile companies are rushing in to take advantage of the popularity of T20. Mobilink has come up with a series of services to keep customers up-to-date with the latest cricket action, along with other cricket related services. It gives Subscription Services, Tournament Alerts (SMS Push), Wicket video alerts, SMS Ball by ball updates, Cricket SMS Portal, Live IVR Cricket commentary, Cricket Quiz, T20 another similar product is Telenor's Fantasy Cricket www.medianama.com says.

2.9 Mobile Evolution and Trends in Pakistan

(Lasén, A., 2005, p 35) say that Telephone is referred as medium of point to point contact .historically it was used as medium of broadcasting news. The end of nineteenth century brought radios invention, which eased the telephones craving as broadcaster.

Pakistan's telephony industry grew tremendously after year 2000. Ptcl required lengthy procedures for the phone installations. The charges for installations were Rs.three thousand six hundred and ninety, however in order to attract more customers PTCL reduced it to one thousand eight hundred and fifty rupees later in 2001. The trend

towards mobile phones was very quick and vast. This submits inclination and reception of the society towards mobile phones. The advent of cellular networks halted the fixed land line concentration says www.pta.com

Moreover to cut PTCL monopoly in telephony the cellular companies introduced cheap SIM cards with instant activation. Therefore the cellular mobile growth rate in 2001 was thirty percent, fueled by fifteen percent reduction in mobile tariffs from PTA.

In year 2004-05 PTA further reduced activation taxes on new mobile connections from Rs one thousand to five hundred. Outgoing mobile airtime tariffs were reduced by forty eight percent. By the end of 2006-2007 the Pakistani subscriber base reached seventy six point six Million.

On the average 2.3 million subscribers were added every month .almost six thousand cities, towns, and villages were covered by mobile operators.

www.pakistaniat.com says Pakistan Telecommunication Authority like other authorities is attempting to bring 3G in Pakistan. The PTA has been conducting auctions to the services industry. It seems supportive rather the telecom is reluctant to adopt 3G .this needs 3G costs and costly infrastructure. And it has high spectrum acquisition cost. They believe that they won't be able to carry out the cost of 3G thus they still rely on 2G technology.

Telecom companies in Pakistan say that no doubt there is a huge customer base of mobile phone users in Pakistan but only a few requests 3rd Generation technology. Still more and above sixty percent of Pakistani population cannot use

the 3g. Most of them reside in rural areas. The urban population demanding 3G is less and few. The urban population do not use internet at all. If the telecom companies take up this new technology they will have to undergo sunken costs.

Telecompk.net says that Nokia is sponsoring an event in Pakistan .it specifies software developer to produce an application that resolves a problem .the application must run on Nokias device and platforms. The application must demonstrate a superior user experience (UI, graphics) by leveraging latest technology. Sponsors encourage the software developers to display creativity in applications .there are several categories like Eco/Being, Entertainment, Productivity and Life Improvement.

2.10 Tricast media: the success story

The Pakistan based developer in his interviews says that he has chosen then prefer cell based application expansion for many motives one rationale is that availability of technology convergence to mobile platforms. And the second reason is the opportunities available for entrepreneurs. These helped them with the privilege of presenting their products in the market.

He adds by saying that reason behind that two years back the introduction of the iphone turned the smart phone marketplace on its head and at that moment .it gave them the signal that it was an ideal time to get into the cell app expansion market. It gave them direct reach to end-users across the globe. At the same time, it helped the developers offer services in a sector .this sector market

is yet to be tapped and moreover that was not yet over saturated like traditional web development.

Over the last year and half they earned decently from products and services, and now that developers have a better accepting of development and marketing in this area they are working on various concepts that have the potential of going big.

It's the only Pakistani firm that provides unique set of services in the Pakistani group of software developers. This firm is famous for offering the users with game development services which is still a very rare skill in the local landscape.

Tricast provides applications to corporate clients. It has worked with Sony Eriksson to develop crickzenga. And it won the Sony Ericsson award for the best mobile application Tricast media won the bid for Sony Erickson out of 7000 submissions. It was known as cricket phone. Sony launched half a million embedded F305 devices with tricast's applications. Now Sony Ericsson is embedding crickzenga in wide range of mobiles. Tricast media has exclusive and global rights to DLF IPL until 2014.

Tricast has intellectual property rights of famous apps like crickzenga, Twuik .pushmail, Twitter, On Device Portal, Unicorn IM, Mcard.pk, Football Companion, Ludo, RSS Reader, Bank Watch, and stock Watch.

Tricast media is fundamentally a UK supported corporation with eighty plus engineer organization with offices in Dubai, UK, and Pakistan. Tricast media focuses on mobile application development and Web.

Tricast Medias portfolio includes products like TWUIK .TWUIK is vector graphics based rich media .enabling customers and developers to create better and more visually appealing user experiences, designed for a wide range of mobile devices like smart phones, PDAS but also to the huge audience using feature phones. TWUIK is a loaded media graphics. It is a user interface toolkit.it helps the J2ME makers to create UI with Visual effects.

