PHONE WORLD

Veon will redefine communication in Pakistan

Aniqa Afzal, *Chief Digital Officer at Jazz*

Four Years in Auction;
Where do We Stand?

Desi Startups
Making Lives Easier

Device Review
QMobile
Noir X1s

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Adnan Khan
Managing Editor

Dear Readers,

Introduction of 3G/4G technology in Pakistan was a cornerstone in the development of the ICT industry of Pakistan. Today, Pakistan is far better positioned in the ICT industry than it was a few years ago. However, the data uptake of 3G/4G has not been at par with the other developments in the field. Now that country is preparing for the next 5G revolution, we need to understand that what value drivers are need to be triggered to increase the data uptake in the country. In our feature article, "Four years in the auction, Where do we stand?" we have tried to give a short analysis of some of the important drivers that play a significant role in MBB subscribes uptake.

Since 5G is the next best thing for the ICT industry, we have create a detailed guide for readers to understand what 5G really is and how it will revolutionized the ICT sector around the world. We have also done a synopsis of new Android Oreo that has recently been launched. The article comprises of all the unique features of newest operating system by Google.

Our current issue of Phone world magazine is special in the sense that this time we have interviews of two powerful women from the industry, Nadeen Malik, CEO of Javago and Aniqa Afzal, Chief Digital Officer at Jazz. Both ladies have strong profiles and have managed to make names in the industry. Our team had the pleasure of meeting these dynamic ladies for short interview sessions in which they have shared their aspirations and ambitions for their respective companies.

Like always, our regular sections including phone reviews, Smart moves, TVC reviews, top applications and smartphone wish list are also part of our current issue. We always try to bring something new and interesting for our readers, we hope you guys will appreciate our efforts and give us your feedbacks so that we can improve further.

Enjoy Reading…!!!

Thank you,
Adnan Khan
Managing Editor

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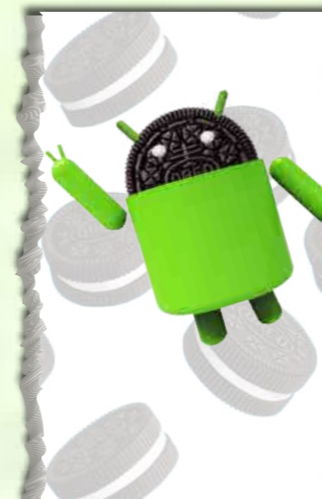
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By Rizwana Khan

Four Years in Auction

Where do we stand?

Auction and its eventual rollout of 3G/4G technology in Pakistan was a cornerstone in the development of the local ICT industry. This also created a lot of buzz in the country; many considered it a start of a new era of digitalization and technological revolution due to its important role in shaping the market. Economic Survey of Pakistan puts IT exports at more than 2.8 billion dollars in last one year whereas; total IT revenue is estimated to be around $3.3 billion for the same period. Additionally, revenues from the telco sector have touched USD 2.23 billion during the first two quarters of FY 2016-17. The growth in mobile subscribers also improved the total teledensity in the country that reached 72.36% by the end of March as compared to 70.81 % at the end of last year. The developing IT sector is also playing a vigorous role in empowering economies by creating businesses and generating new jobs through various new startups and services such as Uber, Careem etc. Pakistan has also managed to maintain its position in the freelancing sector. A report from

Oxford Internet Institute (OII) stated that Pakistan is maintaining its position of being at No. 4 in the freelancing sector behind India, Bangladesh and the USA. Talking specifically about the telco sector, mobile network operators (MNOs) have made massive investments in spectrum acquisition and network rollout. This has been indicated in the Economic Survey of Pakistan 2016-17, according to which during first two quarters of 2017 alone, cellular mobile sector invested US $ 262 million which by any means is a very healthy figure. We can see the results of all this investment in the form of 44 million 3G/4G mobile broadband subscribers.

These statistics show a very promising development in ICT sector of Pakistan over the past few years. There is no doubt that Pakistan is far better positioned in the field of ICT industry than it was few years back. But still there is a long way to go. We have yet to reach the pinnacle of this growth, usage of mobile data continues to grow but there is still a lot of appetite for the growth. As per the recent census, the population of Pakistan has reached 207 million

out of which there are only 139 million cellular and 44 million 3G/4G subscribers.

The talks of 5G trials and its roll out are circulating the industry and now the government has announced policy directives for 5G introduction in the country as well

70% market of mobile users can still be switched to 3G/4G hence, proving that the potential for mobile services is still enormous. How mobile operators will expand their markets while maintaining their service quality will be a challenging task to manage and will require serious strategic approach.

The talks of 5G roll out and the policy for its introduction are circulating the industry, and the government has also now announced policy

directives for 5G introduction in the country. This is where we need to understand how far we have come in terms of mobile broadband and subscriber uptake and what more can be done to harness the phenomenal growth potential that still exists. Although there is no single perfect recipe to maximize the uptake, however, we need to understand what value drivers are needed to be considered in order to increase the uptake in the country and get prepared for the next mobile broadband revolution. We have tried to outline some of the key drivers that play an important role in mobile broadband revolution.

Spectrum management and Network Coverage

Spectrum is considered the most valuable asset for mobile operators due to its role in improving service coverage and capacity as data speeds has become the key driver for operators' network strategies. For mobile subscribers too, average data speed has become the most important factor in assessing

the quality of service offered to them by different operators. Currently, all mobile operators in Pakistan have the launched 4G services in the country except Ufone which is still a 3G operator only and that too on a very little scale. After the end of three NGMS auctions the current position of all four mobile operators can be seen on the following spectrum chart.

Mobile Spectrum in Pakistan and its usage						
Operators	850MHz	900MHz	1800MHz	2100MHz	Total	Subscribers
ZONG 4G		7.6	16	10	33.6	28.47 million
Jazz		12.4	24.8	10	47.2	52.72 million
telenor	10	4.8	8.8	5	28.6	40.44 million
Ufone		7.6	6	5	18.6	18.33 million

Source: PTA

An increase in mobile broadband services and expansion in geographical coverage has consequently given rise to the need of increased network capacity. From spectrum perspective, all operators have been quite responsive to auctions in the past except Ufone.

For mobile subscribers, average data speed has become the most important factor in assessing the quality of service offered by the operators

Previously, Telenor had to acquire more spectrum in the unconventional 850 MHz frequency as the increase in 3G subscribers resulted in network congestion whereas, in order to improve its network coverage and service quality, Jazz first made the historical move of Warid acquisition and later on got 10 MHz in 4G spectrum. On the other hand, Zong emerged as the most successful player in first NGMS auction with 20 MHz spectrum for its 3G and 4G services but was not able to capitalize on that advantage initially but now alot of improvement can be seen in its service and network roll-out. While, Ufone is losing subscribers at an alarming rate due to poor coverage and service quality.

With sufficient spectrum available, Zong, Jazz and Telenor have become quite active in their

network rollout. Substantial investments were made by all three operators and each of them followed an aggressive expansion and up gradation strategy. Zong has announced to re-invest all of its revenues in the network improvement. It also plans to upgrade all of its sites to 4G by the end of 2017; it already has the largest 4G market share which will further increase after the up gradation. While Jazz and Telenor are also quite aggressive in their network roll outs for 3G and 4G services in the country. Ufone, being the only operator with 3G services alone has also upgraded its 3G network in certain areas by refarming GSM spectrum. The operator uses 2×5MHz in the 2100MHz band for its wireless data services, but has now started to refarm its 900MHz frequencies for 3G allowing it to improve coverage, capacity and service quality for its customers. But there isn't much Ufone can achieve through this move as it is in no position to compete with other players who have much bigger spectrum blocks in different frequencies.


3G/4G market share of Mobile Operators (August 2017)
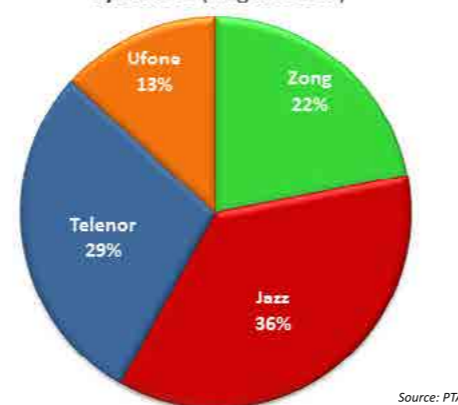
Source: PTA

Currently, Zong has been more successful in converting its customer base to 3G and 4G network. 44.3% of total Zong subscribers are enjoying its 3G/4G services as compared to 25.3% of Telenor and 26.86 % subscribers of Jazz. But since the network rollout is CAPEX intensive, it requires budget approvals. How operators will develop their future spectrum strategies is very important for their success in the market.

Mobile operators now need to look out for other ways to refarm and optimize their network capacity like adding cell sites, sectors and bandwidth. Adding smart antennas and improved air interface capabilities can also help in improving the network capacity.

Subscribers Mix (May 2017)
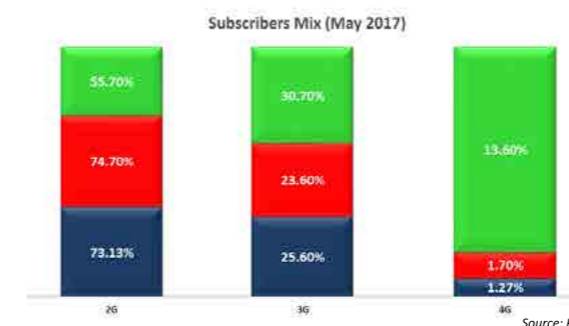
Source: PTA

Eco System Enablement

By eco system enablement we mean the extent to which facilitation is provided by the most important ingredient i.e. the device eco-system especially for 4G as we are moving to higher level of MBB connectivity. Pakistan has become highly competitive smartphone market, the roll out of supporting infrastructure; improved offers from both local and international vendors and entry of newer brands have driven the smartphone demand in the country.

The 4G device market is getting better with shipments of these devices up to 189% YoY in Q1 2017 which implies that the potential of 4G devices is much greater in the market. Qmobile continues to lead the overall device market. Its share of the smartphone segment in Q1 2017 totaled 54.9%, with Samsung (19.1%), Huawei (6.1%), and Oppo (5.2%) rounding out the top four. Mobile operators like Telenor, Zong and Jazz have also launched their own low priced 4G devices.

Smartphone Marketshare Q1 2017
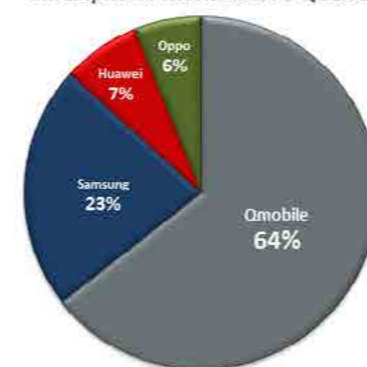
Source: IDC

According to the latest figures announced by International Data Corporation (IDC), smartphones accounted for 50.3% of overall mobile shipments

in Q1 2017 , leaving a large portion met by feature phones. Being a price sensitive market, high price of smartphones is the biggest hindrance in smartphone penetration and consequently 3G/4G data and subscriber uptake.

OEM-carrier Collaborations and Data Plans

Pakistan has very different market dynamics as compared to other countries. We have an open market where OEMs have to take care of device distribution on their own. With recent OEM and operator collaboration trend, both parties now got a chance to offer their products and services together.

