PHONE WORLD

Pakistan Telecom:
Acquisition
Merger
& Divorce

QoS 3G/4G Network
Data Benchmarking Report

Where super powers earn billions in decades
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Double! China
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Adnan Khan
Managing Editor

Dear Readers,

Another great year has finally came to an end. The ICT sector of Pakistan witnessed many changes some of which were good while others brought discontent to the stakeholders. 3G/4G subscribers reached 18 million mark in September 2015, new OEMs like Apple, Xioami, Lenovo, Infinix, Rivo and iNew entered Pakistani mobile market, startup culture and m-services including m-health, e-education, m-government, m-commerce became budding new trends. At the same time, heavy taxation, undecided Telecom Policy and Cybercrime Bill, price war, SIM verification and five SIM limitation stirred as major bone of content between the government and major stakeholders.

Just like Imran Khan and Reham Khan's marriage and then consequent divorce, mergers and divorces in industry were also the major talk of the town this year. Warid Telecom will finally be acquired by Mobilink, Telenor Group parted ways with Vimplecom after much disagreements and lastly, Ufone and PTCL have also decided to re-organize their management and merge their respective business operations. So upcoming year is surely going to be crucial not only for these operators but also for the overall industry. Due to the vital importance of these likely changes our team has tried to comprehend possible outcomes of each of these venture and their impact on the industry.

Our engineering team has once again conducted Quality of Service benchmarking of each 3G and 4G operator to evaluate the so far performance of their respective networks. The main objective of network audit is to get an impression of how the network is performing with respect to network service KPI's. Our special feature article gives a clear picture of each operator's standing after the 14 months of 3G/4G network rollout.

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

Enjoy Reading and a very Happy New Year to all….!!!!

Thank you,

Adnan Khan
Managing Editor

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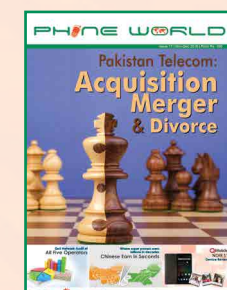
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By Saima Ibrahim

Acquisition Merger & Divorce

"The Good, The bad and The Ugly" was an epic western movie and the wording become so popular that everyone started to fit this to their own situation. Seeing changes on the telecom horizon we couldn't resist the temptation on how it fits the telco industry where some good and some ugly events took place this year. Each year is marked with essential changes in all industries and some new companies are born while some gave out their last breath. At the end of the year we will witness a new paradigm shift in the Telecom and specifically in the mobile sector of Pakistan. Some of the fundamental changes on the visible horizon include a merger, an acquisition and a divorce on the corporate level that will change the entire scenario in the industry. The Government has also announced plan to auction the remaining spectrum from the last auction in first half of the coming year. Therefore, due to the vital importance of these likely changes we have tried to comprehend possible outcomes of each of these ventures and their impact on the entire industry.

The Acquisition: Mobilink to Acquire Warid Telecom

While, both the companies have yet to formally announce the details but the major news of this year is that Vimpelcom the parent company of Mobilink, and the Abu Dhabi Group, a major sponsor of Warid Telecom, have agreed over in-market consolidation in the cellular sector. According to VimpelCom, the license of 4G/LTE services made Warid an attractive case for the company.

At the end of the year we will witness a new paradigm shift in the Telecom and specifically in the mobile sector of Pakistan. Some of the fundamental changes on the visible horizon include an acquisition, a merger and a divorce on the corporate level that will change the entire scenario in the industry

If these expectations turn true then there are chances that Mobilink, being a market leader in terms of subscription, is likely to shift significant load of its subscribers on Warid's network but more importantly it may be looking more at utilizing it's loyal postpaid customer base, network infrastructure and especially spectrum for 4G/LTE. This move could prove as a huge turnaround for both operators and will change the very paradigms of telecom sector.

The possibility of common brand is quite minimal at this stage however, even in the medium to long term we may see merger into a common brand purely because it is heavy undertaking both in terms of money and efforts to continue with two brands. Mobilink rebranded itself a couple of years back before the 3G/4G auction and invested heavily on its new outlook, so we can assume if there is a long term plan to merge the brand it could be under a single Mobilink banner. There exist a very strong argument that Warid having a very loyal postpaid subscriber base maybe a candidate of all the postpaid subscribers of both operators under that banner.

Mobilink is no doubt the market leader but with a very thin margin at present as the combine subscriber base for both will make it 38% of the total subscriber base. While, a lot of regulatory issues are tied with being a market leader it also has the benefit to offer economies of scale in tariff advantage, operational efficiency improvement of quality of service offering tied by offering additional services such as value added services, m-commerce etc. This could infact be a welcome change for the subscribers of both operators.

As it is evident from the graphs, presently Telenor and Mobilink are competing against each other

Current market postion of all operators
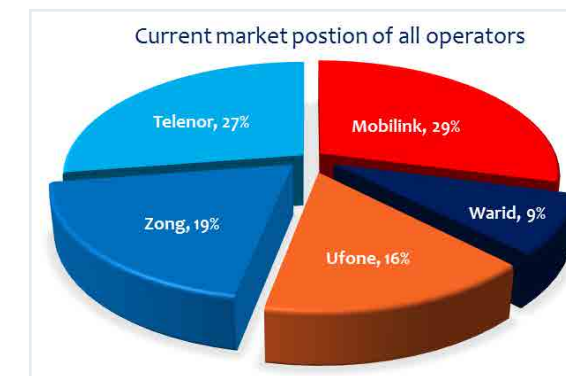
with a very thin margin in terms of market share but once Mobilink acquires Warid, its market share will increase significantly. With increased spectrum at hand, Mobilink's quality of service will also improve,

enabling it to attract more customers. It will also position Mobilink as the strongest player in the market.

Market position after mobilink & warid merger
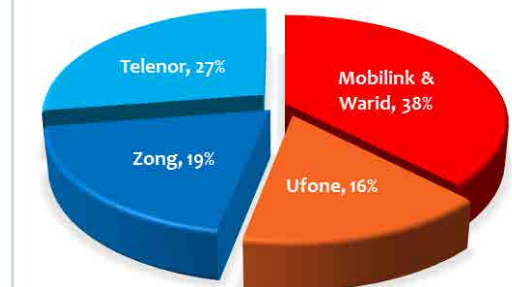
On the marketing front, Warid initially used aggressive marketing strategies to capture the market and gave tough competition to all players including Telenor that entered the market during the same time. But later on, Warid's marketing team lost its spirits as the promotional campaigns introduced by the operator became less attractive.

Mobilink, being a market leader in terms of subscription, is likely to shift significant load of its subscribers on Warid's network but more importantly it may be looking more at utilizing it's loyal postpaid customer base, network infrastructure and especially spectrum for 4G/LTE

The packages and services that Warid introduced in the last few years have not been able to make any headway despite a 4G/LTE play mainly due to weak marketing and promotion. It is expected that with the merger and new flow of resources coming from the big brother Mobilink, things may change and Warid once again emerge as a strong competitor especially in the postpaid segment while maintaining its position with very focused and loyal customer base. The most important aspect besides customer acquisition is the spectrum availability. In the short term without much hassle, the added proposition for this acquisition is that both companies can use their network for roaming mode to accommodate their users. Warid can allow its current customers to use Mobilink's 2100 MHz band and can offer 3G services for its current customer base.

While customers of Mobilink can use Warid's 1800 MHz band for LTE services. In this case more spectrum has to be allocated to 1800 MHz band so that it can accommodate more users shifting to LTE network i.e from 3.8 MHz to 5 MHz spectrum.

900 MHz band for both operators will remain same on which 2G services are being offered. By adopting this strategy the users of both the network will enjoy different flavors of technology.

In the long term we can clearly see that Mobilink-Warid acquisition will take the lead in terms of spectrum allocation. There can be many possibilities and prospects regarding the utilization of the merged spectrum. As of now Warid has 4.8 MHz spectrum in 900 MHz band and 8.8 MHz in 1800 MHz band, while there is no spectrum available to Warid in 2100 MHz Band.

Warid can allow its current customers to use Mobilink's 2100 MHz band to offer 3G services for its current customer base. While customers of Mobilink can use Warid's 1800 MHz band for LTE services. In this case more spectrum has to be allocated to 1800 MHz band so that it can accommodate more users shifting to LTE network i.e from 3.8 MHz to 5 MHz spectrum

Warid is using 900 MHz band for 2G related services, whereas a part of 1800 MHz band mostly 3.8 Mhz is used for 4G services. On the other hand, Mobilink has 7.6 MHz in 900 MHz band (2G), 6 MHz in 1800 MHz band (2G) and 10 MHz in 2100 MHz band (3G) spectrum. Both 900 MHz and 1800 MHz band spectrum are used for 2G services by Mobilink while 2100 MHz band is being used for 3G services. It is important to note that since all mobile licenses are technology neutral and anyone can use allocated spectrum for any type of service subject to regulatory approval but it is mostly dictated by the overall technology and commercial eco-system.

Operators	GSM (2G) 900 MHz Band	2G/LTE 1800 MHz Band	NGMSA (3G) 2100 MHz Band
Warid	4.8	8.8	--------
Mobilink	7.6	6	10
Spectrum after acquisition	12.4	14.8	10

The combined Mobilink-Warid network will have 12.4 MHz spectrum in 900 MHz band, 14.8 MHz spectrum in 1800 MHz band and 10 MHz spectrum in 2100 MHz band. One of the best possibility is that Mobilink can use its 10 MHz spectrum from 14.8 MHz in 1800 MHz band for LTE data services while remaining 4.8 MHz can still be used for 2G services. This will not only improve data speeds but will also place Mobilink

in the list of operators that provide LTE services. The chart below shows the downlink and uplink speeds that can be achieved using Multiple-Input and Multiple-Output (MIMO) technology in LTE.

Downlink			Uplink
Bandwidth	4x4	2x2	1x2
5 MHz	72 Mbps	37 Mbps	18 Mbps
10 MHz	147 Mbps	73 Mbps	36 Mbps
20 MHz	300 Mbps	150 Mbps	75 Mbps

By combining the 2G spectrums of both Warid and Mobilink, they will have 12.4 MHz spectrum in 900 MHz band which can be mainly used for existing 2G services until probably such time that it is feasible to deploy VoLTE (Voice over LTE) in future. Since a large part of 1800 MHz band can be used for the LTE services, the voice traffic can be shifted to leftover spectrum in 1800 MHz and 900MHz band. This strategy can accommodate more users on the network while maintaining good quality of service for both voice and data and will reduce congestions. As of now both 900 MHz and 1800MHz band of Mobilink is used for 2G services.

2100 MHz spectrum is considered to be a harmonized band for 3G Technology (although it is mostly being used for LTE now) and is used for providing 3G services by Mobilink that will remain the prime choice for the merged company for proving 3G services specially as Warid does not hold any spectrum in 2100 MHz.

Although, the atmosphere for remaining competitors will become tougher and they will not only have to devise aggressive strategies but will also have to come up with stronger plan for the future spectrum auction to retain their market share. The possibility of various combination of spectrum use puts Mobilink in a more comfortable zone viz-a-viz the upcoming spectrum auction even in the absence of acquisition of additional spectrum from PTA, as it may be able to survive by having network and services available for all types of services i.e. 2G, 3G and 4G.

In terms of Infrastructure use, Warid has used Ericsson from day one, whereas Mobilink uses Huawei and ZTE. Ericsson being a European brand provides very reliable and state of the art infrastructure services which enables operators to offer enhanced quality mobile services, a major reason for Warid exceptional quality of service and loyal customer base. Huawei has lately improved their services but still they have a long way to go before they could touch the quality benchmark of Ericsson. The strategy again could be shifting high value postpaid customer to the Ericsson

network whereas the rest of them on the Huawei/ZTE network. It is certainly easier said than done and they would need to do lot of network planning and optimization before they could optimally use the network in a much harmonized fashion.