Recent creation of tricast media is a soccer application for 2010 world cup. There are several other I-phone soccer applications but tricast has developed applications for Sony Ericson, Nokia and Samsung devices.

Tricast Media has its software house in Lahore. Tricast took cricket global through their world wide application cricket companion via OVI store .it was an instant hit having 10,000 downloads in initial 3 weeks of launch.

Tricast Medias venture in Nokia OVI was cricket companion; however cricket companion was exclusively prepared by Pakistan headquarters. Cricket companion helped those with internet access on their phones .it provides each and every ball thrown in the match and ones that are played. Also it details the users with figures of earlier matches like IPL Or any current match.

Tricast has developed TWUIK: Tricast Widgets and User Interface Development Kit; it can work on any network and device) it is tailored. Tricast apps are rich in animation and graphic ideas. It has simple relocation course. it helps to incorporate with handsets and applications used by people.

Tricast has compacted the development hazard by sorting out the UI development from the main application code. It has

reduced costs through reduced cycle times and dynamic UI interchange. Tricastmedia also provides working on a UI (user interface) framework SDK for smart phone platforms like I phone.

www.tricastmedia.com says Tricast has made successful mobile apps .Cricket Companion is one of the examples of its mobile applications .the application was an instant hit among its users .it has now millions of its users. It's been put up for sale on most of the app stores like ovi ,get jar .cricket companion provides complete reporting of international cricket .it provides its user with cricket score, news, player profiles, statistics, Analysis, fixtures, polls, venue and results.

Java based cell devices can run the Cricket Companion application It's applications work on the on GPRS enabled, Wi-Fi facilitated or Data Cable Internet supporting cell phones..

The official intellectual rights of showing cricket on cell were given to this application by CRICKZENGA DLF IPL awarded tricast the task of installing this app on the cell phones. domestic and international cricket matches that are played are been covered by this application. played in India. There are many lists in an application .for example the Current Matches Screen exhibits the catalog of contest that are shown at the tv screens live. client can continue on the display to get live cricket score to get the telly for all the matches shown or the user can opt to get the live scorecard for a cricket match. The live scorecard screen not only displays the live scoreboard but also contains some very helpful collection in 'Menu' as of where

the consumer can monitor the full scorecard, entire squad information, Statistical Graphs for each inning played, Live commentary analysis, useful match information such as toss, umpires etc., Match Highlights view that provides a commentary view of all important actions all through the match it is blessed with the facility for the users can send useful live scorecards to their friends

The latest matches screen lists all recently played cricket matches along with their full scorecard and end result. The user can find scores for up to 10 lately played cricket matches along with match highlights and other useful information like toss, umpires, ground etc. The Recent Matches list screen displays the recently played matches along with their respective outcomes. User can choose to select a certain match and get comprehensive scores for the match shown with each and Every aspect of innings. On selecting the given set of choices option the user can view the contest attractions .the user can get the running commentary of the game. so that they understand how events extended all through the match. This helps the user get a grip on the recent happenings in the cricket world and ensures that they do not miss any action from the cricket field.

The calendar choice is for the utility that user can stay in contact with the upcoming line of attractions .it is embedded with the facility of setting reminders for themselves so they can't miss any of the fascinating game. These reminders can be set on the cell. This feature poses challenge for the sms based services supplied by the telecom. This is a perfect substitute of sms subscriptions

for telecom sector. The list panel also encloses a 'Date wise' is a calendar type format that enlists all the upcoming cricket events date wise. This assists the users in getting complete tournament schedule. World cup, world twenty twenty cup, Champions trophy and the Indian Premier IPL are scheduled under these applications. Jointly with this facility any kind of international test matches, international one dayers and tri nation tournaments are also available for cricket enthusiasts. Overall the schedules section provides as a one stop resolution for all cricket

There is another option in the menu pane that is of the results window. As the name suggests that it enlists all the results .similarly one can find individual results of the matches played in a particular event that is been played. It gives the point tables and the current ranking. Also the major events like champions trophy, the world cup are also displayed with the sequential order. It also gives match summary and other information in the display here. The results screen keeps the user in touch with their favorite tournament or series as the user gets an overview of what has turn out in the tournament up till now and gets a bird's eye view of the ranks by looking at the position table.

There is an updated version of the application that has much more improved feature .the developers have added the news feature. This is more comprehensive and has the news around the world. This is just like any other news bulletin in the app world. It gives every bit and detail of cricket matches, cricketers and associated gossip that keeps the

users interest alive. The news broadcast feature in application has been specially designed to keep the user informed concerning every single event. The news section gives news related to tournaments, outcome of each matches, news on team member injury, fine, bans and penalties etc. as well at the same time it reports special announcements by the ICC the governing body and all worldwide cricket boards. The news is presented in a style especially suited to readers who are concerned in cricket gossip on mobile.