4G subscribers are likely to reach 16 million by the end of 2018. These figures can improve even further if all stakeholders in the industry come forward and devise a mutual strategy to create awareness about 4G services

The basic idea behind OEM and Carrier collaboration is a unique business approach to improve mobile subscribers for network and smartphone penetration simultaneously. Mobile operators and OEMs co-launched their products and services by offering smartphones along with an affordable network package. These packages include data bundles, call minutes, SMS and social network packages collectively that has helped the telecom companies to increase their market share especially in 3G/4G business whereas, it also provides a strong platform for OEMs to sell their devices and plays an effective role in controlling grey channel, mobile theft while establishing better device insurance policies. Jazz and Telenor have not only launched their own 3G/4G branded devices but have also collaborated with Nokia, Lenovo, Alcatel, Vivo, Moto, Samsung, Xiaomi, Oppo and Apple. While Zong and Ufone have also launched exclusive offers for selected smartphone brands. This continued momentum around carrier and OEM collaborations have played a very positive role for uptake of 4G LTE device penetration.

Similar kinds of partnerships are also taking place between carriers, banks and OEM. The results will be even more fruitful if other sectors are also

involved in the collaborative network like education, agriculture, health etc. This way, not only the uptake of smartphones and data will increase but development of local content will also transpire.

The roll out of supporting network infrastructure; improved offers from both local and international OEMs and entry of newer device brands have driven the smartphone demand in the country

The competition in the mobile market has increased many folds. The ARPU of mobile operators is now highly based on data rather than conventional call and SMS services. This has also led operators to offer variety of data plans, and that too at an economical cost. Besides the regular daily, weekly and monthly packages, operators are also offering social media packs and all-in-one plans. After the launch of mobile number portability service operators have become even more mindful about their data packages in order to retain their existing customers and attract new ones.

WHERE DO WE GO FROM HERE?

Internet has become such an important part of our lives that now it has become quite hard to imagine a world without it. In the country of 207.8 million people with median age of 27 years, the potential for broadband and subscriber uptake is unlimited.

Real uptake of data will only start when data acts as something that can improve the living standards of the people

However, the transition to smartphone base and 3G/4G subscriber uptake could have been much faster if further facilitations were provided to the industry players. Keeping in view the organic growth trends, 4G subscribers are likely to reach 16 million by the end of 2018 whereas, overall internet subscribers will reach 85 million in 2019 and 136 million by the end of 2022 thus, ending at 60% mobile internet penetration by 2022. The figures can improve even further if all stakeholders in the industry come forward to devise a mutual strategy and create awareness

about mobile broadband services. Increased mobile data penetration in Pakistan requires a lot of efforts from all stakeholders of the industry. Improved quality of service, vast coverage and availability of affordable smartphones are some of the key factors that need to be worked on. But besides these direct factors there are also some indirect elements that hold equal importance. The government has managed to curb grey trafficking to a greater extent but still the taxation imposed on smartphone imports is the major challenge limiting the faster smartphone uptake. Being a price sensitive market, OEMs are especially focusing on bringing low cost smartphones priced below $100 but higher taxation is a huge hurdle in achieving that. Another inhibitor in faster smartphone adoption is the non-availability of 3G/4G services in the whole country. Development of localized innovative content also remains at nascent stage which is limiting the need for data.

In the country of 207 mn people with median age of 27 years, the potential for broadband and subscriber uptake is unlimited

Real uptake of data will only start when data act as something that can improve the living standard of the people. Consumers need to know what internet and related technologies offer to them and how it will change their lives. For that, creating awareness about 3G/4G and now 5G is very important. Calls have taken an integral part in our work lives and provide the bases for communication with everyone; data needs to play a similar role in our lives and has to become truly indispensable. With enabling infrastructure and resources put in place, we can expect to see more people using not only voice and data services, but also data-enabled services.

Now that Internet of Things (IoT) has become the new tech phenomenon, mobile applications m-services like m-health, m-education, m-agriculture, m-government etc. are gaining popularity. Such applications have the potential to drive up the internet penetration at a greater pace. To promote such digital services in the country, telecom regulations are also needed updated and a more holistic and flexible regulatory approach is required keeping in account all the aspects of the market and new technological trends. This will not only increase the broadband uptake in the country but will also set the stage for 5G….!!!!

QMobile

Organizes Annual Retailers

Award Ceremony in Thailand

QMOBILE, Pakistan's No. 1 Smartphone Selling Brand, organized annual retailers' award ceremony in Pukhet, Thailand this year. QMOBILE selected 450 retailers from Pakistan for the event. The awards are given to retailers on their performance.

Based on their extraordinary performance and successful partnership with QMobile, Friends Mobile from Rawalpindi received the best seller award this year. **Zeeshan Akhtar** CEO QMOBILE and **Zeeshan Yousuf**, Director QMOBILE presented the award to the winners.

# PTA Launches new website accessible for Persons with Disabilities

Islamabad: Pakistan Telecommunication Authority (PTA) has launched a new official bilingual mobile responsive website which is also compliant to the universal web accessibility standards for the persons with disabilities.

The new Urdu version of PTA website would contain the same contents of the English version converted into simple Urdu language with similar layout and design. The aim of newly re-designed website is to provide contents accessibility in Urdu language for which Urdu ccTLD (پی ٹی اے حکومت پاکستان) has been registered for the facilitation of general public. In new website, statistical data of telecom indicators have also been re-shaped and user-friendly graphical layout has been introduced for easy navigation of the key indicators data. PTA believes that the new re-designed website would help in telecommunication information dissemination to the people of Pakistan.

As per the best international practices, the web accessibility standards for the persons with disabilities have been introduced in the website so that special persons can also use the website without any hassle. The primary focus behind the launch of new website is to provide easy access for contents retrieval to the persons with disabilities for which acquired input from the PWDs have also been incorporated. For the facilitation of persons with disabilities, an interactive tool bar has been introduced which includes features like text re-sizing, text-to-speech plug-in, magnifier and color contrast.

The new re-designed website will allow users to harness the power of technology to promote inclusion and accessibility in order to help realize the full and equal participation of persons with disabilities in the society. The users would also be able to access various online services of PTA. It is to mention here that Special Talent Exchange Program (STEP) and web accessibility experts provided prompt assistance and support to PTA for the endorsement of web accessibility standards.

It may be mentioned that, PTA believes that the electronic access of information will improve the productivity and efficiency of persons with disabilities. This would ultimately contribute to economic activities and bring benefits to the country. PTA is committed to promote freedom of expression and access to information in the greater public interest. Single source facilitation website developed by PTA has a theme 'connecting the un-connected' and to ensure access to content repository to information seekers from within and outside the country at one place.
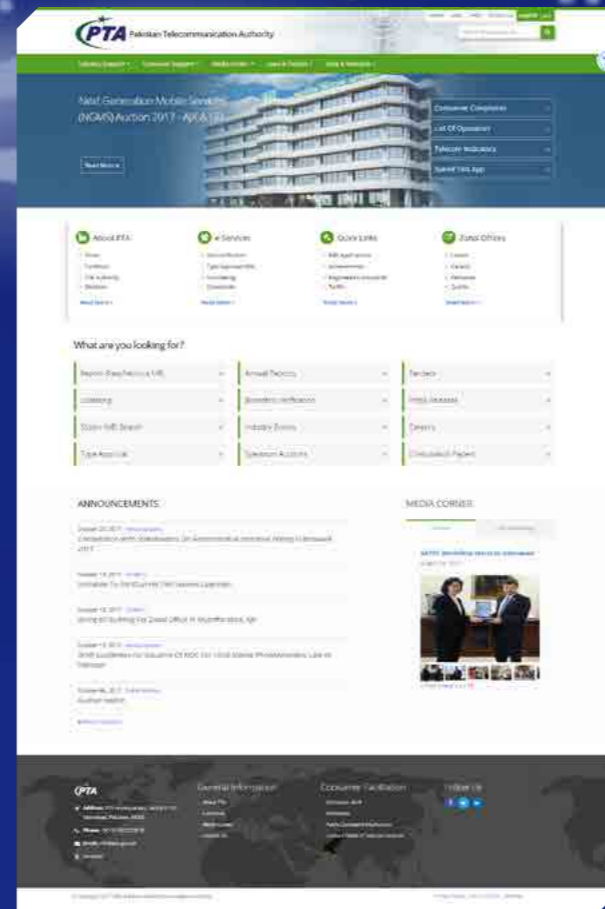
DATA NEVER SLEEPS 5.0

How much data is generated *every minute*?

90% of all data today was created in the last two years—that's 2.5 quintillion bytes of data per day. In our 5th edition of Data Never Sleeps, we bring you the latest stats on just how much data is being created in the digital sphere—and the numbers are staggering.

THE WEATHER CHANNEL RECEIVES 18,055,555.56 FORECAST REQUESTS

GIPHY SERVES 694,444 GIFS

NETFLIX USERS STREAM 69,444 HRS OF VIDEO

SNAPCHAT — USERS SHARE — 527,760 PHOTOS

LINKEDIN GAINS 120+ NEW PROFESSIONALS

AMAZON MAKES $258,751.90 IN SALES

TUMBLR — USERS PUBLISH — 74,220 POSTS

YOUTUBE USERS WATCH 4,146,600 VIDEOS

TWITTER USERS SEND 456,000 TWEETS

103,447,520 SPAM EMAILS SENT

WIKIPEDIA — USERS PUBLISH — 600 NEW PAGE EDITS

2017 *every* MINUTE of the DAY PRESENTED BY DOMO

15,220,700 TEXTS SENT

SKYPE USERS MAKE 154,200 CALLS

GOOGLE CONDUCTS 3,607,080 SEARCHES

BUZZFEED USERS VIEW 50,925.92 VIDEOS

VENMO PROCESSES $51,892 PEER-TO-PEER TRANSACTIONS

UBER RIDERS TAKE 45,787.54 TRIPS

SPOTIFY ADDS 13 NEW SONGS

AMERICANS USE 2,657,700 GB OF INTERNET DATA

INSTAGRAM USERS POST 46,740 PHOTOS

The world internet population has grown 7.5% from 2016 and now represents 3.7 billion people.

With each click, swipe, share, and like, businesses are using data to make decisions about the future. Domo gives everyone in your business real-time access to data from virtually any data source in a single platform for smarter decision-making at any moment.

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2.5 (2012) — 3.0 (2014) — 3.4 (2016) — 3.7 (2017)
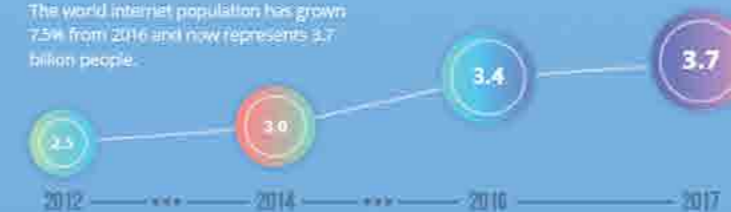
GLOBAL INTERNET POPULATION GROWTH 2012-2017
(IN BILLIONS)

SOURCES: EXPANDEDRAMBLINGS.COM, WEARESOCIAL.COM, WIKIPEDIA, FORBES, ADWEEK.COM, FORTUNE.COM, BLOOMBERG.COM, OMNIREACH.COM, IBM, BUZZFEED, INTERNET LIVE STATS, INTERNET WORLD STATS, BBC

By Zainab Saeed

QMobile Noir X1s
A Big Battery Smartphone

Display
QMobile Noir X1s comes with an amazing display with a supportive resolution of 720X1280 pixels. The device has an elegant screen of 5.2 inches with 66.20% screen-to-body ratio. The display of QMobile Noir X1s has 320 dpi pixel density. The gadget supports graphic card of Mali-T720.