Mobilink has quite recently made some major changes in its own management by getting rid of fat in middle and upper tiers of hierarchy. Once the acquisition is done there is a possibility that Mobilink being the buying party will call the shots and the possibility of redundancy and eventual layoff may happen in Warid work force.

The Merger: PTCL & Ufone to Merge Management & Operations

Another interesting likely corporate deal to conclude is the merger of Pakistan Telecommunication Company Limited (PTCL), the leading landline and fixed Wireless Telecommunication Company in Pakistan and Ufone (100% owned subsidiary of PTCL) as they have finally decided to merge their management and operations. This merger or integration as they call it is expected to happen by the end of this year.

Ufone was the 4th mobile operator to enter Pakistan telecom market and for a long time it remained the 2nd largest mobile network of Pakistan. However, its performance has deteriorated for last couple of years and while it slipped to 4th position in terms of customer base

While, everyone knows that PTCL is a fixed-line whereas Ufone is wireless operator but once both operators merge their business, there is a likelihood to operate under a single banner. Brand name is a very important element of an organization's goodwill, so if both companies come under a single brand name, it may help both companies in many ways. Etisalat, the shareholder partner that has management control over the privatized PTCL & its subsidiaries operates under the same principle in other countries, where they have operations. The brand equity of Ufone however is much better than PTCL due to historic reasons and it may help if they come under the Ufone banner rather PTCL.

The move for merger probably is prompted by the downward trend for the companies. Ufone was the 4th mobile operator to enter Pakistan telecom market and for a long time it remained the 2nd largest mobile network of Pakistan and the reason why Etisalat probably ventured to buy PTCL in the first place. However, its performance has deteriorated for last

couple of years and while it slipped to 4th position in terms of customer base, it has also quite recently for the first time announced a loss of almost Rs. 5 billion just in 9 Months which is probably more worrying for the shareholders.

This not only effects Ufone but also the profits of PTCL Group in general whose nine months profit ending September 2015, were Rs. 7.9 billion down from Rs. 8.7 billion in same period last year. Once the management and operations of both companies are merged and consolidated strategies are built for both business, it is likely to arrest the downward trend in profit margin hence improving the quality of service and financial performance of both companies. But even if this is not the case, merger of management and operations will surely bring some major changes in the systems and workings of both players.

The move may not have any drastic market share changes for the mobile industry as is the case with Mobilink and Warid but there would be definitely more aggressive bundling of services. This was already being done at a very low level but we may see this phenomenon being accelerated or even being marketed under a single banner as we indicated earlier. In order to better grab the attention of customers both can start combined promotion providing value added services. PTCL and Ufone together, will have a wide range of product spectrum from landline to mobile through which both can use to offer various services. This is an advantage that no other operator has in Pakistan. Ufone is already offering special packages and call rates on PTCL numbers, after this merger they can introduce similar kinds of offers to attract more users on their networks. Combined used of the distribution channels may also bring dividends.

Another major area besides financials consideration will be the spectrum synergy, consolidation or the use of Spectrum. Ufone was not able to secure any meaningful spectrum in the last spectrum auction and its Data services have been suffering from quality of service standpoint as compared with that being offered by other operators. This gap will continue to increase as more subscribers are added or more Ufone customers shift from voice to Data resulting in further degradation of quality of service consequently impacting customer retention and expansion-bottom line being negative effect on financial indicators.

The merged operation could enable Ufone to use PTCL's existing spectrum to introduce LTE in market. Their certainly will be a debate around the use of the 1900 Mhz spectrum for mobile services from a regulatory standpoint. Primarily, the 1900 Mhz

spectrum also known as the PCS band was allocated for WLL services and the mobile industry had in the past taken a very tough position on the use of the spectrum for mobile that eventually saw the demise of almost all WLL operators except PTCL. It is a very interesting proposition as now a mobile company maybe looking at the spectrum to be used under the mobile license. Technically, the PCS band for LTE is used mostly in USA and there maybe some issue with device availability in the lower or affordable range that supports this spectrum.

Anyhow, setting aside the regulatory debate the merged company shall definitely have a considerable spectrum to strategize there technology preference. Most importantly they will have 15 Mhz of spectrum in 1900 Mhz for Data services to compete in the market.

	Ufone			PTCL		
	FDMA/TDMA	FDMA/TDMA	WCDMA	CDMA 1x/EvDO	CDMA 1x/EvDO	WiMAX
	900MHz	1800MHz	2100MHz	450MHz	1900MHz	3.5GHz
	GSM	GSM	UMTS	CDMA	CDMA	OFDMA
Total Spectrum	7.6 MHz	6 MHz	5 MHz	5 MHz (approx.) certain regions	15 MHz	10 MHz

Originally, PTCL only had 5 Mhz but they very wisely acquired DVCOM, a Wireless Local Loop company that has been inactive for past many years and also had agreement with WorldCall for using their Spectrum/Infrastructure accumulating a good amount of spectrum that is the life line for any wireless company.

PTCL-Ufone use of the combined spectrum of 1900 Mhz could be quite useful but that does not take away the importance of acquiring the more harmonized bands for 3G/4G that Etisalat will have to look more seriously in the upcoming auction of 850 Mhz and 1800 Mhz band being planned for early next year

There also were discussion with other WLL operators on buyout. The PTCL move besides for its own good may help in making better use of the spectrum that remained under-utilized. While, PTCL-Ufone use of the combined spectrum of 1900 Mhz could be quite useful but that does not take away the importance of acquiring the more harmonized bands for 3G/4G that Etisalat will have to look more seriously in the upcoming auction of 850 Mhz and 1800 Mhz band being planned for early next year. Ufone is presently using only 5 MHz for 3G services so in order to better utilize the spectrum at hand, Ufone will have to take

some drastic steps to level up in the telecom market for not only attracting maximum number of users but also arrest the declining retention rate.

Telenor in which 54% shares are held by Norwegian government has long been in open conflict with Vimplecom's other major shareholder over control of company and its strategy, which became so severe that diplomatic issues between Osla and Moscow roused

The merged company could make use of their infrastructure and may have to work hard in planning the use of each other infrastructure and most important would be to ensure that there exist low cost devices that could support 1900 MHz spectrum.

The devices in Pakistan market especially on Ufone may not be 1900 Mhz supported but then the argument may also hold good that all the high-end devices do support 1900 Mhz spectrum and the initial roamers or use of the LTE network would be the high end customers.

Ufone is very well-known for its creative advertisements, which is the hall mark of their marketing strategy. The company has won numerous awards over the years for its innovative and ingenious TVCs whereas PTCL's advertisements are only below average. When this merger is successfully completed, PTCL marketing team can take benefit from Ufone's creative team to improve its marketing and advertisement techniques.

Now that Telenor Group has separated itself from Vimplecom, we can expect major changes in its business strategy. It has already announced changes in its management team that it said would better represent group's international business

After the merger of management of both companies, while one expect that best of both companies to work in harmony but we often see situations where friction happen from new roles. Therefore, the core of

this merger will be to work hard for organizational harmonization and make strategies that are beneficial to both organizations. It is also speculated that after this merger employees of one organization will be able to switch to other which can be considered a good move as both companies will be able to make use of wider talent pool.

Divorce: Telenor Group Parts Ways with Vimplecom

IK and Reham khan wedding and their eventful divorce was the talk of the town this entire year on the political and social front. Similar to that was the marriage and finally divorce of the world's biggest telco giants that had their roots numerous countries including Pakistan. Telenor Group joined Vimplecom in 2009 and is the second largest shareholder with 33% economic rights and 43% voting rights. Telenor in which 54% shares are held by Norwegian government has long been in open conflict with Vimplecom's other major shareholder, Russian billionaire Mikhail Fridman, over control of company and its strategy, which became so severe that diplomatic issues between Osla and Moscow roused from it. Vimplecom is also under investigation by authorities in USA and Netherlands over the bribe allegations it paid to access the Uzbek market. Due to these allegations Telenor's Group Chief Executive also stepped down from Vimplcom's board. After all this, Telenor Group finally decided to put its entire 33% stake in Vimplecom for sale, valued at some $2.4 billion.

Telenor Group's biggest concern has been that its minority position in strategy development and decision making process. Now that Telenor Group has separated itself from Vimplecom, we can expect major changes in its business strategy. It has already announced changes in its management team that it said would better represent group's international business. According to the new management setup, all 13 markets in which company operates will be represented at management board level. This will enable all business subsidiaries to facilitate strategy development for each division and will also ensure faster execution of overall group strategies. This breakup of partnership has created an interesting situation in Pakistani market where subsidiaries of both groups are working i-e Mobilink and Telenor. It was widely speculated that Telenor Pakistan took a back seat on the Pakistan spectrum acquisition last year as they were planning to merge networks in Pakistan. If that had any iota of truth then Telenor Pakistan should clearly be in trouble specially going ahead. Also, now that both groups have parted ways, we can expect major changes in strategies of both

operators in Pakistan. Telenor Group is already quite aggressive in its approach and now it shall focus all its attention to its core business and will try to penetrate the market with even greater force in all markets including Pakistan. The major strategy after the break-up would be to acquire additional spectrum so that it can pursue its growth strategies that are focused on Data Services. With Warid now being acquired by Mobilink it leaves not much options for Telenor but to take the Spectrum being auction by Government otherwise it would seriously jeopardize its market position and growth strategies.

The major strategy for Telenor after the break-up would be to acquire additional spectrum so that it can pursue its growth strategies that are focused on Data Services in Pakistan

Vimplecom on the other hand is facing heavy losses with first-quarter sales plunged 30 percent. To overcome its net debt by $2.4 billion it has sold majority of stakes in Algerian Jjezzy unit and disposed off Italian Wireless towers. However, its Pakistan strategy is on expansion as we discussed earlier that it has already negotiated acquisition with Abu Dhabi Group for Warid Telecom. Meaning there by, Vimplecom considers Pakistan as its one of the major market and sees great potential for the future. So all in all both groups are quite serious about Pakistan as it is one of the fastest growing mobile market in the region. While we can make projections but only time will tell that which group will emerged as more successful competitor after the divorce especially in Pakistan.

2015 has proved to be the year of acquisition, mergers and divorce and will lead to a totally changed telecom environment making it tougher and more competitive

In order to catch up with the developed world, aggressive business and technology development strategies are needed to be adopted by the telecom sector of Pakistan as it is the backbone of the economy. 2015 has proved to be the year of acquisition, mergers and divorce and will lead to a totally changed telecom environment making it tougher and more competitive. With increased competition, there will be more advantages for consumers as they will be able to use advanced and affordable technology. These corporate changes will surely increase cellular penetration in the country and eventually bring Pakistan among the highly connected mobile broadband regions in the world.

By M.Bilal Abbasi

QoS 3G/4G Network
Data Benchmarking Report

QoS Benchmarking is a very important tool to evaluate the performance of a network while comparing it with the set standards. This enables network operators to improve network quality and maintain a balance between capacity, coverage and quality. Network QoS parameters are universally accepted Key Performance Indicators (KPI) that serve as the guiding principles for professionals to analyse and keep network services within specified threshold for the desired QoS criteria. Previously, our engineering team conducted two QoS audits that were carried out to study and compare the network performance of different mobile operators. The QoS benchmarking was performed using standard network audit tools and commercial devices in three Phases.