This application is enriched with the game .this game makes it perfect place for users to gather the cricket intelligence and refresh their memories. The player has to guess the current match result and the man of the match. Points are awarded for the accurate speculation and total positions calculated for each one of the player are exhibited on the head board. After the first season id over ,the final winner of the game will be announved as a 'Cricket Genius'.it will be declared on the Crickzenga website. To connect players has to download the crickzenga application . so that before each match and throughout both innings the cricket genius quiz appears so that users can respond and win awards.

CHAPTER 3 THEORETICAL FRAME WORK

The technological innovation like multimedia wireless application protocol (WAP) and third generation (3G) smart phones resume the use of mobile phones as broadcasting tool. Applications have their own significance and utility as they are forms of information distributors.

Economic theory suggests that the development of mobile application is a function of the users' endorsement of applications, businesses and network operators' demand, demand from smart phone makers and application stores.

3.1 Users

Individual users prefer Cell phones to landline phones. Mobile phones have advantage of giving instant contact and fun to its users. This is due to fact that landlines lackluster in terms of value addition. The mobiles have features and services in form of applications that draws people to use these applications.

Masses prefer featured and smart phones; means more applications are demanded. People like to access web and are gravitated towards tweeting on applications. People are demanding more web surfing phones even in recession. Trends show that the app developers can design and introduce applications for individual users.

3.2 Businesses/Network vendors

Mobile handsets are now warning its users about stock prices .Many corporate use app to display business performance reports.critics use it for the analytics and entrepreneurs to access their CRM module. Mobile employees

will have additional facility to update the home office from their smart phones. Apps lend a hand in business processes, networking, stocks, agriculture, weather, and banking. There are many Mobile applications for company's sales staff that help stores regarding existing stock and prices. Application developers are making apps that have capabilities of customized database for businesses and stores. For network vendors just like specific apps for RIM or apps for I phone. Network vendors can bring in improved bandwidths and internet packages to capture the application market.

3.2.1 M Commerce

Applications are raising volumes of business. Many companies use application models to sell their products on smart phones. Thus applications are perfect nursery for B2C contacts. Just like E-commerce, M commerce also includes three parties: the user, the service provider and the payment gate ways. Applications like apples square will facilitate in m commerce. Mobile application sellers can collaborate with other businesses like corporate stores and sports organizations to offer m commerce services to them.

3.2.2. Marketing

Application developers help business communities to market their products on cells. Mobile Applications are new face for mobile marketing.

Marketing means advertising on the arena where people work, live or get their entertainment. Application developers must take advantage of the fact that people are spending more time on their smart phones to play games,

shopping, news, search and watch TV. Many Companies are look for certain mobile applications that suits them to reach these mobile users.

3.3 Smart Phones

The companies making smart phones and software applications are having extra gains at stock returns, their market share is increasing. These firms are getting revolutionized demand for their digital technology and business services.

Smart phones are a device that merges the role of phone and computer. Smartphone are thus revolutionizing both the handheld computing and mobile connectivity spaces. Analysts predict that the Smartphone market is all set to witness aggressive growth in the next couple of years. According to Juniper Research, by 2013, Smartphone will account for 23 % of all handsets sold in a year.

So as the production of smart phone increases, the demand for application development also increases.

3.4 Application Stores

The developers ought to build a simple application for app stores, so people can easily access and download apps. It gives developers room that they can charge for things like upgrades, additional features or virtual goods. Then people can switch to a pro version.

The attractive aspect for the application developers is that Each and every cell has a different mobile platform. Developers make separate applications for windows mobile, Symbian OS, Iphone, BlackBerry, and Android. This shows

that there are different streams to supply for a single developer.

Many companies are hunting for talents across the globe for the new and revolutionary ideas. For thrashing the competition companies are offering incentives to companies and software Engineers prize money for their ingenious efforts.

Therefore we can refine mobile applications as a function.of some variables.

Mobile application=f (users, businesses& network operators, smart phones, application stores)

Dependent variable: mobile applications

Independent Variables: users, businesses & network operators, smart phones, application stores.

The dependent variable is a gathering of independent variables. Application development is a function of (network vendors, users, business, application stores, smart phones)

CHAPTER 4 METHOD

Qualitative research is the process of collecting information on what people say or do and create in their natural settings to discover the world as the people themselves see and experience it.

The relationship between applications and the people's trends their tastes and culture of a country must be studied. This would provide us foundation of why applications should be developed in Pakistan.

4.1 Instrument

The research instrument we are using is a case study .The Case Study (CS) is a type of Field Research which examines a site using an arrangement of personal interviews, analyses of written documents, & observations. The CS brings in perspectives from all of the major vantage points.

The tools used here are questionnaire and observation the questionnaire was presented to Mr.Bilal Alam .he is HRD head at tricast media .he is our respected respondent. He is holding position of manager business development at tricast media.