Design
Zero-gap uni-body design of QMobile Noir X1s gives it an elegant look with a solid fit. QMobile Noir X1s has dimensions of 151.2×74.3×8.5mm. Its weight is 163 gm.

Camera
QMobile Noir X1s has an impressive camera. The results of both primary and secondary camera lens gave decent results.

QMobile Noir X1s brings you a best rear camera with 13 MP lens while the front camera has 16 MP lens for selfie lovers. The LED flash light increases the photo quality. Video recording quality is 1080p. Brightness and temperature are also well balanced. Colors are very lively. We noticed the minimum noise when we zoomed in the picture.

Memory
QMobile Noir X1s comes with a great memory of 3GB RAM and 32GB ROM, you can further expand it up to 256GB.

Battery performance
The power house of device carries 4000mAh Li-Poly battery, which allows you to enjoy 8 to 9 hours of talk time and 16 to 17 stand by hours.

2.0 Amp charger will charge the battery in one and half hour approximately.

Processor
QMobile Noir X1s is powered with MT6737T Chipset, which consists of four CPU cores based on the 64-bit Cortex-A53 architecture clocked at up to 1.5 GHz. The gadget has a processor of 64-bit with 3GB RAM.

Connectivity
QMobile Noir X1s is a dual SIM 4G enabled device. Wi-Fi has b/g/n standards and Bluetooth version is 4.2.

Interface
5.2 inch display of QMobile Noir X1s runs on the version of android 7.0 (Nougat). You will find some bloat-ware applications pre-installed such as UC Browser, file explorer, compass, system manager, kids zone, peel remote, dead tiger and QMobile care.

Benchmarking

Velamo

Multicore	1540
Metal	1060
Chrome Browser	2572

Antutu 36730

Specs

OS: Android OS v7.0 (Nougat)

Display: 5.2 inches

Battery: Non-Removable Li-Poly 4000 mAh

Weight: 163 g

Camera: 13 MP, LED flash light

Memory: 3 GB RAM + 32 GB ROM

Processor: 1.5 GHz Quad-core

Price: PKR.19,999/-

Good
- Big battery
- Great memory

Bad
- Only 720p resolution

Final Verdict
Impressive specifications and features make QMobile Noir X1s a remarkable mid-range device.

By Rizwana Khan

Desi Startups
Making Lives Easier

Most entrepreneurs say they seek to change the world, by which they usually mean that they want to provide a product or a service that people need, to make their lives easier. A latest entrepreneurial trend that has taken the world by storm is the startup culture as the focus has been shifted from brick and mortar enterprises to idea-based digital economies. The most evolved startup culture can be seen in the IT industry and more specifically

in mobile app development. Numerous tech startups have already made their mark nationally and internationally while the thriving startup landscape in Pakistan has many more surprises waiting. This time we have decided to put up a list of startups that have the potential to make it big since they aim to bring ease in our lives.

Marham
It is an amazing m-health initiative Led by Ehsan Imam. It is an online forum where

people can get health advice from qualified doctors. Although it is based in Lahore but it caters patients from all over the country.

Marham:
Ease in pain

For listed locations, patients can also book appointment with the qualified doctors. This application

platform is especially important for people who are not aware about the health implications or are hesitant to go to doctor.

TripKar
Pakistan is considered a tourist heaven with some of most exquisite sites of nature. TripKar is a startup that is promoting tourism in Pakistan. This web portal helps people plan their entire trip including hotel reservations, travel tips, vacation spots, eateries, tourist reviews etc.

The best part about this platform is that it protects tourists and hotels from all kinds of distrust, fraud, or scam.

The most evolved startup culture can be seen in the IT industry and more specifically in mobile app development where the potential is immense

Another great thing about this startup is that it highlights various social issues. For example back in April it organized Pakistan's first girls only boot camp called Women in boots. It was a 4 day all girls event where female influences and young women were invited. It is also planning another trip with the theme of

"Clean and Green Pakistan in order to promote environmental friendly tourism in Pakistan.

TripKar helps people plan their entire trip including hotel reservations, travel tips, vacation spots, eateries, tourist reviews etc

Couch Potato
Couch Potato is an application for the lazes who don't want to step out of their houses to do the daily chores. Couch Potato allows its users to send anything from one point to another with the help of smartphone application.
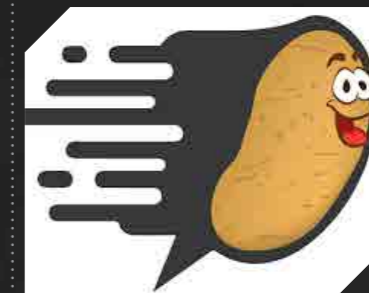
The service has secure clearance and safety system that put users at ease when sending important stuff like documents or valuables. Any delivery within 6 KM is 150 rupees while every KM after 6 is 10 rupees per KM.

DealSmash
DealSmash is an app based service with a very simple concept behind it. It offers deal and discount alerts to users based on their preferences,

location, shopping history, and few other factors.

DealSmash has partnered with many of the companies so its deal alerts are directly from the source. It also gives reward coupons and discounts to its users. These coupons are not only usable for online shopping but also on shop outlets as well.

CRICFLEX
Cricflex is a world's first patent wearable technology for cricketers. It is arm sleeve, embedded with sensors that, automatically detects an illegal bowling action displaying the results on a smart phone.

Cricflex is a world's first patent wearable technology for cricketers

The main purpose of CricFlex is to help cricketers improve their game. It provides real time monitoring with advanced visuals that are easy to understand. The startup is supported by National Incubation Center; the product is available for pre-order on its official website.

We have the resources and the talent all we need is some support that can take us to the right direction. This is the right time to make the strike; with all the talent, budding startup culture, tech-savvy populace and facilities, we can become the largest mobile application developers in the world.

Zulfiqar Khan

Everything you need to know about 5G

Advancement in Information and Communication Technology (ICT) plays a vital role in human life. A new generation of Mobile wireless technology comes once a decade. The first commercial mobile cellular technology appeared in the 1980s, known as 1G narrowband analogy technology followed by GSM in 1990s whereas, 2G started the era of digital voice communication. It provided a secure and reliable communication channel. The next third generation Technology known as 3G arrived at the turn of the century. 3G technology became popular due to its ability to access the faster internet over mobile phones and Laptop Computers. Then came the 4G LTE technology that started rolling out in 2010 and provided not only voice and other 3G services but also ultra-broadband network access to the mobile device.

Each generation has set out to fix the flaws and weakness of its predecessor; GSM fixed the security weaknesses of the analog mobile phone while 3G was meant to sort out lack of mobile data in GSM technology but only succeed to a certain length.

5G networks will use existing 4G LTE as a standard and technology as its foundation but with new air interface at a higher frequency; greater than 5 GHz

Finally, 4G came to make data consumption even more convenient. The attention of the mobile research community is now shifting towards what will

be the on-set for new innovations in the wireless communication technologies, which will collectively be refered as Fifth Generation (5G).

5G is a new wireless network system that has much higher speeds and capacity and lower latency, than existing cellular systems, important for better implementation of the Internet of Things

Given a historically 10-year cycle for every generation of cellular advancement, it seems that 5G technologies will be deployed around in 2020. Organizations, governments, academics and Mobile Operators are working on the 5G technology that will form the standard in the next few years. But today, 5G is purely a concept, one that needs to go from vaporware to real-world.

What is 5G?

5th generation wireless technology systems are the next proposed telecommunications standards beyond the current 4G LTE Advanced standards. Currently, it is in research and development phase worldwide and it is expected to be standardized by ITU-R (International Telecommunication Union Radio-communication Sector) in 2019.

5G is a new wireless network system that has much higher speeds and capacity and lower latency than existing cellular systems that are important for better implementation of the Internet of things. The technologies to be used in 5G still need to be defined, but there are many details on which everyone agrees. 5G will replace home Wi-Fi networks in many cases, offering better network coverage and faster speed; about ten times faster than current 4G LTE. 5G networks will use existing 4G LTE as a standard and technology as its foundation but with new air interface at a higher frequency, even greater than 5 GHz. The 5G air interface will be designed for much lower latency as about five times less than 4G LTE and with much greater flexibility. 5G may also be used to transmit data over the unlicensed frequencies currently used for Wi-Fi, without interfering with existing Wi-Fi networks.

4G Vs. 5G: what's the difference?

LTE-A is the foundation of the 5G wireless networks. Technology wise 5G will be more advance than existing 4G LTE-A networks by using massive MIMO, millimeter waves, small cells, full duplex, and beam forming. 5G will increase download speed up to 10Gbps that means an estimated download time for an eight gigabyte HD full movie will take just six seconds, compared with seven to eight minutes over 4G and an hour or more with 3G. 5G will provide wireless broadband connectivity and will support billion more devices and connections per cell than current networks.

Currently, existing 4G LTE has about a dozen antennas on their base station, eight of them are used for transmitter and four as receivers to handle all cellular traffic, but coming 5G technology will use Massive MIMO concept to extend the antenna matrix from 16×16 to 256×256. This way, base stations support will increase up to hundred or more ports of antennas to fit on a single array to send and receive a signal from many more users at once hence, increasing the capacity of mobile networks.

Millimeter wave means broadcasting at higher frequencies between 30-300 GHz and having a wavelength from 1 to 10 mm in range compared to the bands below 5 GHz and wavelength in centimeters used for 4G mobile devices. Only some satellite operators and radar systems use millimeter waves for the real world applications. Now cellular providers have begun to use them to send data between mobile users, and base stations.

There is one major drawback of using millimeter waves that they can't easily travel through buildings, obstacles and foliage, rain can also absorb them. That's why 5G networks will use additional cellular towers with another new technology, called small cells. And within small cells concept, MIMO antenna nodes are used to boost signals for long distance traveling.

All the industries will feel the effects after shifting to 5G. Particularly automotive, healthcare and Internet of Things (IoT) are expected to bring about dramatic transformations in our daily lives after 5G

Small cells use base stations at a distance of 250 meters throughout cities and require minimum power to operate. To prevent the signal from being dropped carriers install thousands of these stations to form a dense network in the city that acts like relay team that receives signals from other base stations and sends data to any user locations.

One of the challenges for massive MIMO is to introduce interference while transmitting more information from many more antennas at once. Beamforming is an efficient traffic-signaling system for the cellular base station that delivers data route to the particular user and reduces interference from the nearby user. Beamforming uses the spectrum more efficiently for transmission.

Full duplex technology in 5G transceiver would be able to transmit and receive data on the same frequency and at the same time it means that full duplex could double the capacity of the wireless network.

Why 5G?
IT and Telecom services play a key role in the growth of the economy, facilitating efficiency and growth across the wide range of industrial users in a country. There is a real opportunity for the government, institutions, mobile operators

and the wider mobile industry to work together in establishing a modern digital ecosystem. IT and Telecom sector have already helped all the big and small entrepreneurs to expand their economic activity.

Currently, we are at the early stages of the new next wireless technological revolution that will provide us unprecedented insights and the abilities that will change the way things are done. 5G isn't a simple network; it will become the underlying fabric of the entire ecosystem with fully connected intelligent sensors and devices which are capable of overhauling economic and business policies and will further blur geographical and cultural borders. 5G will enable the ecosystem to provide seamless and continuous connectivity for the business applications.