Log Collection → Post Processing → Analysis and Comparsion
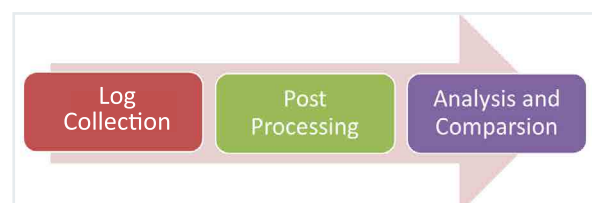
Our QoS audit provides a brief and data specific assessment of the current networks with respect to the customer experiences while using the 3G & 4G mobile networks in the twin city. Drive test provides an actual and real world representation of the environment under a particular set of network and environmental conditions. Apart from this, our QoS audit is also important as most operators have recently gone through Biometric SIM Verification process as per the National Action Plan (NAP); which resulted in decrease in number of subscribers of each operator, giving an opportunity to each operator to improve its services in order to gain their lost subscribers base. Hence audit report compares improvements/degradations for each operator in terms of service maintenance and quality of service.

Periodic benchmarking or QoS audit is vital to evaluate operator's performance so that they can work on improvement in order to secure a competitive edge in the market

The results achieved through drive test can also be proven helpful for the configuration and the maintenance of mobile networks as it provides a demo of the network performance and also highlights pros and cons of a specific network operator.

Test Implementation

The project was initiated in the 2nd week of September 2015. Drive testing was conducted in the first phase of the project while post processing and analysis (2nd and 3rd phase) were done in the 3rd and 4th week of September. For 3G networks, drive tests were performed for two operators simultaneously. Data collection was done for Mobilink and Ufone in the afternoon and then the same route was taken for Zong and Telenor in the exact same hours the other day. For LTE networks, data collections were also done in the around 1:00 pm in the afternoon. All the tests were conducted in mobility and main locations of Islamabad and Rawalpindi were covered as these area have good coverage of all the networks.

It should be noted that the network assessment in others cities can be different. The main goal of the route and city selection was to make a more objective and technically accepted assessment to educate interested professionals, regulator, vendors and consumers about the current operational state of the 3G and 4G networks in Islamabad. The figure shows the drive route on which tests were conducted.

QoS Procedure, Technology & KPI's

QoS Procedure

Our audit is based upon quality of data related services only, the following settings/comment for interpretation of results;

● Samsung Galaxy S4 i9515 of CAT 14 3G and Cat-4 LTE were selected for testing.

● The devices were locked in the specified network mode preference.

● The tests were performed in mobility over a specific route.

● Our findings and conclusions may not be 100% consistent to the consumer experience.

QoS Key Performance Indicators

To analyse the QoS, the focus was on the following KPIs while collecting the logs over the drive route. These KPIs are specifically for Data throughputs.

3G Data Throughputs
● Downlink Throughput
● Uplink Throughput

4G Data Throughputs
● Downlink Throughput
● Uplink Throughput

3G & 4G Channel Quality
● Channel Quality Indicator (CQI)

Quality of Service (QOS) Benchmark

It should be noted that the level of reporting of service quality may differ or will not be exactly similar to consumers' experiences.

Network QoS parameters are universally accepted Key Performance Indicators (KPI) that serve as the guiding principles for professionals to analyse and keep network services within specified threshold for the desired QoS criteria

For details regarding 3G KPI's please refer to our previous white paper "Pakistan's first 3G Mobile Service benchmarking" on PHONE WORLD website. Since we have an entry of LTE services so it was of prime importance to shed light on some key parameters that assessed the data rates of downloads and uploads over the route.

LTE Service

*In cellular networks, when a mobile moves from cell to cell and performs cell selection/reselection and handover, it has to measure the signal strength/quality of the neighbour or adjacent cells. In LTE network, a User Equipment (UE) measures two parameters on reference signal:

RSSI - *Received Signal Strength Indicator:* The carrier's RSSI (Receive Strength Signal Indicator) measures the average total received power observed only in OFDM symbols containing reference symbols for antenna port 0 (i.e., OFDM symbol 0 & 4 in a

slot) in the measurement bandwidth over N resource blocks.

The total received power of the carrier's RSSI includes the power from co-channel serving & non-serving cells, adjacent channel interference, thermal noise, etc. Total measured over 12-subcarriers including RS from Serving Cell, Traffic in the Serving Cell

RSRP - Reference Signal Received Power: RSRP is a RSSI type of measurement.

It is the power of the LTE Reference Signals spread over the full bandwidth and narrowband.

A minimum of -20 dB SINR (of the S-Synch channel) is needed to detect RSRP/RSRQ

RSRQ - Reference Signal Received Quality: Quality considering also RSSI and the number of used Resource Blocks (N) RSRQ = (N * RSRP) / RSSI measured over the same bandwidth. RSRQ is a C/I type of measurement and it indicates the quality of the received reference signal. The RSRQ measurement provides additional information when RSRP is not sufficient to make a reliable handover or cell reselection decision.

In the procedure of handover, the LTE specification provides the flexibility of using RSRP, RSRQ, or both.

It must to be measured over the same bandwidth:

- Narrowband N = 62 Sub Carriers (6 Resource Blocks)
- Wideband N = full bandwidth (up to 100 Resource Blocks / 20 MHz)

*Source: http://www.laroccasolutions.com/training/78-rsrp-and-rsrq-measurement-in-lte

3G Data Performance

Downlink Throughput for 3G
For the analysis of the data download performance large files were downloaded via mobile internet connection. FTP server was used to download the files.

Mobilink showed the most consistent results during throughput testing with maximum throughput of 15.5 Mbps while the average throughput obtained was 3 Mbps

The rate at which the files were downloaded were recorded using different tools, the download throughput varied according to the changes in factors like RSCP, CQI, Ec/Io for 3G while RSRP, CQI and Ec/Io were used to determine 4G.

Mobilink
To get an idea on how the throughput varies across the drive route few detailed graphs have been constructed to better understand the behaviour of the obtained throughput.
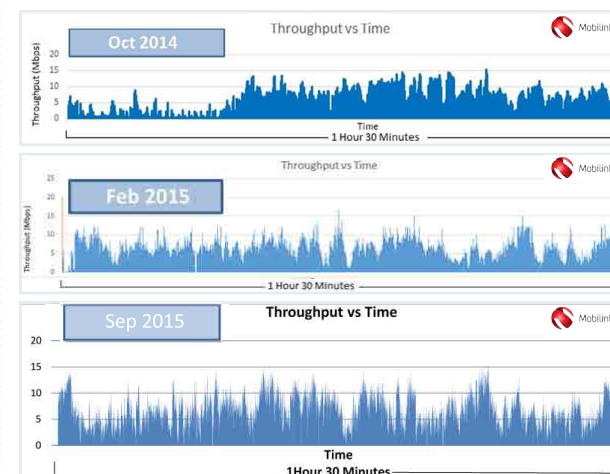

The graphs above shows the throughput attained by Mobilink network during each test. The first graph shows the throughput obtained on Oct 2014, the second graph shows the throughput obtained during the month of Feb 2015 while the third graph displays the throughput of each sample during the month of Sep 2015. It should be noted that during the first data benchmarking no data bundle was activated because Mobilink offered free trail to its users.

The maximum throughput value achieved during recent benchmarking was 15.5 Mbps (16.6 Mbps in Feb'15 & 16.6 Mbps in Oct'14) while the average throughput obtained was 3 Mbps (2 Mbps in Feb'15 & 3 Mbps in Oct'14)

Ufone
The maximum throughput achieved was 13.4 Mbps (15.1 Mbps in Feb'15 and 16.9Mbps in Oct'14) and average values achieved was 1.2Mbps (2.1 Mbps in Feb'15 and 6Mbps @ Oct'14).
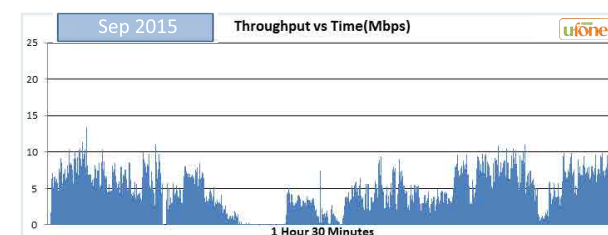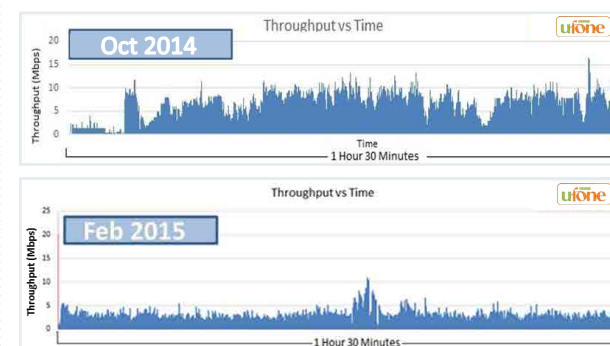

Telenor
The maximum throughput achieved by Telenor was 10.39Mbps (14.1 Mbps in Feb'15 and 18 Mbps in Oct'14) while the average value achieved was 1 Mbps (4 Mbps in Feb'15 and 5 Mbps in Oct'15). It can be seen from the graph that some of values achieved for throughput are low because of low RSCP which resulted in low CQI.
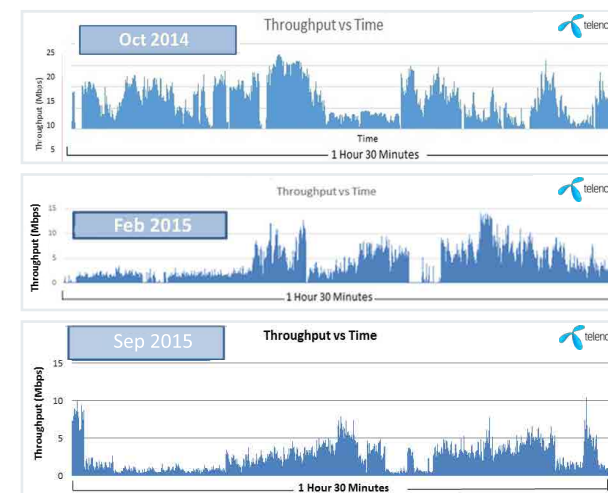
The rise and fall of the graph indicates the communication between UE and Node-B, and the assigning of the respective CQI to avoid disconnection and continuous throughputs.

Zong
Zong on the other hand showed some consistent behaviour.
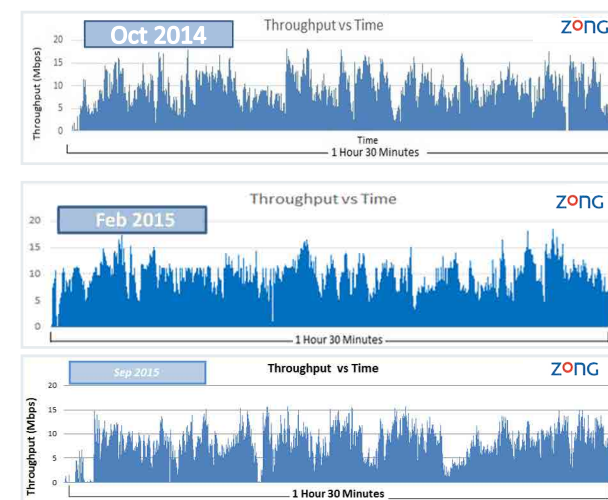
The maximum peak achieved was 15.7 Mbps (18.5 Mbps in Feb'15 and 21 Mbps in Oct'14). The average throughput achieved was 4 Mbps (5.2 Mbps in Feb'15

and 6 Mbps in Oct'14).

Average 3G DL Throughput Comparison
The graph shows a summarized comparison of the performance of each operators during three benchmarking test.