4.2 Population

Application development companies operating in Pakistan are TECHLOGix, alliant, Stratergic Sys INC, 4mWireless, Systems Ltd, Intagleo Inc, Tricast MEDIA, INNOVATIVE, Infinite vision, Catalisse Inc, Karaysis inc, Intagleo CEO, ENMAC tech, IAEL, CURE MD, KABOT intl, HORWARTH, XAVOR, Ewsystems INC, Visual Spark, Warid tel, Cambridgedocs,

Descon . alliant, oober, mobile weaver and mobile oober, mobile weaver, mobile and Tricastmedia.

4.3 Sample

We select tricast media as our sample .Tricast media is a Pakistan based organization it has been associated with the most popular applications that is cricket companion. Tricast media is the only Pakistan based organization whose application is available on the application store.

Tricast Media is an organization of developers that has offices in several parts of the world. this provided us the opportunity to collect the data required and map mobile application users' attitude and trends. It provides us useful information on the mobile application perspective in Pakistan.

We asked several questions that gave us organizations views and expert opinion on making apps in Pakistan. The questionnaire has both closed and open questions.

4.4 Questionnaire

Q1. Pakistan people are technology savvy?

Q2 Pakistanis consider mobile value added service as necessity?

Q3 M-commerce related apps will be success?

Q4 Pakistani users with: 3G cells in next ten years?

Q5 Pakistani users with: 2 G cells in next ten years?

Q6 How Tricast Entered Pakistani Market?

Q7.Has Tricast faced any competition?

Q8.How Tricast Earns its Revenues?

Q9.Are Pakistani People directly buying your apps?

Q10 what is strength of Tricast?

Q11 what segment of application is more popular?

Q12 .What type of Applications Tricast media makes? Client based apps (installed on SIM or memory card) or Browser Based apps via WAP?

Q13 TRICAST builds applications that are a) Smart phone specific, Operating system specific b) General applications those are applicable for every set?

Q14 why more applications are not coming in Pakistan Market?

Q15 what obstacles tricast faced while operating in Pakistan?

Q16 Pakistan regulations encourage mobile application development?

4.5 Interview

1. How tricast media got the idea of introducing its product to Pakistan?

Tricastmedia was founded in 2005 with a vision to improve the way we work with wireless email and providing a rich, compelling mobile consumer experience. The company focuses on user experience technologies and developing email

software and mobile media technologies for the latest range of consumer handsets.

2. Who are your competitors especially in Pakistan?

The niche that we have devoted our energies does not have many competitors however the challenge of being a Pakistani entity has forced us to take on an international "look and feel" whereby we are based in Scotland, and have presence in the Middle East and North Africa where we compete with many entities including service delivery specialist companies like Aepona, etc.

3 What are tricast media affiliates and partners in Pakistan for example network operators, cell phone manufacturers and software firms

With an employee base of over 100 people worldwide, the company can boast sales software licenses to many of the world's largest companies, including Samsung, Sony, Motorola, Sharp, KDDI, Reliance, Softbank and Intel. In Pakistan many of the companies that own our software licenses work get customization done for the local market.

4. Is Pakistan population, technology savvy country?

It is difficult to classify Pakistan as a technology-savvy country however there is a percentage of the population that can be classified as "technology-savvy" who are essentially the early adopters of technology and continue to grow. As a percentage it does not exceed 0.125% (apx. 2.25 million people) but there are consistently growing. This has been encouraged by the large influx of technology providers and service providers within the telecom sector

which has brought in an investment of over US\$25 billion into the country.

5. What in your experience; Pakistan customer has mindset that mobile related services are luxury? Is it so or for them it's a necessity?

I think you have answered your question within the question. In my opinion one segment of the market which is small considers it a necessity while the other considers it a luxury; however the trend is fast changing where necessity users continue to grow and it is reflected in the segmentation of the mobile market;

the Smart-Phone users which are the "technology-savvy" users as you eloquently put them who have iPhones, Nokia N-Series, Blackberry, etc

the other is the standard users who use it simply as a communication device whereby features like camera and sms are utilized but nothing beyond; young students, etc

finally that segment which does not utilize the phone much except to answer people's calls and give missed calls to curtail their expenditure; the drivers, laundry men, maids, etc.

6. Most of Pakistan population does not use m commerce (purchasing through mobile), in your opinion introducing I phones app like square {The innovation is in a small, plastic card reader that fits in to the headphone jack of an iPhone (or iPod Touch) and transfers the credit card's swipe data to the app} will be a failure ?

Yes I think the market is not ready for such applications; plus the segment and potential margins do not justify such applications yet. The use of credit cards in this country has reached unacceptable levels for many banks predominantly because of bad debts and poor repayment histories, credit worthiness of customers, etc. Therefore it is not yet an opportune situation in Pakistan.

7. What do you see Pakistani public stands in next 10 years? Smart phones like I phone, Nexus one and Blackberries General hand sets by Sony Eriksson, nokia and LG?

I think the Pakistani public will always have the 3 segments described above with each segment clearly requiring a different set of functions and features. The example of easy-paisa is relevant in this instance.