All the industries will feel the effects after shifting to 5G. Particularly automotive, healthcare and internet of things (IoT) are expected to bring about dramatic transformations in our daily lives. Industry analysts estimate that there will be more than 20 billion connected devices by 2020 around the world. With access to this kind of information technology, industries will be able to reach a new level of efficiency with improved products, services, and capabilities.

After the approval of policy directive by the cabinet, PTA will develop a framework to allow Pakistani operators to test 5G

5G will bring broader bandwidth wireless internet connectivity that will provide a greater mobility and faster internet everywhere. Therefore, it is expected that the future 5G infrastructure will serve a wide range of applications and sectors. So 5G with remarkable capabilities, will have lifespan that will last till the 2040s. After that, industry will decide where to head next.

Challenges and difficulties
The new networking technology is still under process and research is still going on, but there are some challenges that are impeding the faster growth. Firstly, entirely a new networking architecture will need to be installed at great

expense whereas, the technical specifications for the 5G standard have not even been yet finalized.

Many of the old devices would not be compatible with 5G. Hence, all of them will be replaced with new ones – an expensive deal. 5G requires 10 to 100 times more small cell antennas than a 4G network. Many municipalities are resisting them with long wait time for permits, unreasonable fees, and conflicting regulations. There are also some security and privacy issue yet need to be resolved. The speed, which 5G technology is claiming seems difficult to be achieved in future because of the incompetent technological skills in most parts of the world.

When is 5G coming?
The difficulties and challenges to commercial launch of 5G networks are humongous but the rising consumer and business demands are forcing telecom industries to accelerate their previous 2020 timeline much sooner. According to by Qualcomm CEO Steven Mollenkopf, the first 5G smartphones with downloading speed of more than 10 Gbps will be available in Asian and US markets in 2019, a year ahead of its predictions.

Apple and Nokia recently announce 4.5G Pro to mobile operators, a step closer to 5G Mobile network which deliver speeds ten times more than conventional 4G networks. This allows operators to offer one gigabit (1000 Mbps) peak rate per second. In order to roll out 5G services, various countries are aiming to launch as soon as possible, Pakistan being one of them.

Commercialization of 5G will play a vital role to grow the revenue of telecom equipment makers like Nokia, Huawei, and Ericsson as well as device manufacturers like Samsung and Apple by enabling demand for the new features and hardware upgrades devices. South Korea, United States, China and Japan network operators are preparing mainstream system launches for 2019.

The steady progress in 3G/4G services has led the government to now move towards 5G in Pakistan. In July 2017 Minister of State for Information Technology and Telecommunication Anusha Rehman announced that Pakistan would be the first country in Asia to test 5G technology by 2020. She said that the government would

start preparations for the introduction of 5G technology by 2021, and Pakistani people would be able to adopt the new technology ahead of all other Asian countries.

Few months back, Ministry of IT and Telecom moved a Policy Directive for consideration of the Federal cabinet to enable Pakistan to test new and upcoming technologies including the Fifth Generation (5G) mobile communications and now that policy directive has been approved by the cabinet. After this approval, PTA is going to make a framework and allow Pakistani operators to test 5G in Pakistan before its commercial auction expected in 2021.

Pakistan IT and telecom sector has emerged as the fastest growing sector across Asia in the recent years. According to Global System Mobile Association (GSMA), around 90% of Pakistani population would have access to 3G networks, 80% of which are also to enjoy 4G services by the year 2020.

5G will increase download speed up to 10Gbps. That means an estimated download time for an eight gigabyte HD full movie will take just six seconds, compared with seven to eight minutes over 4G and an hour or more on 3G

The transformation in Pakistan's ICT industry is happening at an impressive rate and the changes that have taken place in last couple of years are phenomenal. During the last four years, the number of broadband users in the country increased from 3.7 million to 44 million which is a great achievement. No doubt that commercialization of 5G will take a couple of years but we need to set the ground for next tech revolution beforehand. So far, the government and the industry are going in the right direction with policy development and other initiatives. We hope that the government and other stakeholders will be able to uphold their resolutions and accelerate the digital transformation even further.

vivo Unveils V7 Plus
in Pakistan

The global smartphone leader, Vivo has officially launched its brand and the latest flagship smartphone V7 Plus in Pakistan. The glamorous launch event was held at the prestigious Faletti's Hotel, where more than 600 people were gathered from all walks of life, including the key opinion leaders of smartphone industry, fashion icons, TV & Film actors, singers, mainstream media, retail and channel partners.

Vivo is a young and energetic global smartphone brand focused on introducing products with amazing design and cutting-edge technology. Vivo products are well suited for dynamic, enthusiastic and fashion-conscious people. The company focuses on providing the best selfie experience

to its users, with top-notch performance and hi-fi music. It operates in multiple international markets including China, India, Indonesia, Thailand, Malaysia, Vietnam, Philippines and Russia with over 80 million sales in the year 2016. Vivo has always been devoted in establishing world-class corporate culture & values, providing superior products and unrivalled experience to its customers. The core focus is on the youth as Vivo stands for youthful energy, joy and innovation. In doing so, it has emerged as an innovative smartphone brand, bringing the latest technology and unique experience for its target audience.

The company has 7 R&D Centers at major locations in China (Dongguan,

Shenzhen, Nanjing, Beijing, Hangzhou) and the United States (Silicon Valley and San Diego) with over 2,200 personnel working on the next-gen technologies. Furthermore, Vivo has 4 Production Bases in China (Dongguan & Chongqing), New Delhi (India) and Jakarta (Indonesia).

Pakistan is a market with incredible potential. Vivo aims at becoming the industry-leader and a well-known smartphone brand in Pakistan. In 2017, a start-up capital of 30 million USD will be invested in Pakistan Market both online and offline - Eric Kong, CEO Vivo

By Shaheer Riaz

VIVO V7+

Raising the Selfie Game

Qualcomm snapdragon

Display
Vivo V7+ has 5.5 inches IPS capacitive touchscreen with the average resolution of 720 x 1440 pixels and 320 dpi (pixel thickness). Shine, shading, and sharpness are first rate. It has Adreno 506 for its Graphic Processing Unit (GPU) that works for illustrations. It builds vitality proficiency by 150% more than average illustration units.

Design
Vivo V7+ has a great design and it is easy to hold. The dimensions of Vivo V7+ are 155.9 x 75.8 x 7.7 mm while the weight is 160 grams. Vivo V7+ has a display with 18:9 screen. The screen to body ratio is 78.4% and it has 2.15mm narrow bezels.

Memory
Vivo 7+ has 64GB ROM and 4GB RAM which can be further increased up to 256GB with the help of memory card.

Camera
Vivo V7+ has 16MP back camera while front camera has 24MP lens with flashlight. Cameras can record video in full 1080 pixels. It has an aperture of f2.0 and gives solid photographs with rich shading. Vivo has included a Live Photo choice, very much like the iPhone; it records a couple of moments of video with the picture and you can play it with a 'tap and hold'. Its selfie camera results are extraordinary even in the lowlight.

Battery
The Vivo V7+ has a Li-particle battery of 3255 mAh. It gets fully charged in about one hour and 15 minutes with its quick charger. It gives us 9-10 hours talk time and 18-hours of standby.

Network & Connectivity
Vivo V7+ supports all frequencies workable in Pakistan including 850MHz.

Other connectivity options include 802.11 b/g/n/ac WiFi, double band, Wi-Fi Direct, hotspot though Bluetooth 5.0, A2DP, LE, aptX. It has FM Radio while Type-C 2.0 micro-USB connector for charging and information exchange. It also has OTG link.

Interface
Vivo V7+ runs on Android 7 (Nougat) with a fun touch interface. Some unique bloat-ware applications include V-App Store, iManager, and compass.

Benchmarking

Velamo		Antutu
Multicore	2214	55480
Metal	1442	
Chrome Browser	2942	

Specs

Dimensions: 155.9 x 75.8 x 7.7 mm

Display: 5.99" LCD

Battery: Non-Removable Li-ion 3255 mAh

Network: GSM/3G/LTE

Camera: 16 MP, Autofocus, LED Flash

Memory: 4 GB RAM, 64 GB ROM

Processor: Octa-core 1.8 GHz

Price: PKR 35,999/-

Good
- 10 points multi-touch
- Great Selfie Results

Bad
- 720 pixels supportive only

Final Verdict
A great device at an affordable price...!!!

By Rizwana Khan

VEON is an international communications and technology company driven by a vision to unlock new opportunities for customers as they navigate the digital world. Present in some of the world's most dynamic markets, VEON provides more than 235 million customers with voice, fixed broadband, data and internet services. VEON's heritage as a pioneer in technology is the driving force behind a major transformation focused on bringing the digital world to each and every customer.

Veon is a revolutionary global personal internet platform that puts the users in control of their traditional and digital communication needs

VEON offers services to customers in 13 markets including Pakistan. In Pakistan VEON Limited recently launched its personal internet platform 'VEON' that promises to redefine communication in Pakistan. Jazz, Pakistan's leading Telecommunications company has become the first partner of VEON in Pakistan.

Launched last month, VEON is now the top free app on play store leaving Whatsapp and Facebook behind. Today we speak to the driving force behind VEON in Pakistan, Aniqa Afzal Sandhu (AA).

PW: Tell us about yourself?
AA: I joined Jazz in 2006 as Marketing Manager and in 2010 was asked by the management to establish and lead Mobile Financial Services. I feel proud of the fact that since then, Jazz Cash has become one of the largest MFS brands in the market. The objective is to completely digitalize the company which will possible by investing in new technologies and supplementing it with digital products and services. I feel immensely proud of the fact that my team has been the driving force behind the VEON launch in Pakistan.

VEON is an innovative internet platform that offers a truly connected experience that is truly free. VEON promises to completely redefine communication in Pakistan because it is a completely unique internet platform.

PW: Tell us about VEON?
AA: VEON is an internet platform that allows you to fulfill your communication needs through a single app. It is a revolutionary global personal internet platform that puts the users in control of their traditional and digital communication needs. VEON allows you to make calls, send messages, watch videos, read exciting stories, listen to music, avail offers and discounts on top brands in Pakistan. Jazz customers are able to access self-care within the platform completely free. Users can also avail integrated services in VEON.

VEON represents a new era, where people can depend on one true source, one reliable platform, a place to go as a first stop, a place to begin. And it is revolutionary since it puts the users in control of their traditional and digital communication needs using a platform that is completely free. Something of this scale is unparalleled in the history of telecommunications in Pakistan.

As the No. 1 Telecom operator with over 52 million subscribers Jazz has spared no efforts to redefine communication for our people

With VEON, we have undergone a paradigm shift in the way we work; from operating as a telecommunications partner to an agile internet company. With VEON's launch in Pakistan with Jazz as its partner, I feel proud that we are leading the digital revolution in Pakistan and hope to do so in the years to come as well.

Veon will redefine communication in Pakistan
Aniqa Afzal, *Chief Digital Officer at Jazz*

PW: How is Jazz leading the digital landscape of Pakistan?

AA: The last few years have been phenomenal for the telecommunications sector of Pakistan that has enabled millions of Pakistanis to leverage the true potential of transformative technologies. Jazz has been at the forefront of revolutionizing the digital landscape of Pakistan. As the No. 1 Telecom operator with over 52 million subscribers Jazz has spared no efforts to redefine communication for our people by supporting an eco-system that enables information sharing, access to mobile financial services, revolutionizing agriculture through mobile technology and improved access to health care and education.