Zong and Mobilink took the lead in achieving higher average downlink throughput of 4 & 3 Mbps respectively

It was observed that while for all operators the throughput was of downward trend but the decrease has been nominal for Zong and Mobilink that took the lead in achieving higher average downlink throughput of 4 & 3 Mbps respectively. While, Zong's throughput decreased as compared to last QoS audit but the most significant degradation was witnessed in Telenor and Ufone's throughput results.
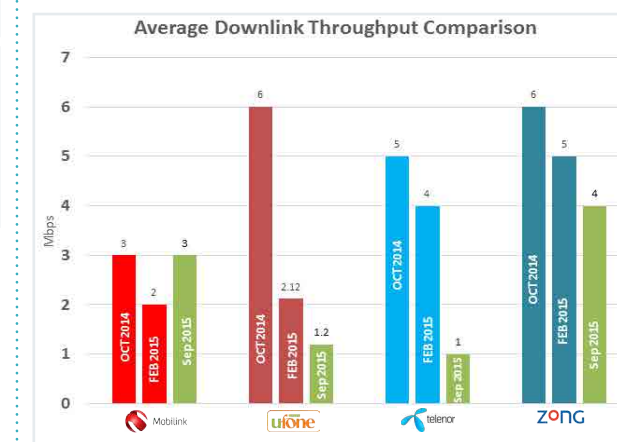
Telenor showed a drastic decrease and achieved around 1 Mbps from its previous value of 4 Mbps. Whereas, the throughputs for Ufone also tapered and degraded from 6 Mbps to 2.12 Mbps and finally in recent test it reached 1 Mbps.

Average 3G Uplink Throughput Comparison
For the calculation of uplink throughput, specific files were uploaded on the server and its uplink rate was measured. Since, it was in mobility, the CQI, RSCP and RSSI changed from location to location due to change in noise levels and possibly other available traffic at that time. So it had to force the Node-B and the UE to communicate and select the best possible modulation to provide best achievable throughputs. It is the inherit property of the network to schedule data rates among the users judicially.

For uplink throughput evaluation large file were uploaded

to the FTP server from UE throughout drive route. The graph compares the average upload throughputs that

Average Uplink Throughput Comparison
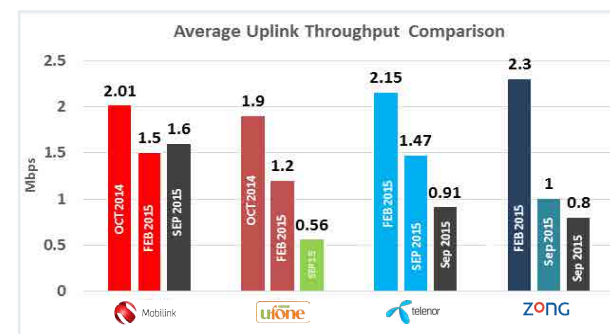
were achieved during the drive test.

From the graph it can be observed that while uplink throughput for all operators decreased, Mobilink took the lead in upload throughputs and achieved average throughput of 1.6 Mbps, while Telenor came 2nd with throughput value of 0.91 Mbps. Zong witnessed a decrease in throughput from 1 Mbps to 0.8 Mbps. Ufone on the other hand achieved an average throughput of 0.56 Mbps.

CQI Value Comparison for 3G

Channel Quality Indicator (CQI) is the value calculated collectively by the User Equipment and Node-B indicating how fast or slow the UE can communicate with the network.

In downlink and uplink, the CQI values ranges from 0 to 30, where 30 indicates the best quality channel and 0 to 1 indicates

CQI Availability between 18 and 30
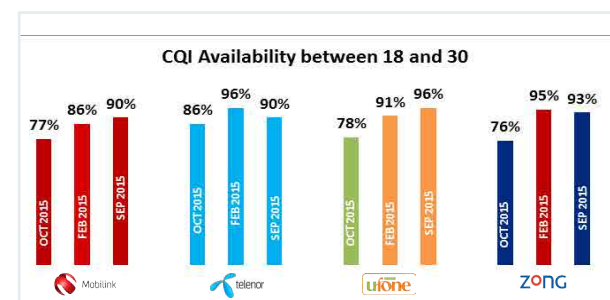
the worst quality channel. This parameter is used mainly for data services.

The above figure indicates the availability of good CQI of the entire route for each operator. The good CQI ranges from 18 to 30. The graph clearly indicates that the coverage has improved for each operator. For detailed distribution we have added break down of the CQI values for each operator. We have placed the graphs

in pairs since we performed the drive test over two operators at the same time with combination of Zong, Mobilink and Ufone, Telenor. For the first run we used Zong and Mobilink so we placed them together here as well.

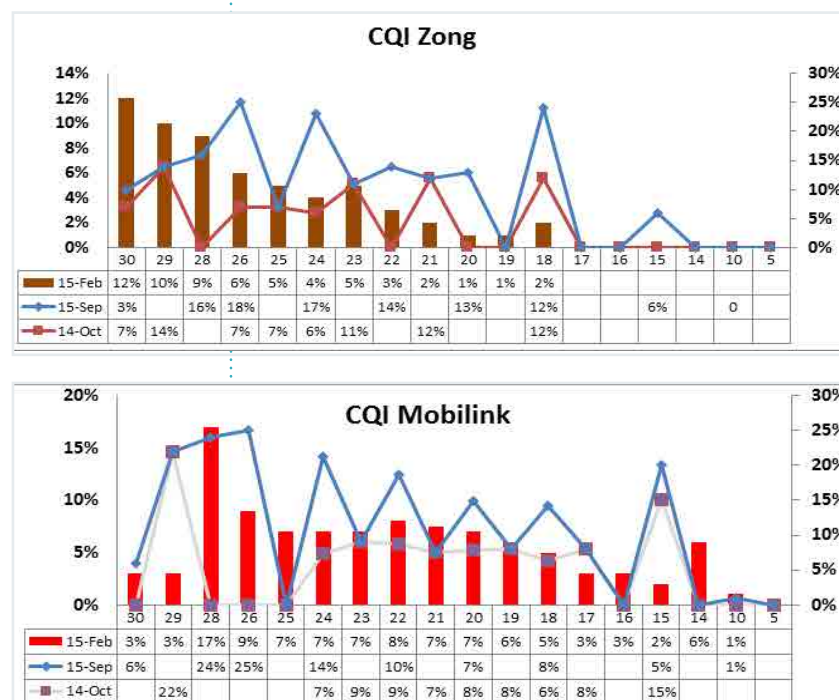**First RUN: Drive Testing Mobilink and Zong**
This is the detailed view of CQI over the entire drive route. The blue line indicates the level of CQI achieved in September 15.

It can be observed that overall for each operator average CQI lies in good region which is clearly supporting the good downloads for Zong as its Lower CQI has very low contribution to the network.

CQI Zong

	30	29	28	26	25	24	23	22	21	20	19	18	17	16	15	14	10	5
15-Feb	12%	10%	9%	6%	5%	4%	5%	3%	2%	1%	1%	2%						
15-Sep	3%		16%	18%		17%		14%		13%		12%			6%		0	
14-Oct	7%	14%		7%	7%	6%	11%		12%			12%						

CQI Mobilink

	30	29	28	26	25	24	23	22	21	20	19	18	17	16	15	14	10	5
15-Feb	3%	3%	17%	9%	7%	7%	7%	8%	7%	7%	6%	5%	3%	3%	2%	6%	1%	
15-Sep	6%		24%	25%		14%		10%		7%		8%			5%		1%	
14-Oct			22%		7%	9%	9%	7%	8%	8%	6%	8%			15%			

Similarly for Mobilink the CQI distribution is almost the same but comparatively have less contribution from good CQI values.

The uplink throughput for all operators decreased but Mobilink showed better results as compared to the rest with average throughput of 1.6 Mbps. Telenor came 2nd with average value of 0.91 Mbps. While Zong and Ufone achieved average uplink throughput of 0.8 Mbps and 0.56 Mbps respectively

Second Run: Drive Testing Telenor and Ufone
Ufone has shown major improvement in terms of CQI in comparison with last two tests. While Telenor graph is

CQI Ufone

	30	29	28	26	25	24	23	22	21	20	19	18	17	16	15	14	10	5
15-Feb	3%	3%	5%	9%	4%	7%	11%	11%	13%	12%	10%	3%	1%	2%	3%	1%		
15-Sep	8%		8%	12%		13%		16%		25%		14%			5%		0	
14-Oct	24%			7%	9%	7%	5%	6%	5%	15%					13%			

CQI Telenor

	30	29	28	26	25	24	23	22	21	20	19	18	17	16	15	14	10	5
15-Feb	6%		15%	18%		16%		17%		15%		9%			1%		3%	
Sep'15	2%		12%	18%		18%		16%		13%		11%			8%		1%	
14-Oct	10%	11%	37%			8%		7%		7%		6%		11%			1%	1%

almost same as its last performance which indicates that Telenor has not improved its coverage.

Average Throughput Comparison for 4G

4G data throughputs were performed on the same route.

Average 4G Downlink Throughput Comparison

The summarized Upload and Download throughputs are shown in the graph.

Average 4G Uplink Throughput Comparison

The values are less than 10 Mbps for both uploads and downloads. This can be due to number of active users in

that sector.

The acceptable throughputs with a loaded network during peak hours should be around 4Mbps<UL<7Mbps and 8Mbps<DL<9Mbps. So it is quite evident that uploads fall within the range but downloads do not. So it may be due to the shared resources.

By looking at the downlink throughput graphs, it can be clearly seen that PTCL leads in downlink throughput. During recent drive test of Sep 2015, PTCL achieved an average throughput of 4.9 Mbps, Zong attained an average throughput of 4 Mbps whereas Warid reached an average throughput of 2 Mbps.

Similarly for the uplink throughput, Zong has shown good values of uplink as compared to Warid and PTCL. The average throughput for Warid and Zong have dropped. Warid has achieved 3 Mbps for Uplink, Zong achieved 4 Mbps while PTCL achieved the lowest uplink throughput of 1Mbps.

Although drop in Warid and Zong's 4G uplink and downlink throughputs were witnessed but Zong successfully maintained its upper hand by putting together better values in both tests