8. How tricast media advertises its applications .how it reaches to Pakistani audiences?

As mentioned earlier our marketing and business development efforts range from an international perspective and we continue to operate in that business model. The model therefore revolves around working with partners and gets their local entities to utilize our service delivery platform for customization and outsourcing. Pakistani audiences receive

Nothing directly from Tricastmedia but utilize our applications when they purchase a Samsung or a Sony handset.

9. Please tell us about goods and services currently offered to Pakistan.

We are a B2B company and therefore work little with customers or audiences directly. We work with other business entities like Samsung, Sony, etc who use our development and applications to provide goods and services.

10. Mobile applications are always about mobiles location Are there certain locations in Pakistan where this service has not reached yet?

Wherever handsets of our clients reach, our applications will reach. They could be all across Pakistan and many other parts of the world.

11. Mobile applications are always hard to update? How often one application is updated?

Our applications are embedded in phones and many software licenses and housed and customized before launch of the phones so updates are sent electronically to the network partners who automatically update the respective phones.

Telco Services - Mobile applications are interrupted with the network coverage? Does that effect your motivation to introduce more applications in Pakistan?

As mentioned earlier we provide embedded applications and these are not affected by network coverage issues.

12. Tricast applications - Tricast media built its applications according to product specification given by cell phone maker .or it builds its applications and then sells to different clients?

It has been a journey that has had a share of both areas. When we started operations we developed a range of services and applications. Many of these were relevant in terms of further development while many did not see completion. But we've learnt from the telecom companies and handset manufacturers what the trends, insights and potential target requirements are and now are focused to development after consultations with partners. This brings costs down considerably and we prefer an integrated model of product development which serves our financial position too.

13. According to tricast's understanding what age group adopts its mobile applications?

Our success is based on the success of the partners. Samsung developed a "cricket-phone" in South Africa specially for the World Cup and our embedded application provided an update of scores, results and related stories constantly at affordable prices. A similar application is available for football fans across UK. So the audience tends to vary but certainly the younger audiences are more technology savvy and early adopters.

14. Being pioneers of mobile application business in Pakistan what are strengths tricast media acquired over the time?

Our biggest strength is our team where we have a very low attrition rate and the original 12 members are still there in the company. Also in my opinion the transition from being a research and development oriented to a solution oriented company has helped tremendously. Our learning curve has been steep but enjoyable and rewarding.

15. What type of Applications Tricast media makes: Client based apps (installed on SIM or memory card), Browser Based apps via WAP

Our focus is essentially client-based embedded applications on memory card but of late more demand is coming to integrate these applications on WAP too. Our IPL experience was a big challenge where we successfully integrated both types of applications and became the first Pakistani software house to win a project over well-known Indian companies. I think that victory was a very proud moment for us.

16. TRICAST builds applications that are Smart phone specific {nokia} or Operating system specific {like Google has its own mobile device operating system Android & nokia has symbian} General applications those are applicable for every set?

We've concentrated on building a Rich User Interface Framework Solution called TWUIK™ which can be utilized across JavaME, BlackBerry, DOJA, BREW and Symbian operating systems.

17 Why?

This provides us a diverse range of service opportunities by working in 5 core operating systems yet staying away from giants like Microsoft and Google. That is by choice.

18. Introduction of 3G networks will bring more applications in the Market?

Certainly; we've experienced that across the Middle East but I think Pakistan is still away from that segment for another 2-3 years.

19. Network vendors like Voda Phone are introducing mobile applications and encouraging mobile marketing trends? What do you think we can do same in Pakistan?

I think mobile applications have a huge potential in this country. Easy-Paisa is a case in point but the margins need to become more attractive for mobile companies to bring in investments and features which would provide us the opportunities that we are availing elsewhere in the world.

20. Why more applications are not coming in Pakistan Market?

I think I've covered this question above.

21. What obstacles tricast faced while operating in Pakistan?

The market has the potential but the potential margins are not yet attractive. The volume needs to grow or the cost of applications needs to be brought down. I think both these scenarios are happening but we are sometime away from this becoming a reality and for us to compete efficiently and effectively in Pakistan.

22. Pakistan Laws are encouraging for mobile application developers?

The intellectual property rights ordinance has been in place for some-time now but its implementation is clearly an issue. We need to draft laws which are relevant to reality and effective for companies operating in this

environment. Countries like Korea, Taiwan, Malaysia and even recently India and China have taken a lead in developing protection for their service provider companies. We in Pakistan need to review those laws and see how we can benefit our entities here. This is certainly an area which needs to be addressed in the short-term.

CHAPTER 5 ANALYSIS AND DISCUSSION

5.1 Findings

5.1-1 Launch Embedded Applications in phones

The best feature of embedded applications is that it's not affected by bandwidth or speed issues. So there is no need to worry of selling 3G cell phones in Pakistan. It runs with the effectiveness and presence of the (2G) network operators.