In addition, Jazz is also executing the government's vision to develop a startup eco-system through the National Incubation Center (NIC), Islamabad. Our teams have ensured that we have a world class facility in place with a rigorous curriculum that the incubated startups have to undergo for successful graduation. We have inducted 40 startups in the first two cohorts of NIC and the first 20 are expected to graduate soon.

The advent of 3G and 4G technologies have led to an increasingly personalized technology experience, with the aid of mobile phones, tablets and computers

The vision is to ensure that Jazz can leverage its position as the largest and leading telecommunication company of the country to introduce innovation and inculcate an entrepreneurial spirit among young thinkers and global shapers. Most importantly, these startups have the Jazz advantage where they have access to more than 52 million customers, Jazz cash payment gateway, our wide-spread sales and distribution

network and the knowledge and experience of our workforce. Our vision of digitalization is also being implemented within the company and we are constantly aspiring to tackle our challenges through digital innovation.

PW: What role has the advent of 3G and 4G technology played to improve the technology experience of the user?

AA: The advent of 3G and 4G technologies have led to an increasingly personalized technology experience, with the aid of mobile phones, tablets Pakistanis computers. ICT has helped redefine the way we conduct our daily lives. Who could have imagined that with a single click, we could find answers to the most complex of problems, or make transactions to remote locations through Jazz Cash.

VEON caters the needs of Pakistanis to offer them a unique internet experience even if they don't have balance

None of this would have possible without telecommunication services. I feel, as the largest telecom operator in Pakistan we have an immense opportunity and Jazz has lead from the front to ensure that our users have the best technology experience through 3G and 4G technology. We are now in the process of consolidating our network and in the coming months the users will be able to experience an even better network offering the fastest speeds.

PW: How will VEON redefine communication in Pakistan?

AA: When we talk about redefining communications, we mean something out of the box, unconventional and extra-ordinary. Ideas so radical that not only will they completely transform the digital landscape but usher a new era of connectivity and communication. All of this may sound utopian but with VEON it has become a reality.

VEON caters to Pakistanis to offer them a unique internet experience even if they don't have balance. This is an opportunity for the people of

Pakistan to stay connected anytime, anywhere completely free. Individuals, businesses, startups and corporations all of them can benefit from the VEON experience however the idea is to not simply stop at calls and messages and that's why VEON offers much more to its users.

In the future, digital services will be integrated within VEON to offer their services through the platform with the ambition of creating a truly connected experience that is truly free

VEON has the ability to transform lives, create global linkages and facilitate the adoption of new technology in Pakistan. It has the potential to drive ICT innovation and fill the digital void. It cuts through socio-economic disparities so all you need is a smartphone and you can experience VEON. Jazz shares the vision of the government to promote digital inclusion in Pakistan and VEON will play an integral role to enhance the digital economy of the country.

PW: What is next for VEON?

AA: In the future, digital services will be integrated within VEON to offer its services through the platform with the ambition of creating a truly connected experience that is truly free. This can include e-commerce services, online transport solutions, music and much more.

Artificial Intelligence (AI) will also be integrated in the app for contextual and personalized user experience within the platform. This will provide a unique and tailored experience to each user of VEON.

VEON encapsulates freedom, and I think moving forward, VEON will be the front runner in offering disruptive and radical solutions to fulfil the communication needs of our users in one comprehensive internet platform.
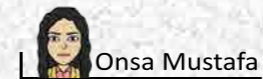
Onsa Mustafa

THE NEW CYBER WEAPON OF CHOICE

Social media is a place where people let their guards down and allow Cyber criminals to run rampant across each social network nowadays. We frequently see news regarding celebrity account hacked and social promotion fails, however that's just one side of the whole story. The worst part is that social media users remain oblivious to the dark side of social platforms. Poor social media security of users can put their personal data at serious risk.

The Internet of Things continues to offer new opportunities for cybercriminals, and its security weaknesses play a central role in increasing the cyber-crimes.

Social media users remain oblivious to the dark side of social platforms and expose their personal information and identity to the online perpetrators

According to Cisco, Facebook scams were the most common form of malware distributed in 2015; for all the efforts put forth by social networks to secure their environment, they are not 100% effective. For example, Facebook reported that for 2017, almost 83 million accounts are false, Twitter has almost 48 million fake accounts whereas, LinkedIn openly admitted stating, "We don't have a reliable system for identifying and counting duplicate or fraudulent accounts." Despite this, social networks remain some of the most trusted channels online.

Data shows that users trust people's activity on social media a lot than the other communication channels. That's why social media sites are considered a treasure for cyber criminals. The attackers currently have weaponized social media sites, resulting in a number of the information breaches over the previous few years. They develop an implausibly broad reach and can manipulate users' data and extract a range of widespread cyber-attacks and scams. They also get information from social engineering to exploit distribution to counterfeit sales to brand impersonations, account takeovers, client fraud, and much more.

For all the efforts put forth by social networks to secure their environment, they are not 100% effective

Social media sites might not produce a completely new cyber threats but they have considerably amplified the danger. Here is the list of some worst malware attacks on the Social networks.

HAMMERTOSS: started off in early 2015, this malware made use of Twitter to transfer its attack payloads and hide from view. This malware created a custom-tailored tweet with a unique hashtag and a URL. That hashtag told a computer where to look for the image and then this malware commanded to extract data from a compromised computer.

PORNSPACE: This malware attack released password-stealing worm into the profiles by taking advantage of a flaw within the security list of MySpace. Back in December 2006, this malware hijacked the profiles and sent porn-based spam to increase traffic on porn sites.

MY WEBCAM THINGY: In March 2009, this malware attacked over seven hundred Twitter accounts and it tweeted the followers to see a webcam performance of a female, which led the viewers to a portal, that stole passwords and credit card details.

FIRE FOXED: In November 2009, this malware attacked users who used Mozilla Firefox for accessing their profiles. The browser was full of a click-jacking intrusion that redirected the users to porn sites that activated a worm. Through this worm, hackers got access to passwords.

DISLIKE SCAM ON FACEBOOK: This malware came through Facebook updates from third-parties in 2012.

The attackers have weaponized social media sites resulting in a number of information breaches over the previous few years

The main source of this malware was the bogus status updates, it also asked the users to participate in surveys and share them with others on Facebook.

OVER THE RAINBOW: Hackers added malicious JavaScript codes in Twitter messages that came with retweeting capability and directed the users to porn websites. This malware spread to the point where Sarah Brown, wife of former British Prime Minister Gordon Brown, had unknowingly sent malicious links to over 1 million of her followers in 2010.

With the increasing security concerns regarding social media platforms, developers have started to introduce more secure ways for personal security.

Social media users can prevent cyber-attacks by using anti-virus, strong passwords, and by updating their password after regular intervals

One of these ways is the use of Two-factor authentication. Two-factor authentication confirms a user's identity by utilizing a combination of two different components. Social media users can prevent cyber-attacks by using anti-virus, strong passwords, and also by updating their password after regular intervals of time. Cyber bullying and Cyber threats can be reduced to some extent by not sharing information to any third party tool or app.

Individuals, organizations and social media platforms are struggling to cope up with the increasing rates of cyber-crimes but so far, cyber-criminals seem to be ahead in this race. What we have to reminisce, is that social media is still in its incubation stage. Organizations and specially social media platforms have to augment their social media security measures and get fortified today, so they're better equipped for forthcoming and advanced misuses of social media that cyber-criminals are about to develop down the lane.

By Zainab Saeed

THE RISE OF PAKISTAN'S MHEALTH IN mWORLD

Tech-Industry has experienced a swift growth over the past two decades and up till now the sky is the limit for technological advancements. Availability of smartphones with advanced technology has reduced the convolutions of life to a greater extent. Over the past few decades, communication technology has radically enhanced. Technology has become the savior of the public especiallly for resolving their health issues efficiently and effectively through the development of mobile health.

Mobile health is the use of mobile phones and communication devices to educate and facilitate users to solve various health care issues. Mobile health is a rapidly expanding field in the digital health sector offering healthcare support, interventions through smartphones, tablets, and wearables. The Mobile health industry has a wide impact on reducing hospitalizations and emergency room visits while transforming the overall systems of health care in Pakistan. It offers greater access to medical facilities, consultations, sharing knowledge, experience, and trainings.

The Mobile health industry has a wide impact on reducing hospitalizations and emergency room visits while transforming the overall systems of health care in Pakistan

According to the European Commission, by the end of 2017, an estimated 3.4 billion people around the world will own a smartphone and half of them will be using mHealth apps. Currently, nearly 100,000 such apps are available, with the top 20 free sports, fitness and health apps accounting for more than 230 million downloads worldwide. Mobile health is primarily used to offer health care to the inaccessible and underprivileged areas. Pakistan is a developing country where more than half of its population is living in rural areas. These areas have insufficient health care facilities as well as bereave of strong infrastructure that can address health needs of people.

According to the European Commission, by the end of 2017, an estimated 3.4 billion people around the world will own a smartphone and half of them will be using mHealth apps

Many Patients in rural areas of Pakistan are unable to get even basic health facility or medical services. But as the Information and Communication Technology is expanding, it has set up an opportunity for delivery of healthcare facility to those areas, where access is not possible. mHealth now plays a vital role in linking rural patients and medical professionals to bring health care within reach.

mHealth in Pakistan is already changing the way how diseases were dealt in the country. Government and private sector have started to take great interest in m-Health initiatives. In the past Dengue Monitoring System was launched to control dengue epidemic and after that, various other applications were also launched including Monitoring and Evaluation Assistants (MEAs) for Secondary Health, HospitalWatch, Disease and surveillance system, Drug inspection and monitoring. There are various different types of health apps that are used to tackle health issues. These include:

Monitoring Apps:
Monitoring apps help doctors to monitor the behavior and symptoms of patients remotely. Through these apps, patients are able to take ECG and can send the results to their doctor.

Monitoring apps also provide tele-health capacities to the doctors.

Medical Education and awareness services:
Medical education apps allow instant access to accurate data and references. It also allows you to understand pharmaceuticals and diagnose symptoms. It includes awareness SMSs send to patients about their health updates and other general information related to health.

Find My Doctor is the first healthcare of Pakistan which facilitates you in finding a doctor nearest to you.

The app lists approximately 1800 doctors. This app allows you to look at the availability, qualifications, specialization, experience, and Fee of various doctors in the list. Mytabeeb.pk has 3000 doctors and 60 hospitals from Lahore, Karachi, Peshawar, Rawalpindi, and Islamabad listed.

The inclination and awareness of doctors and physicians about the usage of IT applications in hospitals can be developed and maintained by providing proper tools, devices and training on regular intervals for more rapid access to information on the internet

Pharmapedia Pakistan provides pricing, dosage, indications, side effects and all the information on general drugs and medicine brands available in Pakistan.

Wearables:
Health wearables allow continuous physiological monitoring. Wearable technology includes items, which are worn in, out and around the body. It incorporates sensors and other electronic technologies.

As Pakistan is a developing country and this technology is not so common, only 5 percent of people are using wearables like fitness bands and smart watches.

Vitealth is a health sensor watch available in Pakistan. It provides information about vital signs.

Health Communications Platforms:
Health communication platforms are becoming a new go -to resource for handling many healthcare issues. Pakistani medical industry is also adopting these health-care platforms which have been successfully incorporated in the central European, Middle-eastern and South American states.