Our experience of using the LTE was good, large files of around 200MB were processed more than twice during the testing. Considering the fact that these networks are still getting optimized for better performances; such values are acceptable form a common user's end. Another thing that should be taken into consideration is that the above readings are summarized from mobility. So it should not be compared to stationary values as those values are much higher in comparison to the mobility.
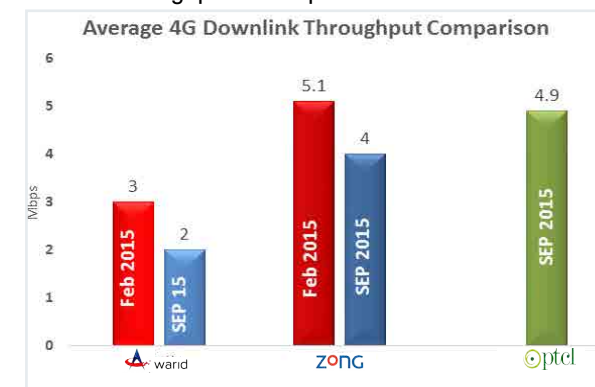
Other factors adding to the lower data rates are the number of hops from server to server and the resources available for the files to get transferred. For Example while using HTTP transfers, the site used for transfers may have issues or may have too
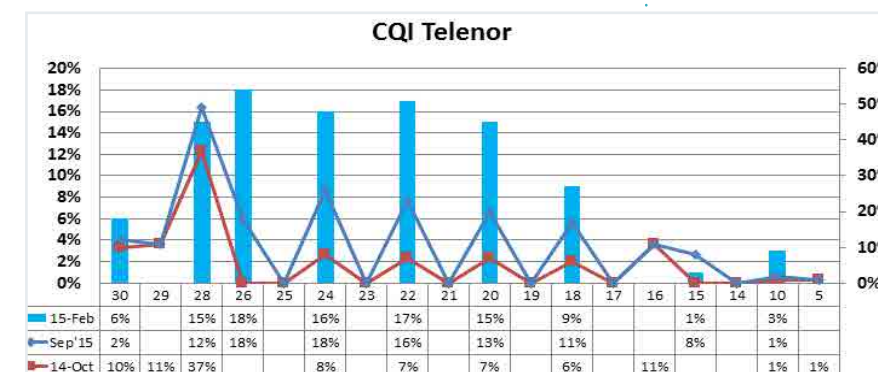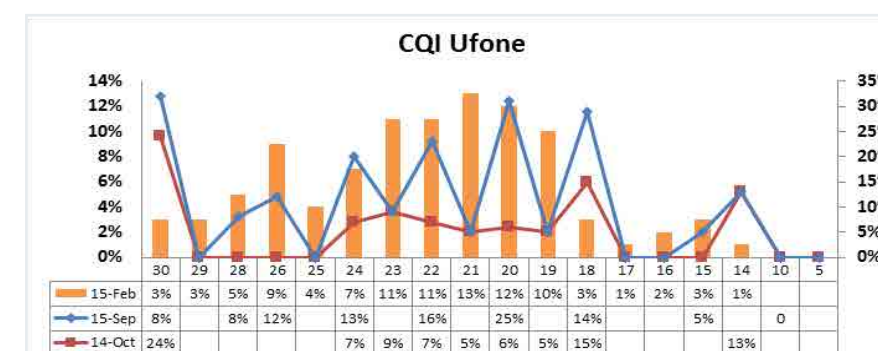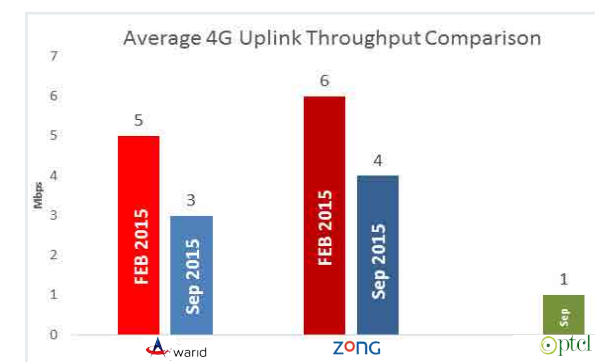
many users to support at the same time. So the site schedulers reduced the resources for each user to keep a common rate for each one of them. In short it is stated as the shared rate. Though we did not face such issues during mobility at Red Signals and short breaks, increase in Uploads and Downloads was seen which means that the rates increased during stationary.

Secondly we cannot ignore the fact that PTCL, Warid and Zong have a good customer base in Islamabad. The transferring data may be due to OTA updates, emails, web-surfing, streaming, active navigation etc. and most importantly internet hotspots. So both the operators, have to allocate the resources to enable equivalent rates for each user. In this case the network assigns rates in a way that people near or away from the Node have acceptable rates in that particular sector. So at this stage the RSRP, RSCQ and RSSI and the UE communication begins to decide the best Resource Block for that particular customer.

Conclusion

The purpose of this benchmarking was to compare the four 3G and three LTE operators in Pakistan. This benchmarking reports the comparison of five operators by using standard KPIs for the most popular services like data download and upload.

After completing this third benchmarking, we were able to have an overview of the improvements made by the five operators and also the locations where parameters can be further enhanced. The trends in the graph effectively depict that the results are somewhat similar to our last QoS with only minor changes in uploads and downloads. Mobilink stands at the same position i.e. second best and Zong is the best among all operators. For overall 4G LTE audit PTCL's performance was the best whereas, if we compare mobile operators alone, Zong took the lead again and achieved higher throughput in both Uplink and

Downlink as compared to its competitor, Warid, the other 4G/LTE operator.

Due to the increasing number of 3G/4G subscribers; the focus of the network operators has shifted towards coverage and maintenance than the data rate. The improved network by five operators has led many subscribers to join the advanced 3G and 4G services which ultimately increased the overall subscriber base. Even now the networks are still going through optimization and it will keep on improving further. The 3G and 4G networks are still improving along with a focus on coverage area. Also the auction of left over spectrum of 4G will contribute towards connected Pakistan.

> **Mobilink stands at the same position i.e. second best and Zong is the best among all operators. For overall 4G LTE audit PTCL's performance was the best whereas, if we compare mobile operators alone, Zong took the lead again and achieved higher throughput in both Uplink and Downlink as compared to its competitor, Warid, the other 4G/LTE operator**

The significance of QoS survey can never be taken for granted as it is the only impartial and transparent way to identify operator's services. It is beneficial for both operators and the end users to become aware about the performance of their respective network. So the objective is to keep a healthy environment between users and operators. Additionally Regulator plays a vital role to voice customers' confusion and complaints to ensure that operators meet the set standards of services.

By Saima Ibrahim

Smart Moves for Smarter Nation

In line with the world wide advancements in technology, Pakistan is also trying to improve its system with the help of latest technologies. All provincial Governments have started working on many projects of e-Governance & m-governance by making use of latest ICT developments. The provision of technological services will no doubt revolutionize the performance of Pakistani Government from many perspectives. This is why we have dedicated this special space in our magazine to highlight efforts that government has taken up to make Pakistan a smarter nation.

Driving License Issuance Management System (DLIMS)

Driving License Issuance Management System (DLIMS) Phase-II automates the processes for driving license issuance, renewal and upgrades.

These activities are carried out throughout the province of Punjab. This system provides quick processing service to public and up to date statistics to the authorities by using state of the art technology and equipment. The system redefines the issuance process of all types of licenses by using a centralized network.

Lahore Waste Management Company (LWMC)

PITB developed app and dashboard that provides Lahore Waste Management Company with pictorial evidence of cleanliness activities through geo-tagging. The updated KPIs provide staff attendance on a location, update on planned activities falling

under towns, zones and UCs, and helps LWMC measure the success of KPIs achieved. By this PITB introduced "a Smart Way" of cleaning system in Pakistan for the first time.

Installation of Interactive Whiteboards at 100 Govt. Schools by KPK Government

K-P Elementary and Secondary Education Department has installed interactive whiteboards in 100 different government higher secondary schools across the province. This step is taken to ensure new and improved teaching methods into classrooms of different schools of Khyber Pakhtunkhwa. Later on the project will be extended to other schools. The province has already made great achievements by bringing technology in education sector as the government has previously distributed 2525 tablets among school teachers.

RIVO PHANTOM PZ20

Take Control with the Speed of 4G LTE

By Memoona Neelam

The Phantom PZ20 is the latest device in Rivo's product portfolio after the successful release of Phantom PZ18. It is supported with MediaTek's MiraVision technology which enables you to enjoy DTV-grade display picture quality with high definition and the kind of fluid video playback you can expect from an HD television screen. Rivo's Phantom PZ20 also has a 'Daydream' mode that is essentially a screen saver you can set to start daydreaming either when the device is docked or charging or during both. Another feature the Phantom PZ20 has is 'Cast Screen' which allows the device to cast its app, videos, pictures etc. onto another screen. Phantom PZ20 also features 'Magic Gesture' which gives you an option to open any app by presetting a specific gesture on the screen. Phantom PZ20 also offers different gestures like 'Self-shot Gesture', 'Blind-shot Gesture', and gestures on incoming call etc. that make the device's usage easier for you. Rivo Phantom PZ20 has an Octa-core processor that is clocked at 1.7 GHz frequency. It's an extremely powerful processor and easily runs a number of heavy games and apps at the same time. Phantom PZ20 also has 2 GB of RAM that enables the device to switch between multiple apps simultaneously without affecting the high performance of the device. Phantom PZ20 runs on Android's new Lollipop 5.1 with 64-bits that help run the device very smoothly.

CONNECTIVITY:

Phantom PZ20 is 4G enabled and contains a modern built-in Wi-Fi module, Bluetooth, plus network technologies like 2G/3G, EDGE, HSPA+ and GPRS etc.

DISPLAY & DESIGN:

Phantom PZ20 has a stunning FHD 5 inch screen that comes with super AMOLED display. Better still is the fact that this dazzling and super high resolution screen is also protected by Corning's latest Gorilla Glass 4. In fact, it's not only the front but also the entire back of the PZ20 that's covered by a protective layer of the newest and strongest Gorilla Glass yet. There's a USB jack on the bottom, an audio jack on top, similarly, one side contains power key while the other side has SIM slots. It's an exceptionally stylish and slim device that is easy to hold.

MEMORY & BATTERY:

Phantom PZ20 has 16 GB of internal memory expandable up to a further 32 GB allowing you to store important data, files, videos, pictures etc. Phantom PZ20 has a capable 2400 mAh non-removable battery that easily keeps the device powered for one day with heavy usage and up to 4 days on standby mode.

If you want a device with the highest specifications and at the best possible price then you should go for the Phantom PZ20!

CAMERA:

Phantom PZ20 has dual cameras, the rear camera is 13 MP supported with auto-focus and LED flash light. The dimensions of the rear camera pictures are 4160 x 3120 pixels. Whereas an 8 MP front camera that is perfect for selfies shoots resolutions up to 2880 x 1728 pixels.

BENCHMARKING:

Benchmarking is an excellent method to evaluate the overall performance of mobile devices. Here are the results of our Rivo Phantom PZ20 benchmarking tests.
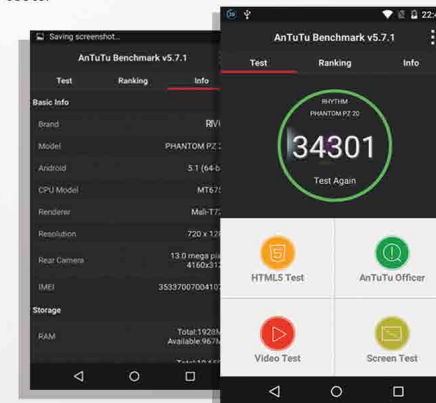
- **Antutu**
With Antutu benchmarking, the device scored a total of nearly 34 thousand which is much better than what we had expected from a device with an Octa-core processor that is tuned at 1.7 GHz and with a total of 8 cores. As the device has MediaTek chipset MTK MT6753 with Mali-T720 chip for graphics, the cumulative total for its performance is very good.
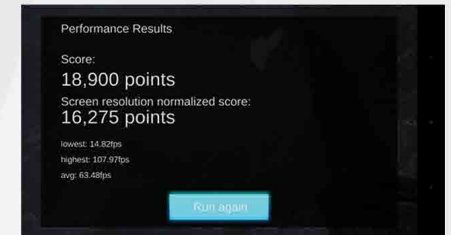- **Vellamo**
Vellamo gives us three results for the Phantom PZ20 in three aspects including the browser for checking the performance of graphics, styles, java scripts, fading in and out, animations in the browser mode and much more. Vellamo also evaluates the single core and multi-core performance of the device. The Phantom PZ20 is positioned above Samsung Galaxy Nexus by a solid margin.

GPU BENCHMARK:

To get the result for graphic performance, we have used GPU Benchmarking app that checks the overall results of a smartphones graphics while counting the power and total number of frames per second. Thus showcasing the accumulative performance of the GPU chip. The chipset being used for boosting the graphics is Mali-T720 which scored highly as compared with smartphones of similar price and specs. The total score was 18,900 and the screen resolution normalized score was 16,250 with the lower bound of almost 15 fps and the upper bound with almost 108fps and the average being 63.48 fps which is a big total for Rivo Phantom PZ20.