The Pakistan market is saturated with telecom service operators so there are no issues regarding the introduction and implementation of the applications. Wherever handsets of clients reach, the applications will reach. They could be all across Pakistan and many other parts of the world.

5.1.2 Application Updates

Applications that embedded in phones are customized before launch of the handset. Updates are sent electronically to the network partners who automatically update the respective applications.

5.1.3 Applications for Corporate Clients

The application market is not saturated in Pakistan. Challenge of being Pakistani application entity has problems of its own. In order to capture more licenses', the developers will have to follow international "standards

The application developers can boast sales software licenses to many of the world's largest companies, like

Samsung, Sony, Motorola, Sharp, KDDI, Reliance, Softbank and Intel.

5.1.4 The Users

With the large influx of investments from telecom industry the application developers can target early adopters of technology in Pakistan.

A segment of Pakistani population is the target market for the application developers. The target market includes the Smart-Phone users which are the "technology-savvy" .people who have iphone, Nokia N-Series, Blackberry, etc..Moreover the necessity (the followers) users continue to grow and it is reflected in the segmentation of the mobile market.

The laggards that use mobile phones as phone call device are not ready for highly sophisticated applications. This is because of the fact that this division of our society does not have possession of smart phones and use the phones just as medium of SMS and calls.

Pakistani user will stay divided in three segmentations and each and every segment needs its own features and set of functions.

However Pakistani users can obtain the applications indirectly .this can be done by purchasing a sony or Samsung mobile phone.

5.1-5 Applications and M commerce

The segment and potential margins do not justify applications used for m commerce in Pakistan. Pakistani society has not yet blended with the use of credit cards.

.Bad debts, poor reimbursement records, and credit worthiness of customers is another barrier towards success of mobile application development trends and extensions in Pakistan.

5.2 Challenges

1. Mobile applications face opposition from pc applications.
2. People access the same content by accessing a web protocol via personal computer. People hunt for web sites that are entertaining and free of cost. It is a challenge for and app developers to create and sell attractive applications for their customers.
3. The information provided to the customer should be accurate. The information data base of the service provider must be constantly updated. Provision of real time information, schedules is central.
4. Application quality must base in accordance with the software quality of the mobile phone.
5. The developers Applications must be designed to suit the variety of handhelds country's majority population is using.
6. Application developers must not ignore the fact that they should produce an application that is for mass market .otherwise their investments on the applications for certain segment could be counterproductive.
7. 3G technology is costly,it endeavors cost in terms of price to the customer as well as big investment for

the provider. It would be wise for providers to stick to current networks, increase their coverage base and improve their service.

5.3 Steps To Be Taken

1. Pakistani society has enthusiasm for mobile phones. It has more cell phones than desktop personal computer per family. So magnitude for a mobile application development is big. this potential is yet to be tapped
2. To capture Pakistani customer base, more and more research resources should be put into featured phone applications.
3. Each and every mobile application must have its own presence on internet like webpage. The apps must be publicized over a social media and blogs.
4. Telephony industry needs to get high and batter speed on network connections. This will encourage the app development areas and make the application distribution quick.
5. Telecom industry to eliminate the saturation, start affiliating itself with apps in order to raise its value added revenues.
6. Cell phones should be sold on characteristics like WLAN, web, security, GPS. Not on uniqueness of color, camera and memory card e.t.c.

5.4 Limitations

1. Mobile applications are considered as economic complement to sales of mobile phones, help in sales of products.
2. This document does not cover risk and financial analysis for application developers.
3. The findings and results discussed are only related to Pakistan and the time during it is written.
4. There is more room for more research on the quantitative analysis of the concept.

CONCLUSION

The global application market is saturated. Number of smart phone users consuming into mobile-applications is expected to reach hundred million in 2013. There are more than 200,000 apps. Developers must look and search for more creative options. New avenue must be searched to make it an awesome application. the involvement of players and new avenues will be enormous .developers in activity and interest in this sector is irrefutable. This is crowding and overflowing amounts of mobile applications been made, as the supply increases the profit margins are slimming. This makes the innovators think of something new for the application business where it's becoming increasingly difficult for developers to stand out and celebrate on windfall gains.

Mobile applications market saturation in Pakistan is low. To facilitate the application developer combination of speedy mobile networks and awareness about smart phones is needed. Success of mobile applications rests on availability of hardware and wireless networks.

However, in Pakistan's case where every third person has a mobile connection already; the vision of bringing mobile applications may not become a reality for some time. This is not because of the fact that technology or resources are not on hand. Still Many telecom companies have a lack of enthusiasm to move in to far-flung areas. The shift of resources will bring the possibility of sluggish growth rate in urban areas.

On the customer side to many 3G phones are still expensive. Keeping the 3G network to one side, with the GSM network available in Pakistan, many of the features are still not available to users and most people do not take advantage of those that are being offered to reduce additional costs in their bills. So the telephony industry needs to tap that potential as well.