One important component to encompass is that the successful adoption and use of e-health systems depend on the suitable infrastructure and Pakistan is struggling with this factor. The inclination and awareness of doctors and physicians about the usage of IT applications in hospitals can be developed and maintained by providing proper tools, devices and training on regular intervals for more rapid access to information on the internet. Moreover, healthcare providers must be given the opportunity to take part in information system development process and include the contents according to their requirements.

Many Patients in rural areas of Pakistan were unable to get even basic health facility but as the ICT is expanding, it has set new opportunities for health sector

The field of mHealth has proven to be beneficial through dozens of successfully implemented projects across the globe. Health issues in developing countries like Pakistan have increased at an alarming pace as more and more fatal diseases are spreading at a disturbing rate. mHealth is well-positioned to counter these issues whereby taking advantage of current ICT innovations. The Government must devise such health polices in which the interests of all stakeholders is kept in mind for the development of mHealth.

By Rizwana Khan

Smart Moves for Smarter Nation

Online Passport Renewal for Overseas Pakistanis
The digitization of Pakistan has brought several reforms in the country. One such development includes online passport renewal Service. NADRA in collaboration with Directorate General of Immigration and Passports has introduced online renewal of passports.
Now people don't have to wait in long queues in passport office for renewal of expired passport. This service is currently available for applicants outside Pakistan but soon it will be launched for Pakistanis as well.

According to the official website the renewal application will take about 16.5 minutes. After processed, the passport will reach the address given by applicant within 10 days for a normal passport. However an urgent renewal will be processed in four days.

TrackReps-An App Launch to Track the Performance of MPAs in KPK
KPK has developed an app called "TrackReps" to track the performance of KPK members of national assembly. The citizens of KPK can track the performance of their representatives of the provincial assembly while using this application. This app aims to bring the performance data of each public representative just a tap or click away. A profile of each representative will be created

with information like bills/laws proposed or projects initiated. Public can use this organized data to make educated voting decisions ensure accountability.

The team behind TrackReps is a group of young graduates from public sector universities. TrackReps is available on iOS and Android.

KPITB Launched Health Portal App to Fight Dengue
KPK, KPITB has launched health portal application to fight dengue. It is bilingual app with content available both in English and Urdu. KPK Citizens can call on "1700" and can access Dengue Health Helpline 24 Hours a day. Health Portal App can be downloaded from Google Play Store soon.

This app can also be used by Health workers. They can login to spread awareness and report treatment activities.They can tell people about infectious diseases in communities in KPK by using this Health Portal App.

Benchmarking

Velamo

Multicore	1418
Metal	1196
Chrome Browser	2062

Antutu 47360

By Shaheer Riaz

NOKIA 6

A Serious Challenger for Mid-range smartphones

Qualcomm snapdragon

Design
The dimensions of Nokia 6 are 154 x 75.8 x 7.9 mm whereas, the weight is 169 grams. It is packed with a fixed battery of 3000 mAh. The front body has bezel layer on all four sides. The back side of Nokia 6 is very simple and elegant.

Display
Nokia 6 has 5.5 inch screen with the screen to body ratio of 70.5%. The supportive resolutions are 1080 x 1920 pixels and 480 dpi which means it supports full HD system.

The best thing about Nokia 6 is its multi-touch support. Most Nokia devices scored 5 points in multi-touch but this one has scored full 10 points.

It supports a graphic card of Adreno 505 which is very fast and quick than any other Mali card.

Memory
The Nokia 6 has 32GB ROM and 3GB RAM. The memory can be further expanded up to 256 GB with the help of memory card.

Camera
Camera of Nokia 6 is packed with 8MP lens for front while the back camera has 16MP lens. Back camera and front camera can record videos in full 1080p quality.

Images shot in good light tend to have good details and depth, but the Nokia 6 struggles a little in low light and indoors. But still, its camera is better than those of Nokia 3 and Nokia 5.

Processor
Nokia 6 has Octa-Core 1.4GHz processor with the chip-set of Qualcomm MSM8937 Snapdragon 430 that is based on the architecture of ARM-Cortex A53. This chip set is faster than any other dual-core chip set.

Connectivity
Nokia 6 is a 4G enabled dual SIM device that supports all the bandwidths in Pakistan. Wi-Fi supports the standards of 802.11 b/g/n, dual-band, WiFi Direct, and hotspot while Bluetooth version is 4.1.

Interface
Nokia 6 has latest Android version 7.0 (nougat) which is fast and precise as compared to older version of Android.

Specs

Dimensions: 154 x 75.8 x 7.9 mm

Display: 5.5" LCD

Battery: Non-Removable Li-ion 3000 mAh

Weight: 169 g

Camera: 16 MP, f/2.0, phase detection autofocus, dual-LED flash

Memory: 3 GB RAM, 32 GB ROM

Processor: Octa-Core 1.4 GHz

Price: PKR.27,900/-

Good
- Qualcomm Chipset
- Fingerprint Scanner

Bad
- No default File Manager App
- No LED notification light

Final Verdict
A solid device in mid-range device market.

Android Oreo:
A SWEET TREAT BY GOOGLE

By Fizza Atique

Sweet has just gotten sweeter with Android's newest update, Android Oreo. The version history of the Android mobile operating system started with the public release back in November, 5, 2007 named as Android beta and the very first commercial version of Android 1.0 was launched in September 2008, since then it has brought a number of updates to its operating system. The initial versions such as Versions 1.0 and 1.1 were not given any specific code names. After that Google employed the unique strategy of naming its OS on sweets. Another interesting thing about Android OS naming is that sweet treat names are picked in alphabetical order. The foodie name of Android started in 2009 as Android 1.5 Cupcake and headed to Donut, Éclairs, Froyo, Ginger bread, Honeycomb, Ice-cream sandwich, Jelly bean, KitKat, Lollypop, Marshmallow and now with the most recent major version i.e.; Android 8.0 Oreo released in August 2017.

Google revealed the name of its latest Android operating system in the honor of dark disk, the Oreo. The search engine, Google unveiled the name of new operating system on an eclipse viewing party in New York's 14th Street Park. The specialty of this location is that it is in proximity of the first bakery that made Oreos.

Google unveiled the name of new operating system on an eclipse viewing party in New York's 14th Street Park

Company has the history of turning eatables to robots; this time too Google turned the famous cookie Oreo into a super hero becoming an Android robot logo. Following are some of the interesting features of Android Oreo..

Notification Shade: In Android O, there is a little re-ordering of the toggles. Moreover, it also takes up a little more space on-screen.

Notification Handling: As for notification handling, the new software has come with some advancement. If you long press on a notification you'll see a toggle for Notifications.

Quick Setting: New version of Android provides better quick setting option. When you open up the Quick Settings screen, you'll see we still have different color schemes for the Pixels compared to Nexus devices.

App Badges: Android O provides native support for app badges. With this feature, app icon will show you your unread notification count etc.

Keyboard Navigation: This feature will allow you to get a better operating system support if they ever want to use keyboard based arrow and tab navigation capabilities.

Fluid Experience: With the new 'Fluid Experience', users can become more productive and can enjoy multi-tasking tools. Google has introduced TensorFlow Lite, for low-powered devices. It is a scaled-down version of its machine learning tool, Tensor Flow.

Picture in Picture Display: The new Android O features picture in picture display. Now the users can get the multiple windows in a screen. Moreover, users will watch the video in picture in picture display.

Google plans to partner on different global initiatives which are designed to create innovative playful experiences for both OREO and Android fans

Notification Dots: On its new Android, Google has finally changed the way Android devices show notifications. Users will be able to long-press the app icon with Notification Dot and it will show notification in a tiny pop-up window.

Auto-fill with Google: Like Chrome and other browsers, Android O will also quickly fill in your username and password with a single tap.

Smart Text Selection: Unlike other Android version, Google is adding machine learning in Android O to make selecting/highlighting easier. For example, if you try to select an address/name consisting more than one word, the system would recognize and select the entire phrase. Especially, if you are selecting an address, the system will recognize it as an address and suggest you Maps, making finding directions easier.

People owning a Google Pixel, Google Pixel XL, Nexus 6P or Nexus 5X are the first ones to get this update. However for others the wait for Android Oreo will continue a little longer. Don't fret just yet, as more phones have been confirmed to support the update later this year including Essential, Huawei, Samsung, Motorola, LG, HMD Global, Sony and more.
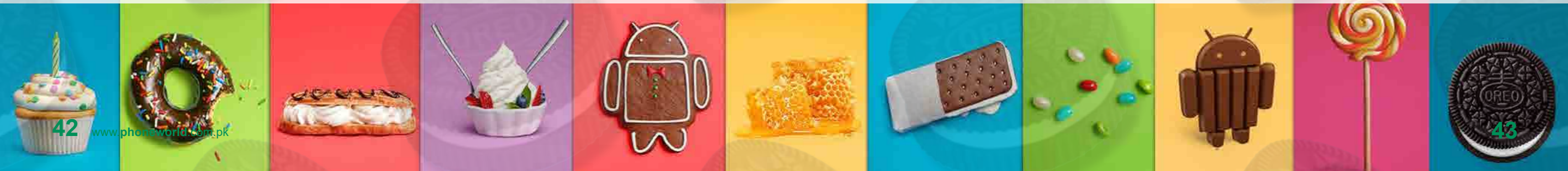
Power Woman in ICT

The successful launch of 3G/4G, coupled with the ever-increasing smartphone penetration provides the perfect opportunity for Jovago to reach out to the masses

Nadine Malik CEO **JOVAGO.PK**
Pakistan's No.1 hotel booking website

J ovago is Pakistan's largest online hotel booking website that caters to all customers, with its inventory of 2000 plus hotels and guest houses across the country. It has presence in form of hotel partners in approx. 160 cities of Pakistan. With its customized filters available on Jovago's website, it takes into account various factors including price range, location and hotel type. In an exclusive interview with the Javago CEO, Nadine Malik (NM) we have

By Rizwana Khan

tried to further find out about the role Javago is playing in today's advanced tech world. Here is what she said.

PW: How far Jovago.pk has come since the arrival of this company in Pakistan?
NM: For over three years of our operations in the country, Jovago Pakistan got the first mover advantage as we were the first of the kind to introduce the concept of online hotel booking in Pakistan. We have come a long way in three years, since our current hotel inventory surpasses the mark of 2000 plus hotels and guest houses in around 160 cities of the country. The response that we have received from our customers has been amazing. According to Jovago's 2017 hospitality report, the total number of visitors on our hotel booking portal jovago.net has crossed 3 million since inception.

The internet usage has been expected to increase in the coming years indicating the profitability for e-commerce ventures more proficient

The reason why we have received such a phenomenal response is that customers have the ease of booking accommodation from anywhere by just looking at the pictures of hotel rooms, compare prices, read other customers reviews and make their hotel choice.

PW: How Jovago.pk reaches out to the maximum people?
NM: The successful launch of 3G and 4G internet in Pakistan, coupled with the ever-increasing smartphone penetration provides the perfect recipe for Jovago to reach out to the masses. According to our 2017 hospitality report, the internet penetration will increase from 30 million in 2017 to 56 million over the next five years. It is a good market size for us to provide convenience and best prices through our easy to use smartphone app, customized search engine and 24/7 customer service, etc.

We are popular among travelers because of our variety of payment methods. These are payments through Easypaisa, bank cards, prepayments, pay at hotel and partial payments. Travelers find it very accommodating especially when they can

do partial payments. Apart from hotel bookings, Jovago.pk has also started customized tours to travel destinations such as Fairy Meadows, Hunza, Naran, and Kaghan. These customized tours have already become quite welcoming among youth including the explorers who want to learn and witness different places in the country.