Performance Results
Score:
18,900 points
Screen resolution normalized score:
16,275 points
lowest: 14.82fps
highest: 107.97fps
avg: 63.48fps
Run again

FINAL VERDICT:

If you want a device with the highest specifications and at the best possible price then you should go for the Phantom PZ20! It comes with a 13 MP rear, 8 MP front camera, 1.7 GHz Octa-core processor, Android Lollipop 5.1 and 5 inch display that runs on Mali GPU, making it a fast and prolific device. The latest MiraVision technology further secures its position as a clear winner!

Screen is protected by Corning's latest Gorilla Glass 4.

PHANTOM PZ20 SPECIFICATIONS:

Display: 5.0" FHD AMOLED Display
Resolution: 2560 x 1440 pixels
Camera: 13 MP Rear, 8 MP Front
Battery: 2400 mAh
Camera: 8.0 megapixels rear camera and 2 megapixels front camera.
Storage: 16 GB Internal
Processor: 1.7 GHz Octa-core Processor (64-bit)
**Inernal Storage / RAM:** 16GB / 2GB
Operating System: Android version 5.1 (Lollipop)

HIGHLIGHTS:

- MiraVision is one of the best feature in PZ20.
- PZ20 comes with an Octa-core 64-bit processor
- 4G LTE enabled
- 5.0" FHD AMOLED Display
- Phantom PZ20 has unique gesture options including 'Magic gesture', 'Self-shot gesture', 'Blind-shot gesture' and gestures on incoming calls.

By Kanwal Ayub
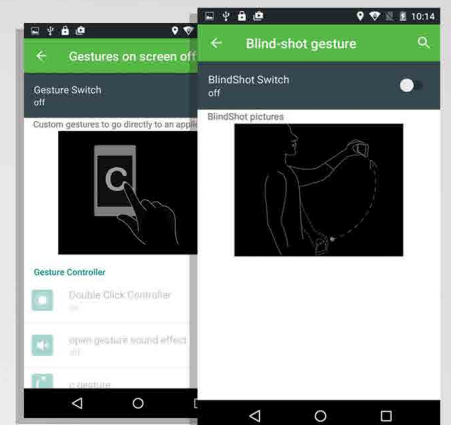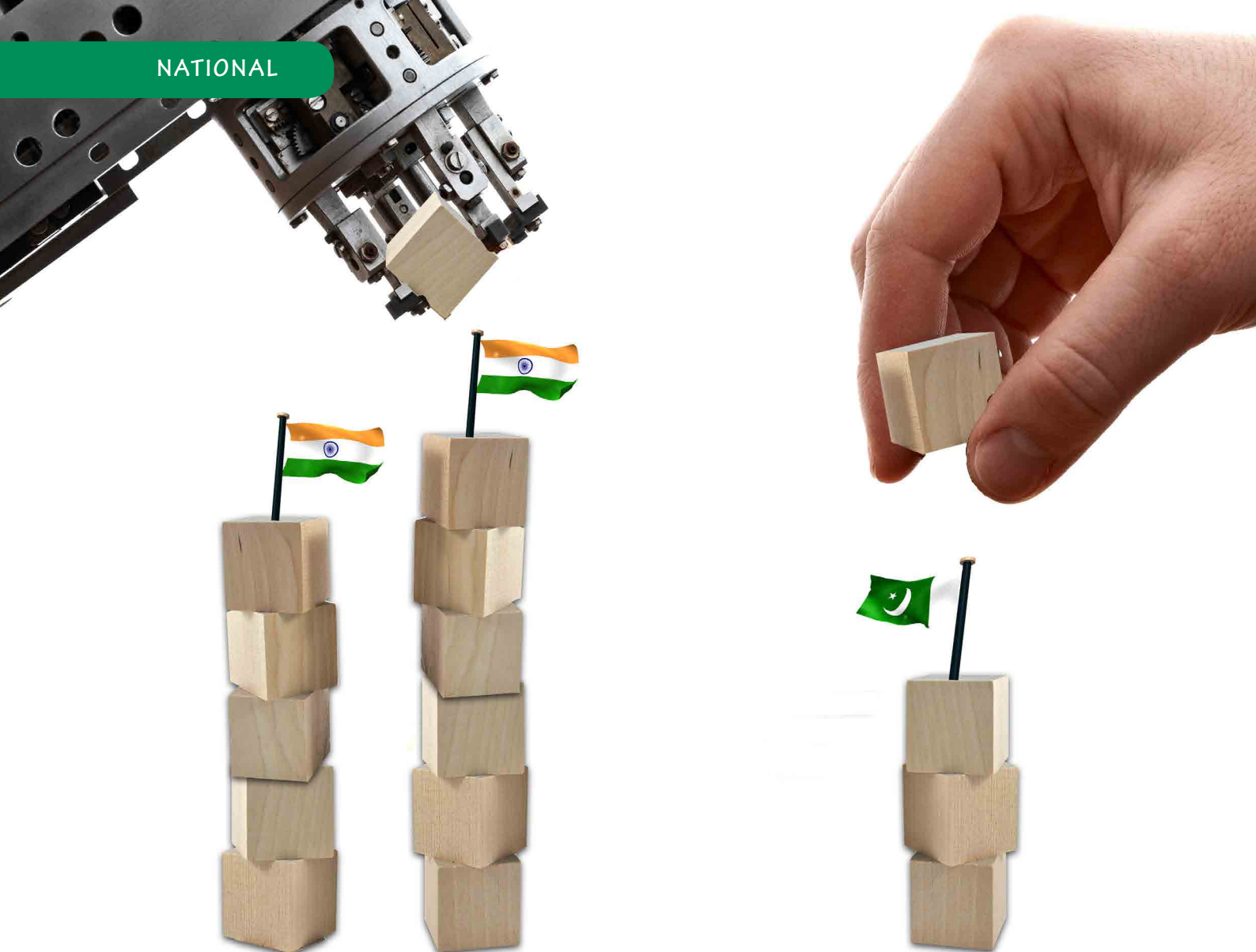
TECH COMPANIES WHY IN INDIA AND NOT IN PAKISTAN

Many of you must have wondered that Pakistan and India shared a common colonial past and started off with a largely similar nature of tragic history but why we still see a noticeable divergence in their economic fortunes? Both nations achieved independence in 1947, however when we talk about the advancements, India is undoubtedly considerable advanced on all indicators of economic sustenance, resource endowment, technological progressions, potential output and growth.

The last two decades or so have been of the increasing importance of technological advancements in developing countries. India played smart enough and grabbed the opportunities with both hands to secure foreign investment. As India increasingly opened its economy to foreign direct investment (FDI), one of its principal objectives was to achieve technology transfer from foreign firms to country's firms. According to report prepared by GSMA & Boston Consulting Group (BCG), the Indian mobile economy has grown rapidly contributing significantly to India's gross

domestic product (GDP).

Pakistan has always stood at the bottom when it comes to providing a stable and healthy environment for businesses. According to the Economist Intelligence Unit (EIU) survey in 2014, Pakistan was ranked 74 out of the 82 countries in being the most business-friendly economy.

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Those remaining 8 that ranked lower than Pakistan were countries with grave socio-political unrest and a collapse of market economy resulting from the State's undue interference in commerce.

Whereas, India has registered strong growth in the past decade and half. International Data Corporation (IDC) predicts India to overtake US by 2017 and also that it would maintain high growth rate over the next few years as people will upgrade to 4G. Let's focus on some ground realities that have made India world's second-largest IT and telecommunications market.

One of the major reasons is the educational uplift of the country. India's technological achievements after independence

can be divided into two distinct phases. The first phase that covers the period 1947-90; where Pandit Nehru had the vision to invest in education and established several premier institutions of higher education, science and technology in the country. The second phase starts from 1991 when Indian PM, Manmohan Singh drove a major program of liberalization of the economy by demising the license raj and since then the Indian government has removed the Foreign Direct Investment (FDI) cap on telecom investment. India has been creating a future-ready digital workforce, with more than 150,000 and more employees with SMAC (social, mobility, analytics, and cloud) skills. The SMAC market is expected to grow to more than USD 225 Billion by 2020.

India has already marked its presence as one of the fastest growing economies of the world. It has also been ranked among the top 3 attractive destinations for inbound investments

On the one hand, we can see that the leadership was keen towards the development of the country, they understood the importance of international investment in the country and started working on it from long past. Indian government not only focused on simple purchase of foreign technology but also for the presence of foreign firms. On the other hand, Pakistani government's largest setback has been the neglect of human development in the country. Had investment in education been up to the level of neighboring East Asian

Countries and the population growth rate reduced from 3% to 2%, the country would have been standing on a different platform.

Haier will be the first Tech company to set up its manufacturing plant in Pakistan

India has already marked its presence as one of the fastest growing economies of the world. It has also been ranked among the top 3 attractive destinations for inbound investments. Companies like Samsung, Motorola, Xiaomi, Lenovo, Micromax and Spice is already assembling handsets in India. Other firms like HTC, Asus and Gionee have revealed their interest in setting up a manufacturing plant in the country. Whereas in Pakistan, Haier will be the first tech company to set up its manufacturing plant.

Indian government has been working on the increasing adoption of technology and telecom by focused government initiatives like "Make in India".

We have almost 20 million broadband users; IT ministry is developing a comprehensive strategy for internet governance in the country

One of the recent examples of such programs is the government's "Digital India Campaign", which envisages a USD 20 Billion investment covering mobile connectivity throughout the country, re-engineering of government

process via technology and enabling e-delivery of citizen services.

Investors and foreign companies hesitate to invest in Pakistan because of the political instability, flagging law and order situation, high interest rates, energy crises and frequent power and gas outages

Although Pakistani government isn't sitting idle and if we have a look at the recent developments in Pakistan, majority of them are due to the development in the IT sector. We have almost 20 million broadband users; IT ministry is developing a comprehensive strategy for internet governance in the country.

Major developments have been made in the recent past which are not enough to make Pakistan as a potential market for international businesses. There are many lingering issues that still need to be resolved including cyber-security, cyber laws, internet taxation, privacy, e-public services to improve ICT infrastructure and services. Therefore, when we compare ourselves with the neighbor countries we have to consider number of facts. Why technology companies prefer working in India than Pakistan?

The answer lies in the fact that the country should offer more than its neighbor and if not more,

at least equal then. Investors and foreign companies hesitate to invest in Pakistan because of the political instability, flagging law and order situation, high interest rates, energy crises and frequent power and gas outages.

Terrorism is another reason triggering distractions to the major technology companies to invest in the country. The next stumbling block that stops companies to invest in Pakistan is our 'Mighty Media', who has been acting like a rein less horse for quite some time. Pakistani media portrays a very chaotic image of the country and it truly lacks united front on important issues. Instead of following journalistic ethics in accordance with the national interests, in search of 'breaking news', our media first acts and then think!

The next stumbling block that stops companies to invest in Pakistan is our 'Mighty Media', which has been acting like a rein less horse for quite some time

Despite setbacks, Pakistan's Telecommunication Authority and IT ministry has dramatically changed the nature of telecommunications in the country. Growth in the mobile industry was boosted by the allocation of 3G/4G licenses and the subsequent large scale roll-out of these networks.