GLOSSARY

1. Feature phone: Low-end mobile phones are often referred to as feature phones. sometimes simple applications based on generic managed platforms such as Java ME or BREW.
2. Smart phones: Handsets with more advanced computing ability through the use of native software applications mobile sets with microprocessors, 3G, wifi, GPS, email alerts e.t.c
3. M-Commerce: Mobile commerce is an extension of computer-based e-commerce to mobile devices .like mobile shopping mobile commerce is very new and can use mobile phone as a marketing tool.
4. Mobile web site: A channel for delivery of web content that offers and formats content according to mobile context through Wireless internet.
5. Mobile Context: everything is kept is according to basic mobile phone characteristics .key pad, screen size, connection type and location.
6. WAP(Wireless Application Protocol):An open international standard for presentation and delivery of wireless information and telephony services on mobile devices. Its main use is to enable access to the Internet (HTTP) from a mobile phone or PDA. A WAP browser provides all of the basic services of a computer based web browser but simplified to operate within the restrictions of a mobile phone, such as its smaller view screen.

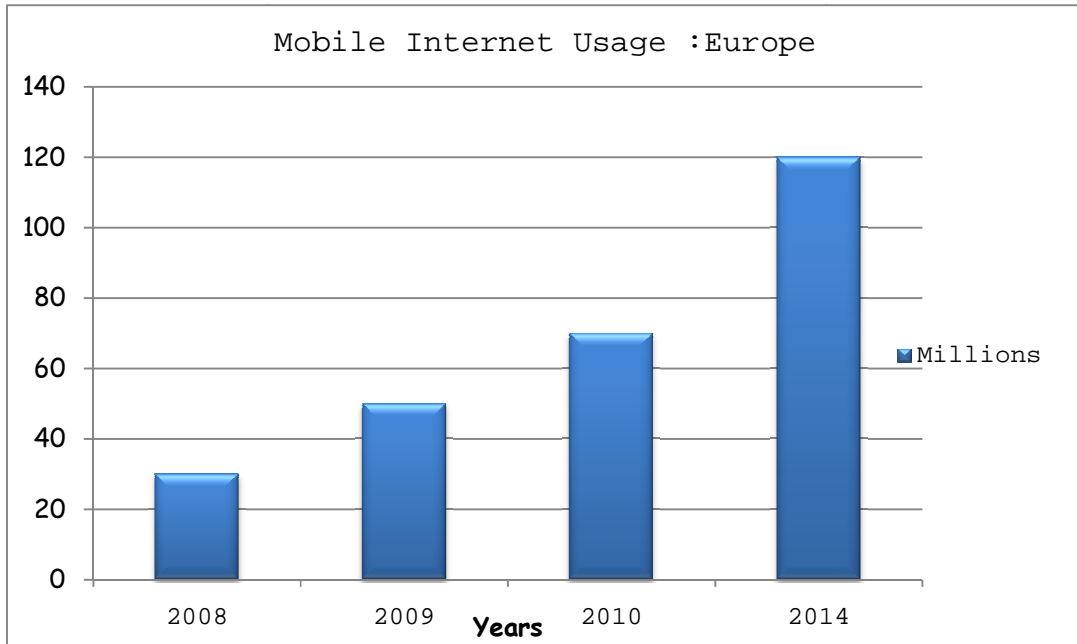
7. Location Based Service: services that are provided to mobile subscribers based on geographical location of their handsets have GPS (Position located technology) to enable geographical trigger .this helps in driving directions, information on resources or destinations.

Table 1:

The Business Extensions of Famous Corporate

<u>Business</u>	<u>Previous</u>	<u>Addition and</u> <u>Transition</u>
Apple	Personal computer, Mac,	Music smart phone I phone
Google	Search Engine	Nexus one apps store
Nokia	Cell phone	App Store ovi