Jovago Pakistan got the first mover advantage as we were the first one to introduce the concept of online hotel booking in Pakistan

Recently, we have successfully started serving to corporates where we provide them one window solution for bookings in different cities of Pakistan.

PW: How Jovago.pk has made traveling easy for people in Pakistan?
NM: With its website and smartphone app, available for both iOS and Android users, Jovago Pakistan has provided friendly hotel booking solution to travelers to avoid inconvenience that may arise from the planning aspect of traveling. Now with Jovago, people no longer have to wander about in search of decent hotel rooms once they have reached their travel destinations. It remains a matter of just a few clicks that let travelers to book hotels and guest houses from anywhere to everywhere in Pakistan. There are exciting deals and discounts available throughout the year for Jovago & alliance customers. Jovago's customized search engine has been designed in such a manner that facilitates visitors for hassle free bookings.

PW: How technology has transformed the travel industry?
NM: Technology has significantly transformed the travel industry through the inclusion of smartphones, mobile internet and applications that focus on providing various services online that can be easily availed by the tourists. From online booking to online payments, comparing of various hotels and their amenities along with pricing, everything has been made available online through these platforms. The internet usage has been expected

to increase in the coming years indicating the profitability for e-commerce ventures such as Jovago more proficient.

PW: What makes Jovago different from other online travel services?
NM: Due to the fact that the websites and applications offer real-time services, customers can be ensured that they will be guided throughout the whole process. They not only focus on providing online hotel booking but are also catering towards building awareness amongst potential, targeted customers regarding the best tourist places in Pakistan, Myanmar and Bangladesh. It is slowly and gradually expanding to become South Asia's biggest hotel booking service available online, that is definitely work in progress.

The fact that the website and application offer real-time services, customers can be ensured that they will be guided throughout the whole process

The Best Price Guarantee is unlike anything any other competitor is offering and differentiates Jovago from them by a greater margin. There is lack of awareness regarding the beauty that Pakistan comprises of, people are being acknowledged about prices, places, varieties and amenities offered all with the convenience of a single platform.

PW: What online services are offered by Jovago?
NM: Jovago features an online real-time platform for hotel booking where you can easily be accommodated by travel advisors that are available at your service 24/7. The service is localized in Pakistan helping it gain a better competitive advantage over other foreign counterparts. It is the largest online hotel booking website in Pakistan with over 2000+ hotels to compare and choose from.

PW: Virtual reality, or VR, in the tourism industry is likely to see its breakout time by the end of 2017. Where does Jovago stands in that regard?
NM: Jovago is currently working on providing better services for its customers. Virtual reality is surely to break a lot of barriers that exist in our current digital industry of Pakistan. Currently there is a lot of presence of 3D images that let the audience virtually visit a particular place. This can

definitely be incorporated in our current strategies for executing and promoting hotels.

PW: What major changes do you see in travel industry from technology standpoint?
NM: Technological tools that cater towards providing innovative material for the content online can surely help hotels market their services and facilities in a better manner and through a better medium.

Javago is the largest online hotel booking website in Pakistan with over 2000+ hotels to compare and choose from

Focusing on providing virtual tours for customers is definitely going to persuade them to opt for online booking and build trust in websites like Jovago.

PW: Any message for the travelers?
NM: Pakistan is a beautiful country that is blessed with scenic views. Being a traveler myself, I always encourage travelers to move around the country & never be afraid to explore. As law & order conditions have improved over time, it is even easily accessible. At the end, I just want to say please also be responsible to keep it clean and green.

By Rizwana Khan

TECH TWISTS

The X-Y position indicator for displays – a.k.a The Mouse
When the first pointing device was invented in the early 60's by Douglas Engelbart and Bill English, it was called the X-Y Position Indicator for Display Systems. It was first used with the Xerox Alto computer and demonstrated in 1968 by Engelbart in what is called the 'Mother of all demos'.

The Science behind electrons and email
Let us bring some science into the equation; it takes around 2 billion electrons to produce a single email. Now imagine millions of emails being sent in a single day. That's definitely a lot of electrons to be playing around with.

ILOVEYOU; The most dangerous Virus
ILOVEYOU is considered to be the most dangerous virus ever created in the form of a worm. It has the ability to replicate itself and crash the system. It arrived through e-mail messages as a love letter from a secret admirer. When a user opens the email and clicks on the attachment available, the virus starts its magic.

I-LOVE-YOU Virus
YEAR OF ATTACK   2000
OPERATING SYSTEM   WINDOWS
EFFECTED SYSTEMS   45 MILLION
MAKER

China's Treatment Camps for Internet Addict
China has treatment camps for internet addicts. 200 million Internet users in China are between the ages of 15 and 35. Tao Ran, director of the country's first Internet addiction treatment clinic under a military hospital in Beijing said that 40% of those addicted to the Internet suffer from attention deficit hyperactivity disorder.

Twitter and YouTube first
The first tweet was done on 21st March, 2006 by Jack Dorsey and the first YouTube video to be uploaded was "Meet At Zoo" at 8:27 p.m. on Saturday, April 23, 2005, by Jawed Karim.

By Shaheer Riaz

Xiaomi **mi** Max 2

Bigger is Better

Qualcomm
snapdragon

Display

The screen size of Xiaomi Mi Max 2 is bigger than the usual devices; it has 6.44 inch screen which makes it almost a phablet sized device. It supports 1080 x 1920 pixels with the supportive dpi of 480.

Xiaomi Mi Max 2 has scored full 10-points in the multi touch test. The screen has attractive colors with a very well balanced brightness.

Design

Xiaomi Mi Max 2 is 6.44 inch device with the dimensions of 174.1 x 88.7 x 7.6 mm while the weight is 211 grams. The device is a bit heavy but this is because of its bigger battery of 5300 mAh. It doesn't has any bezel layer around it.

Camera

The Xiaomi Mi Max 2 is packed with 12MP back camera lens and 5MP front camera lens and can record videos in full HD. The back camera is accessible in LED flashlight.

Xioami Mi Max front camera has also performed extraordinarily with its 5MP lens. The selfie camera has provides high detailed, high-contrast and energetic colors. The dynamic range is also very good in Xiaomi Mi Max 2.

Memory

Xiaomi Mi Max 2 has a perfect memory combination of 64GB ROM and 4GB RAM. You can increase its internal memory up to 256GB with the help of a memory card.

Interface

Xiaomi Mi Max 2 is packed with Android version 7.0 (nougat) with the interface of MIUI 8.2. The icon colors are very attractive and brightness is very well managed.

Some bloat ware applications are already installed on it such as WPS Office, swift key, MI Remote, MIUI forum etc.

Processor

The system of Xiaomi Mi Max 2 has 2.0 GHz octa-core processor with the chipset of Qualcomm MSM8998 Snapdragon 625. The system didn't show any delays or lags while multitasking. Also, no heating issues were observed while charging.

Battery

The best feature of Xiaomi Mi Max 2 is its big Li-ion battery of 5300 mAh. It has 2A charger with it which will completely charge the device in almost one and half hour.

The battery will easily provide the standby time of 9-10 hours. Excessive usage of 4G/3G/2G or game play will reduce the battery quickly otherwise it can provide you a better time for normal usage.

Network / Connectivity

Xiaomi Mi Max 2 is a dual SIM 4G enabled device that supports all Network bandwidths in Pakistan while the speed for 3G is HSPA+ 42.2/5.76 Mbps and 4G is Cat4 150/50 Mbps. Wi-Fi supports all standard a/b/g/n/ac with hotspot and Wi-Fi direct options.

Benchmarking

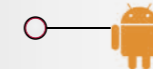|		
Multicore	**2206**	
Metal	**1448**	**62403**
Chrome Browser	**3107**	
Velamo		**Antutu**

Specs
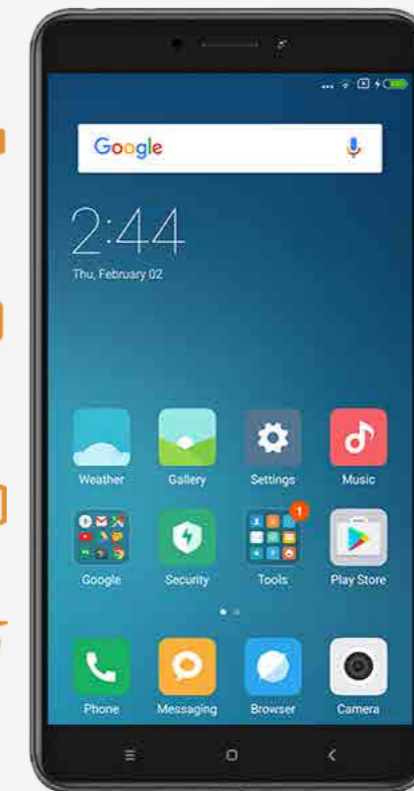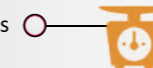
OS: Android v7.1 (Nougat)

Display: 6.44 inches

Battery: Non-Removable Li-ion 5300 mAh

Weight: 211 grams

Camera: 12 MP, f/2.2, phase detection autofocus, dual-LED flash

Memory: 4 GB RAM, 64 GB ROM

Processor: 2.0 GHz Octa-core

Price: PKR.34,900/-

Good

- 4G Device
- Qualcomm Chipset
- Big battery

Bad

- Slippery Body

Final Verdict

An amazing phablet smartphone with extraordinary features and performance.

TELECOM CAMPAIGNS

By Rizwana Khan   Fizza Atique

The advertising campaigns play a vital role in promoting a brand/product. A truly memorable campaign creates a visceral response – but one bad campaign can ruin it all. PhoneWorld keeps a close eye on the latest ad releases in telecom industry. Here is a critical review of the latest telecom campaigns.

QMobile J1 & J2

QMobile is always in limelight when it comes to its promotions and marketing strategies. By introducing stunning "Maya Ali" for promotion of "Noir J1 & J5", QMpbile has brilliantly attracted the audience with this advert. The advert wonderfully explained the specifications of both smartphones. The soft music and gold background is an add-on to the overall Royal theme of TVC .

Verdict: Good Campaign. Keep it Up !!!

iflix Ka Mela Hai

iflix Pakistan's new TVC is really loud because of the ear-splitting voice of singer. The campaign "iflix Ka Mela Hai" directed by Mukhtar Zaidi is an attempt to promote iflix in Pakistan. The advert is recorded in different backgrounds while showing that how audience can live stream their favorite programs at various outdoor places. The model is PTCL brand ambassador and appeared in its other TVCs as well. The message is well-conveyed but lacks creativity.

Verdict: Mehnat Karain !!

Samsung Galaxy J7 Core

Samsung has signed Cricketing hero Fakhar Zaman as its brand ambassador for Galaxy J7 Core smartphone. The TVC has a very cool theme song that highlights the two different roles of Fakhar Zaman's life and then smartly connects it with Dual SIM and double social media accounts option in Galaxy J7 core. Fakhar Zaman has also done justice to the advert with his good performance.

Verdict: Ik Achi TVC..!!

Ufone Super Internet

The new "Super Internet TVC" features a character "Rabya Faysal" who is a mother, a wife and a successful entrepreneur and needs internet to manage her online business along with her daily busy routine. The advert is a successful attempt to attract users while mainly focusing on its "Befikri" campaign that offers 1GB internet at only Rs. 100/week. The character beautifully sums up the entire idea and theme of advert.

Verdict: Good Efforts!!!