E-commerce especially online spending has grown extraordinarily in terms of size and revenue in Pakistan. We get 100s of supporting technology driven

start-ups every year, 1000s of apps by Pakistani developers are launched on regular basis and most importantly entrepreneurs are taking special interest in providing techno-financial and facilitation support scheme. All these efforts show the definite success and struggle of private sector to provide an ideal and attractive environment for technology companies. But they can only do with in a certain limit, in reality it is the responsibility of the government to provide favorable environment to foreign companies. Like in India, it wasn't the private sector alone that attracted foreign investor rather it was the government that took it upon itself and accepted the challenge of improving its economy. It was because of initiatives like "100 smart Cities" and "Make in India" that brought the country in the lime light and made it an interesting case for international tech companies. Today all big nations and companies are eager to be a part of India's tech revolution whereas Pakistan is still stuck with years old problems. Technology will be the stepping stone in each nation's economic and social development, it is high time Pakistan realizes this importance and starts taking some serious steps.

in India, it wasn't the private sector alone that attracted foreign investor rather it was the government that took it upon itself and accepted the challenge of improving its economy

Sheryl Sandberg is the chief operating officer of Facebook and best-selling author of *Lean In*: *Women, Work, and the Will to Lead*

Sheryl Sandberg

Sheryl Sandberg is a woman of many colors. She went to Harvard for her bachelor's degree in economics and worked at the World Bank after graduating summa cum laude. She then attended Harvard Business School and went to work in the U.S. Department of the Treasury during the Clinton administration. When the Republicans swept the Democrats out of office in November 2000, Sandberg moved to Silicon Valley and worked for Google for seven years.

As Google's vice president of global online sales & operations, Sandberg was responsible for managing online sales of advertising and publishing products, Google Book Search and consumer products. She helped build the super-successful AdWords and AdSense advertising services, which made the company billions of dollars. Sandberg was with Google until 2008, with her tenure marked by stunning professional success and an ever-growing reputation as one of the top executives in the country.

We can each define ambition and progress for ourselves. The goal is to work toward a world where expectations are not set by the stereotypes that hold us back, but by our personal passion, talents and interests

Sheryl Sandberg

In March 2008, Sandberg's Google run came to an end, and she joined Facebook as the company's chief operating officer. From her COO post, Sandberg oversees Facebook's business operations, specifically helping Facebook scale its operations and expand its global footprint. She also oversees sales management, business development, human resources, marketing, public policy, privacy and communications. For her duties, Sandberg has been richly rewarded, and she made

her way onto the billionaires' list in early 2014, based on her stake in Facebook, which made its initial public stock offering in 2012, the same year that Sandberg became the first female member of the company's board of directors.

Sheryl is one of the wealthiest women in tech industry. Forbes has recently rated her on number 16 in "America's Self-made Women of 2015" and on number 8 on "Power Women of 2015" list.

From Dreaming to Achieving

The entrepreneurial opportunities and difficulties for Pakistani startups in the endless arena of technology

By Rizwana Khan

A small idea can bring the biggest revolution, be it in technology, politics, medicine or any other field. The first step matters more than anything. If we look in the world of technology, we can see that once tiny startups have turned in to huge business empires worth billions. Take for example Facebook, which was initially perceived as a networking website but today it has changed the way how companies do business and reach customers.

Pakistan is a country home to 200 million people and around 70% of them are below the age of 30. This young population is the biggest strength of Pakistan.

The nation is budding with idea developers who can produce the next billion-dollar startup

Important thing to consider here is that how to convert this potential in to something huge and constructive? Great progress has been witness over the years, Pakistanis are moving ahead in the field of technology with more and more startups launching every year. The nation is budding with idea developers who can produce the next billion-dollar startup. Market situation is also going through an upward trend where internet penetration is on the rise with mobile broadband subscription exceeding 18,040, 854 Million subscribers at the end of September, 2015.

The e-commerce trends are also quite promising and it is estimated that by the end of 2017, the size of our e-commence market will reach over $600 million from its current size of $30 million worth annual purchasing online

The e-commerce trends are also quite promising and it is estimated that by the end of 2017, the size of our e-commence market will reach over $600 million from its current size of $30 million worth annual purchasing online. These advancements in technology arena have created a perfect time to build tech products because opportunities are endless if ideas are executed correctly.

Tech Startups have quite favorable conditions in local business world where all players in the industry are working hard to provide support to young tech entrepreneurs. According to Shehryar Hydri, the director of marketing and operations at Convo, the startup culture in international arena we find that there are four basic elements that play part in the success of any ecosystem:

≫ Skilled team and viable ideas

≫ Large market place with appetite for those products and services

≫ Multiple sources for funding of project

≫ Bigger companies to support and acquire those startups, providing a lucrative exit so that the whole cycle starts again.

Unfortunately in Pakistan two of these major elements have always been missing. We do have creative teams with ample ideas as well as access to local and some global markets but funding sources and exit options have always been a problem for young entrepreneurs. Although there are many public and private incubation centers are working to get young tech entrepreneurs to their feet by providing technical and financial assistance but the need for a healthy startup cycle is still there. This is where the role of incubation centers comes in to play that are not only providing technical support to the startups but also attract national and international funding for promising projects.

Besides the lack of these two very important factors in tech ecosystem cycle there are many other challenges that are also faced by tech startups in Pakistan. First and foremost challenge is lack of basic technical skills in fresh graduates, whose minds although are budding with new idea but lack the expertise to execute them. The reason behind which is that many institutions do not teach the kind of courses that are important and relevant to the industry i-e Android Development. Consequently lot of resources and time is invested by startups in training them.

We do have creative teams with ample ideas as well as access to local and some global markets but funding sources and exit options have always been a problem for young entrepreneurs

The need for encouraging links between academia and industry has grown more than ever in order to impart skills that fresh graduates need to succeed in a workplace. Many incubators have started working in collaboration with educational institutes to give the required training to students whereas some institutions like NUST and LUMS have started their own entrepreneurial setups to facilitate their bright students.

The image of Pakistan

internationally is also a point of concern for international investors who are willing to invest if they shift and deploy their model in any other country. This is something where government really needs to step-in in order to attract international investors in the country. Currently there is a tax holiday on software export income only but that too will end in 2016. So the government really need to develop new regulatory policies in order to create friendly environment for the tech entrepreneurs and investors alike. So far Plan9 and PlanX are only two major initiatives taken by the government but sadly they too are limited to Punjab only.

Many public and private incubation centers are working to get young tech entrepreneurs to their feet by providing technical and financial assistance

Foreign investment and acquisitions are not the only exit options and key to success. Local players can play a major role in supporting new tech-ventures since they are best familiar with the ups and downs of the industry.

The success story of these ventures will help in creating a conducive environment for other large companies to jump in with hefty funds and consequently foreign investors will change their perceptions regarding their

investments in Pakistani market. In this regard when financial and technical support is imperative for new entrants in the market, tech incubators play a major role and have become a valuable addition in the ecosystem.

The image of Pakistan internationally is also a point of concern for international investors who are willing to invest if they shift and deploy their model in any other country

With the support of well-established tech-incubators the start-up business is growing at outstanding pace. Our local projects have been successful in securing credence in international market as well.

Local players can play a major role in supporting new tech-ventures since they are best familiar with the ups and downs of the industry

This is indeed a great time to enter tech business in Pakistan. With the right mix of assistance from public and private sector's assistance and investment, Pakistan surely has got what it takes to become world's next tech hotspot.

Top Incubation & Accelerator Centers

≫ Plan9
≫ Invest to Innovate
≫ Nest I/O
≫ LUMS Center for Entrepreneurship
≫ Founders Institute
≫ Social Innovation Lab
≫ WeCreate
≫ NUST Center for Innovation and Entrepreneurship
≫ OPEN/ TiE
≫ Plan X

Top Startups:

≫ MARO Tandoor
≫ Wifigen
≫ PATARI
≫ Paratha Party
≫ Fori Mazdoori
≫ Travly
≫ Youth Impact
≫ Lettuce Bee Kids

Top Events:

≫ Annual Entrepreneurship Conference Learn, Create, Lead
≫ Startup Expo
≫ Pakistan Startup Cup
≫ PASHA ICT Awards
≫ Pakistan Mobile App Awards

Islamabad November 18, 2015 : Group Photo of participants of 3-day INET Conference with Chairman Pakistan Telecommunications Authority (PTA) Dr.Syed Ismail Shah held here at Islamabad in collaboration with The Internet Society -Asia Pacific (ISOC-APAC)

INET ISLAMABAD
Pakistan's First-ever Conference on the Digital Economy

P akistan Telecommunications Authority (PTA) in collaboration with the Internet Society -Asia Pacific (ISOC-APAC) organized Pakistan's first-ever conference on the Digital Economy and the role Internet can play in sustainable development. The conference, which ran from November 16-18, featured several ICT experts with national and international speakers to discuss the current climate and the way forward required towards a digital economy in Pakistan with an eye on the ICT agenda required for sustainable development.

More than 250 participants from the Government sector, fixed and mobile telecom operators, internet service providers, academic institutions, banks, ICT entrepreneurs and commercial companies attended the INET event.

Dr. Syed Ismail Shah, Chairman PTA, opened the conference and highlighted the importance of a forum like INET where the challenges, opportunities and required development towards a progressive ICT industry can be discussed in an open and collaborative manner. He said that broadband penetration has increased from less than 2 percent to more than 10 percent within last one year exhibiting the vast growth potential for the sector and direct and indirect benefits for the economy.

All speakers and panelists emphasized how affordable connectivity and reliable Internet access is key for all sectors of the economy at large. There were many key topics that were discussed during the event including Infrastructure and connectivity for sustainable development, e-Gov architecture, standards and implementation, building trust in cyberspace, growth of ICT industry and digital financial inclusion towards a digital economy.

UNESCAP-ISOC-ADB regional study was also presented at the event that highlighted the current internet market and geographical importance of Pakistan as it has lot to offer to the landlocked Central Asian states with crucial bandwidth access. This can turn Pakistan into the regional connectivity hub for entire Central Asia.

The Notable speakers and panelists included Special Assistant to the Prime Minister on Political Affairs Barrister Zafarullah Khan, Chairman Board of Investment (BoI) and Special Assistant to Prime Minister Mr. Miftah Ismail, Chairman PTA Dr. Ismail Shah, Chairperson Higher Education Commission (HEC Mr. Mukhtar Ahmed, CEO of LIRNEasia Ms. Helani Galpaya, Managing Director Pakistan Software Export Board (PSEB) Mr.Asim Shahryar Husain and Asia-Pacific's Director for the Internet Society (ISOC) Mr. Rajnesh Singh among others.

Smartphone Review

By Ikram Ullah Khan

QMobile NOIR S1

The Ultimate Selfie Phone

FOOD!! Yummmm :D

New Car!! Woohoo!

Yaay vacation!

Q Mobile always comes up with some unique devices in terms of features, shape, looks and design. The smartphone is trendy and unique in its own way and comes with Android OS 5.0 Lollipop operating system. It has inbuilt face beauty mode and other advanced and professional effects which will help you to capture great selfie shots.

Design and Display

The design and shape of QMobile Noir S1is very attractive. The beauty is enhanced by the leather back cover which is beautifully designed with original leather pattern. The dimensions are also good and it is just 8.9 mm thick that makes it better and sleek. The height is 142 mm that fits well with the screen of 5 inches. The width is 72 mm giving it a compact look.

Processor

QMobile Noir S1 has a super-fast Quad core processor that is clocked in between 598 MHz

and 1.30 GHz. The manufacturer is Media Tek and the chip set is MediaTek MT6582. The total number of cores are 4 and you can play games and media with up to 4 X 1.3 GHz speed. the Graphic Card used in QMobile S1 is Mali 400 MP. The size of the processor is 28nm which is nicely fitted in the sleek and stylish designed package. The built type of the processor for Noir S1 is 32-bit.

Memory

QMobile Noir S1 has 1GB RAM and 8 GB ROM. The size of the internal memory that can be expanded with support of up to 64 GB microSD card. The internal 8 GB built-in memory of Noir S1 has been divided in two parts, the phone memory is 4.75 GB and the remaining is given to the secondary memory for storing apps and saving media files.