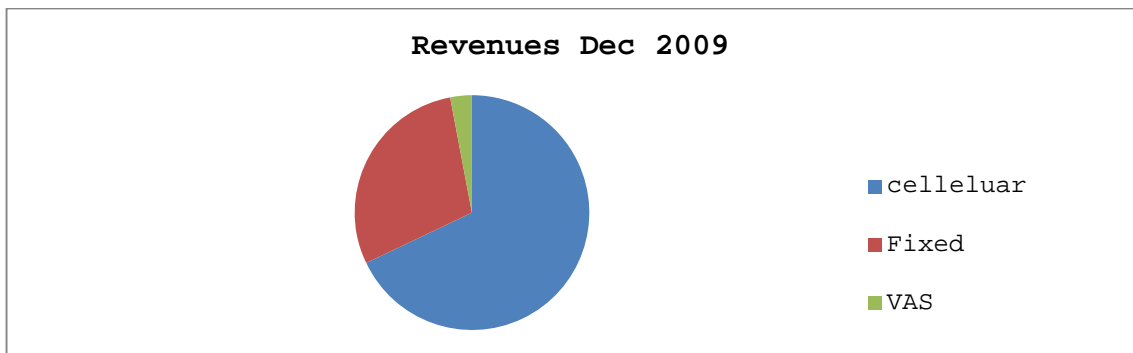
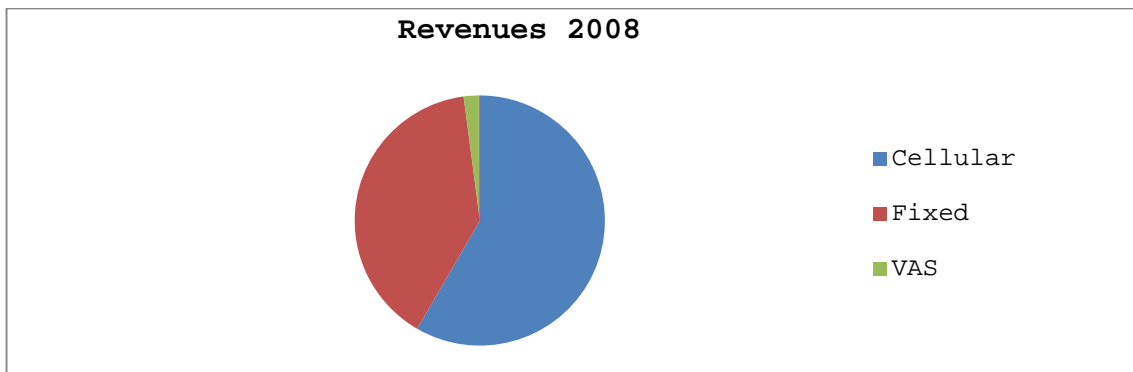
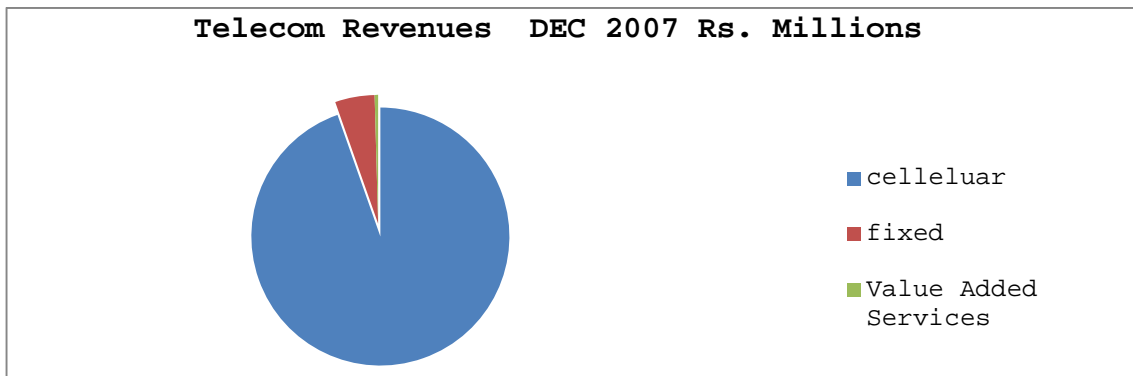
Table 2



Western European Mobile Forecast, 2009 to 2014 Forrester Research, Inc, August 2009

Source: Forrester Research

Table 3

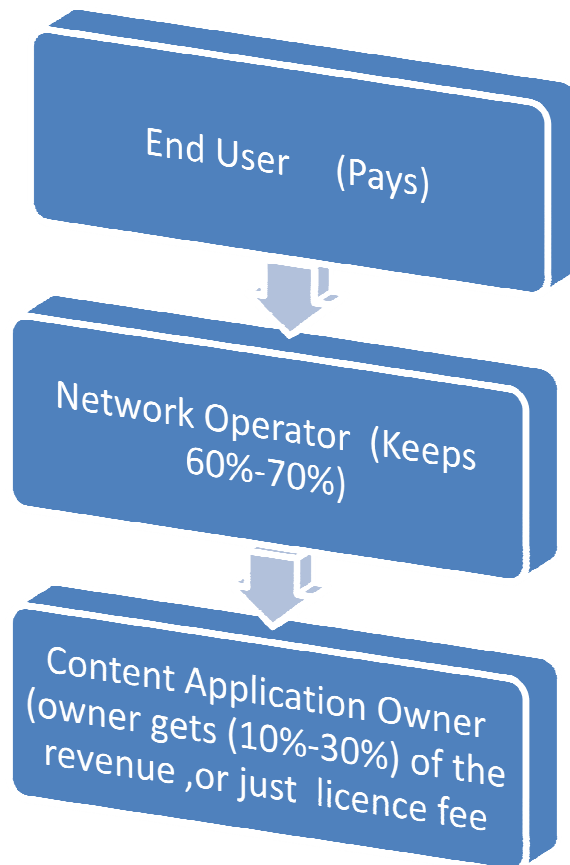


Pakistan Telecom Revenue share of fixed and VAS is increasing.

Source :www.pta.com/2010

Figure-01

Application owner Revenues



Source:

www.slideshare.net/mohitgundecha/mobile-vasininidia

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