1GB SUPER INTERNET
CHALEY PURA HAFTA
SIRF
RS.100
KAY LOAD PER!

Veon- Be truly Free

Veon is an advanced internet platform launched by VEON Limited. The TVC is shot in black and white mode which makes it very unique and attractive. The Dhol beat is used as the background music that gives it an additional glamour. Overall, the TVC is quite refreshing and very different from conventional TV campaigns.

Verdict: Artistic…!!!

CONNECT

Jazz - IT 1460

With its "agy barho, smart bano" tagline, Jazz has introduced the feature filled IT-1460 TVC. The best thing about this smartphone is its competitive price and that's what is highlighted in this TVC as well. The Advert is very simple and basic but since it conveys the message successfully, we can say that it is an effective advert.

Verdict: Okay Advert…!!

5MP Back Camera

PHONE EXPRESS

Pakistan's First Online Phone Store With
Official Warranty

QMobile Noir X1s

OS: Android OS v7.0 (Nougat)
Display: 5.2"
CPU: Quad-core 1.5 GHz
Camera: 13 MP, LED Flash Light
Memory: 32 GB ROM , 3 GB RAM

Samsung J5 Pro (2017)

OS: Android OS v7.0 (Nougat)
Display: 5.2"
CPU: Octa-core 1.6 GHz
Camera: 13MP, LED Flash, Autofocus
Memory: 16 GB ROM, 2 GB RAM

QMobile Cs1 Plus

OS: Android OS v7.0 (Nougat)
Display: 5.5"
CPU: Quad-Core 1.3 GHz
Camera: 13MP, LED Flash
Memory: 32 GB ROM, 3 GB RAM

QMobile Evok Power

OS: Android OS v7.0 (Nougat)
Display: 5.5"
CPU: Quad-core 1.3GHz
Camera: 8 MP, LED Flash
Memory: 16 GB ROM, 2 GB RAM

QMobile Evok Power Lite

OS: Android v7.0, (Nougat)
Display: 5.5"
CPU: Quad-core 1.3 GHz
Camera: 8 MP, LED Flash
Memory: 8 GB ROM, 1 GB RAM

Huawei Y7 Prime

OS: Android v7.1 (Nougat)
Display: 5.5"
CPU: Octa-Core 1.4 GHz
Camera: 12 MP, LED Flash Auto-focus,
Memory: 32 GB ROM, 3 GB RAM

Xiaomi Mi6

OS: Android OS v7.1 (Nougat)
Display: 5.15"
CPU: Octa-core 2.4GHz
Camera: 12 MP, LED flash
Memory: 64 GB ROM, 6 GB RAM

Tecno Camon CX

OS: Android OS v7.0 (Nougat)
Display: 5.5"
CPU: Octa-core 1.5 GHz
Camera: 16 MP, LED Flash
Memory: 16 GB ROM, 3 GB RAM

QMobile Noir j1

OS: Android v7.0 (Nougat)
Display: 5.2"
CPU: Quad-core 1.15GHz
Camera: 5 MP, LED flash
Memory: 8 GB ROM, 1 GB RAM

Nokia 6

OS: Android OS v7.0 (Nougat)
Display: 5.5"
CPU: Octa-core 1.4 GHz
Camera: 16 MP, LED Flash
Memory: 32 GB ROM, 3 GB RAM

Tecno Camon CX Air

OS: Android OS v7.0 (Nougat)
Display: 5.5"
CPU: Octa-core 1.25GHz
Camera: 13 MP, LED Flash
Memory: 16 GB ROM, 2 GB RAM

Xiaomi Mi Max 2

OS: Android v7.0, (Nougat)
Display: 6.44"
CPU: Octa-core 2.0 GHz
Camera: 12 MP, auto-focus, dual-LED flash
Memory: 64 GB ROM, 4 GB RAM

Vivo V7 Plus

OS: Android OS v7.0 (Nougat)
Display: 5.99"
CPU: Octa-core 1.8 GHz
Camera: 16 MP, LED flash
Memory: 64 GB ROM, 4 GB RAM

QMobile Noir j2

OS: Android OS v7.0 (Nougat)
Display: 5.0"
CPU: Quad-Core 1.1 GHz
Camera: 8 MP, LED flash,
Memory: 16 GB ROM, 2 GB RAM

Lenovo Moto E4

OS: Android v7.0, (Nougat)
Display: 5.0"
CPU: Quad-Core 1.2 GHz
Camera: 8 MP, LED flash
Memory: 64 GB ROM, 4 GB RAM

QMobile S8

OS: Android OS v7.0 (Nougat)
Display: 5.0"
CPU: Quad-core, 1.3 GHz
Camera: 8 MP, LED flash
Memory: 16 GB ROM, 2 GB RAM

TOP MUST HAVE APPLICATIONS & GAMES FOR YOUR SMARTPHONE

By Maryam Arshad

Famous Art - Paintings HD
Rating : 4.3   Price: Free

Discover the world of paintings. Enjoy and learn details about almost 50 High Definition famous paintings of masters from around the world. In the „Famous Paintings HD" you will find work of DaVinci, VanGogh, Klimt, Bosch, Degas, Michel Angelo and of many more. While browsing through the art gallery you will hear lector describing each of the masterpieces. You can set each of the paintings as the wallpaper on your smartphone and tablet, to enjoy it even more. All with the HD quality!

Teleport - photo editor
Rating : 4.4   Price: Free

Change the color of your hair and skin! Switch the background! Teleport anywhere! Edit your photos automatically with Teleport - This app is powered by latest artificial intelligence technologies. Recolor your skin! Apply a natural looking sunburn effect or try out magic skin colors like green, yellow, blue and many more!

Ludo STAR : 2017 (New)
Rating : 4.6   Price: Free

Ludo STAR is an interesting game in which you can play with your friends. The game includes four players red, blue, green, yellow. Are your friends king of Ludo? Bing them all! Indian emperors used to play this game once!

Govt Jobs Pakistan
Rating : 4.2   Price: Free

You can find newspapers jobs for Government sector on this app. Every Day! At the same time it gives you filters and options to easily find your desired job very quickly. This is the most popular Govt Jobs app in Pakistan. Now you can find your desired jobs very quickly. Also you can search jobs directly from various important Govt Departments across Pakistan.

Pakistani Software Developeer Application

General Knowledge - World GK
Rating : 4.1   Price: Free

World General knowledge - World GK quiz app contains the MCQ's (Multiple choice questions) which will helps students & professionals to prepare for competitive exams, refreshing the concepts & boosting confidence. Current Affairs in various categories include world , technology , science and many more categories with regularly updates . Over 15000 GK Questions and quiz added in various categories added and many more coming with future updates .

Logo Quiz World
Rating : 4.5   Price: Free

Guess the names of (thousands) of logos from popular companies all over the world. Logo Quiz World has over 10500 worldwide brands to solve in 21 countries. Users can choose to solve top global brands or solve logos by countries. Countries include: USA, Canada, France, Germany, Italy, UK, Japan and many more...

Universal TV Remote Control
Rating : 3.5   Price: Free

Smart Universal Remote Control TV functionalities are currently available for LG Smart TV, Roku, Google Chromecast, Android TV and Apple TV. The only setting you have to make is to connect the mobile device and Smart TV on the same WiFi Network and you are ready to go. Now you can Cast the media files stored on your mobile phone to your Smart TV screen.

Zombie Shoot Virtual Reality
Rating : 3.2   Price: Free

An interesting and fun 3D game based on Virtual Reality for every age of people for free. Basically it is a shooting game where you have to shoot the zombies coming in your path to achieve the objectives of a stage. The best part of this game is that it is based on Virtual Reality VR.

Offline World Map
Rating : 4.2   Price: Free

World Map is free app. Going somewhere? Go with Maps! It displays a map of the world, Near By Places, Current Location, Rout between two places and 200+ Country's Detail and Much more about world. World map showing names of all countries with political boundaries and When you click on country It's display information with map(Normal & Satellite) of that particular country.

NTS Test Preparation | Jobs | Results
Rating : 3.0   Price: Free

Objective of this app is to help students get maximum information and guidelines. For full and updated details, visit official National Testing Service website. Best feature of this app is online NTS Test Preparation for all exams. Also you get updates and can buy all NTS Preparation Books Online along with the free NTS preparation option. This app is to provide the latest information and most up to date questions and answers.

Gallery Lock (Hide pictures)
Rating : 4.4   Price: Free

"Gallery Lock" hide pictures and videos , it is an app that is absolutely needed for protection of personal privacy. The product is one of the most popular apps in the world and is one of the top 10 apps downloaded on Google Play.

YouTube Kids
Rating : 4.5   Price: Free

The official YouTube Kids app is designed for curious little minds. This is a delightfully simple (and free!) app, where kids can discover videos, channels and playlists they love. We work hard to offer a safer YouTube experience, but no automated system is perfect. If you ever find a video you're concerned about, you can flag it. This helps make YouTube Kids better for everyone.

bestsongs.pk
Rating : 4.2   Price: Free

bestsongs.pk Music App provides free & unlimited access to Bollywood, Hindi, Pakistani and Pakistani Regional music content in the territory of Pakistan only. Watch, Listen and Download Urdu, Hindi, Punjabi, Sindhi, Saraiki, Pastho and Balochi songs from bestsongs. pk what user have to do is just log in to bestsongs.pk and start enjoying audio/video streaming for free.

PTA Introduces New Regulation And System to Protect Consumers from illegal Devices

Since the advent of 3G and 4G telecom services, there is a rapid influx of smart devices into Pakistan, over the past two years. However, the high import duty and taxes on handsets have caused a sharp rise in the smuggling of handsets, through illegal channels, leading to major revenue losses for the government exchequer.

Millions of Illegal and stolen mobile handsets, tablets, SIM based routers, Laptops and replica devices with invalid International Mobile Equipment Identity (IMEI) are now being sold and used in the country. The misuse of these unregistered handsets, for criminal and fraudulent activities, cannot be traced or monitored through mobile networks, hence posing serious threats to public safety.

Realizing this issue, the Pakistan Telecommunication Authority (PTA) has announced a regulatory framework and is now launching a comprehensive system to discourage smuggling and theft of mobile-devices, by blocking these illegal and counterfeit handsets operating in the country. The new system will be called 'Device Identification, Registration and Blocking System' (DIRBS), which will use the distinct IMEI number of each device, along with other parameters, to help in identifying and regulating such devices. The IMEI of illegal devices will be reported to the cellular companies and other concerned bodies.

The telecom regulator of Pakistan will operate the DIRBS as a 'Centralized Equipment Identity Register' to discourage the use of mobile devices that are smuggled through the Grey channel. This system will generate different lists, categorizing the legal status and authenticity of all handsets. Each distinct IMEI allocated to a device will be paired with a specific 'International Mobile Subscriber Indentity' (IMSI) belonging to its registered mobile subscription, who must be officially connected through a particular cellular network.

According to PTA's new regulation, companies or individuals importing/carrying devices for personal use will be required to register their devices and get a certification of compliance to technical standards. Any device with an IMEI that does not meet the legal criteria will be blacklisted. Hence, it will not be able to register or operate through any cellular network in the country.

The innovative solution will enhance government revenue and benefit the entire mobile ecosystem, by ensuring that devices are only imported through legal channels. Besides creating lists of illegal, smuggled and stolen phones, PTA is also committed to shut down all mobile shops that offer the flashing/changing of IMEIs on devices. Similar monitoring systems are already implemented in numerous other countries, where positive results are being achieved to protect the consumers' interests.