Camera

QMobile Noir S1 has both rear and front camera of 5 MP. The

rear camera of Noir S1 is supported with an LED flash light.

The size of rear camera imag is 1.91 MB and the dimensions are (2560 x 1920) pixels. Whereas the size of front camera image is 1.82 MB and the dimensions are (2560 x 1920) pixels.

Network

QMobile Noir S1 is a 3G enabled smartphone with dual SIM support and work on 850 / 900 / 1800 / 1900 frequencies.

Battery performance

QMobile Noir S1 has a 2000 mAh battery. The battery consists of Li-ion technology and the performance of the battery is quite good as tested with games, media and apps.

Inside the Box

The box contains a travel charger of 1 amp, a perfect hands-free and a USB data cable.

Performance and Benchmarking

QMobile Noir S1 made a good total with its reliable and fast processor with 1.3 GHz Quad core speed, 1 GB RAM,8 GB ROM along with a FWVGA IPS display and 5 MP cameras. Checking the QMobile Noir S1 with Antutu, Vellamo and GPU benchmark (for its graphics), we obtained following scores.

AnTuTu

The Antutu score for QMobile Noir S1 is over 20 thousands which is indeed a better score than many mid-range smartphones and proves the reliability and effectiveness of QMobile Noir S1. The only flaw is its low resolution screen and its multi-touch interface that supports 2 fingers instructions at a given time.
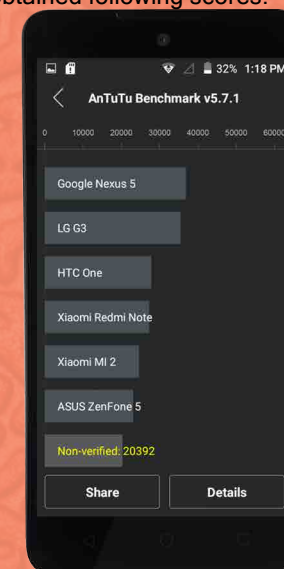
Vellamo

According to Vallamo testing, the browser performance is better than LG Nexus 4, Motorolla DROID RAZR and Samsung Galaxy S3 which is a big achievement as it has only 1.3 GHz Quad core processor. The metal or single core performance is very good but the intra-processor performance is not up to the mark. QMobile Noir S1 makes an overall total of 747 with Vellamo which cannot be compared even to Samsung Galaxy S3.
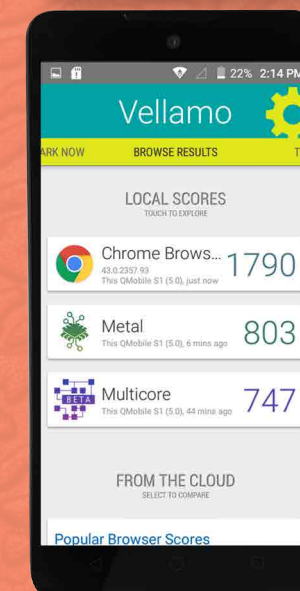
GPU

QMobile Noir S1 makes a better total with its GPU and scores above 14 thousands which is a decent total. The screen resolution normalized score is below 10 thousands as I have mentioned before that the display and the resolutions are not that great which made the relative score quite low.
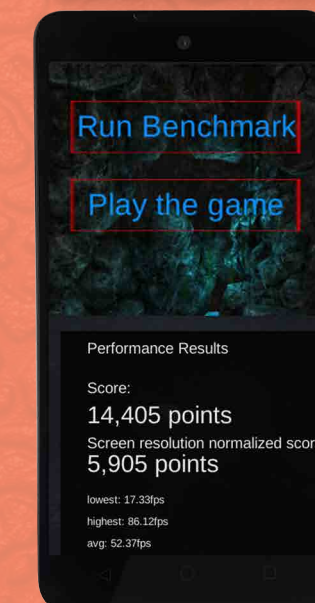
Specifications

Camera: 5 MP LED Flash Rear Camera + 5MP Selfie Camera

Memory: 1 GB RAM, 8 GB ROM (expandable up to 64 GB)

Processor: 1.3 GHz Quad core processor, Media Tek MT6582

Battery: 2000 mAh, Li-ion technology

Connectivity: Dual SIMSIM1: 850 / 900 / 1800 / 1900SIM2: 850 / 900 / 1800 / 1900WCDMA (900 / 2100)

Dimensions: 142 x 72 x 8.9 mm"

Display: 5" FWVGA IPS

Price: 10,950 PKR

Features: GPS, DUAL SIM, Google Search, Maps, YouTube, Calendar, etc

Conclusion

QMobile Noir S1 has 1.3 GHz Quad core processor, 1 GB RAM and 8 GB ROM which is a good combination. The smartphones with the specs mentioned above are always reliable and have better performance in the mid-range smartphones. A smartphone with price of Rs. 10,950 with such great specs and latest OS Lollipop is an affordable device with decent performance.

Pros

- Beautiful leather back cover
- Android Lollipop 5.0
- Affordable price of 10,950 PKR

Cons

- Supports just 2 point-multi touch
- Display resolution of (854 x 480) pixels and 200 dpi, which is low and effects the performance in high end games and media

Where Super powers earn billions in decades,
Chinese earn in seconds

China has captured each and every aspect of life. It's a universal fact that life cannot exist where there is no air. In current Era, it is not wrong to say that where Chinese did not exist, survival of life is impossible. Thy have surpassed every limits, every craze and every strategies. Even Gurus and their principles seem useless in front of their way of doing things.

Alibaba did double eleven event of online shopping on 11th November 2015. They use to celebrate it every year. But this time it was so huge that the facts and figures have shaken the world totally. Even now the world has not survived the after effects of it.

In just first 18 seconds, it reach to 100 million RMB. It took 22 minutes to reach 16 billion RMB which was even greater than total online shopping event earning of USA. 30 billion RMB mark were achieved in just 1 hour and 14 minutes.

Its sales in dollar have some astonishing figures. In just first 8 minutes it reached 1Billion dollar sales. In just 1 hour it crossed 3.9 billion dollars. In 12 hour time frame, it crossed 8.96 billion dollors. The total sale Alibaba achieved on double 11 is greater than 13billion dollars which is 1/3rd of total Pakistan's Exports.

It is not wrong to say that they are crazy because they are. They have not only changed the rules of the game but infact they have made the new one. Their minimum level is the extreme level. In the E-commerce industry, no other one can even reach at the glory and tactics that they have. Amazon, Ebay, Walmart and plenty of huge players were there before Ali baba, but such huge names even felt helpless infront of their Models and tactics. Even they can just dream off to attain or imitate the Alibaba and Chinese expertise in Ecommerce industry.

Pakistan's Online shopping market has huge potential but it lack the exponential growth. According to PTA facts the Broadband subscribers stood at more than 3.79 million. The current number of 3G users have crossed 15.5 million figures. The 4G users have crossed 310,000 under the umbrella of two operators only. Pakistan's internet enabled population has crossed 30million spot and expected to grow to 56million by 2019. But despite of the facts, Pakistan's Ecommerce market is still not growing at the pace as rest of the world is growing. Consumer still hesitates buying online. The amount of distrust and poor quality

products delivery by current market players has ruined the rest of the potential too. Even some of the so called major players started imitating the model of Alibaba's Double 11 but it failed in every aspect because imitating name and model is not enough to execute the things, but it is something else that only Chinese can do.

It is quite evident now that what you will see online in current online selling stores, you won't get the same product or the quality would be so pathetic, that customer would always repent. This is the reason why inspite of spending in billions, Online shopping industry in Pakistan is still in millions. Their methods, strategies, principles and guidelines can only bring the Online shopping industry at atleast to the level of rest of the world and then gradually to Alibaba double eleven level.

Fortunately one of the Chinese platform has just entered into Pakistani market with a name of Cheezmall.com. Prior to its launch there was already a huge hype and the consumer engagement on platform's official page was the clear sign that Pakistani consumer has a thirst of such websites and they want to warmly welcome such platform from all over to China. This shows the potential of Online shopping in Pakistan which still unexplored.

Th Glimpse of Ali baba was seen on it when they have initiated a free shopping type offers. Many of the celebrities even did shopping on it including Javed Chaudhry, Ali Moeen, Wahab Riaz, Sara Raza, Ahsraf Chaudhry etc. The post reach of their initially offers reached more than 10 million which states that soon Pakistani consumer could also hit some record figures as Double eleven did in China. From this Cheezmall.com might have become for sure about potential of Pakistan's online shopping and they might think of going with some more Chinese strategies in order to increase the current online shopping cake. It would be both as a Threat as well as opportunity for

Cheezmall.com in coming future.

The news inside the market regarding Cheezmall.com is still positive. Like some other big players' consumer disgust, the dissatisfaction shown by consumers has not yet been seen on it. Those who have purchased from Cheezmall.com they reviewed it on official page and share their positive experiences regarding quality of product and service.
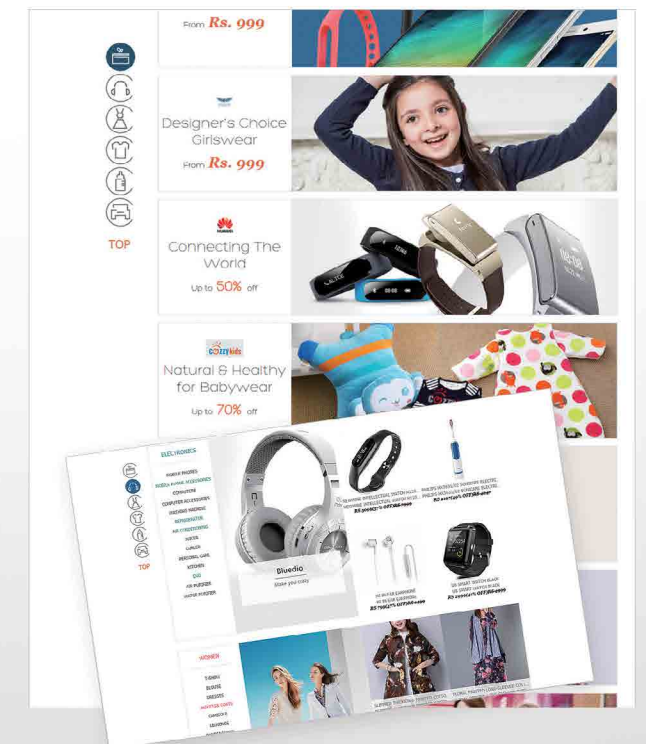
If the organization sustained with such aggressive strategies and qualities then the time is not far when Alibaba double eleven could also be witnessed in Pakistan too.

Pak-China friendship has always resulted in meaningful results. No matter if its Gawadar port, Infrastructure, Karakoram highway, JF 17 thunder, Pak-China economic corridor or even now ecommerce, always China has stepped into the welfare of Pakistan.

The countdown for Ecommerce has also just started with the entrance of Chinese Giant like Cheezmal.com. They day is not far when consumers can have relief of shopping at home with best price and genuine products. Hopes and wishes by online consumers are higher from Cheezmall.com. But their experience, past records, mutual relationships and positive feedback uptill now predict that Chinese companies are more likely to succeed in Pakistan and will also indeed bring in the true essence of Ecommerce.

M. Mohsin Rehman

Snapdragon 820

Complement for Upcoming Flagship Smartphone

One of the most cutting-edge mobile processors ever created, the Qualcomm Snapdragon 820 processor with X12 LTE supports the ultimate in connectivity, graphics, photography, power and battery efficiency. Company has gone back to the drawing board and completely redesigned its flagship product, bringing with it a raft of improvements from better battery life and increased performance, to enhanced photography and immersive VR. Following are some main feature, who makes Snapdragon 820 the main counterpart of all flagship Smartphones in coming years

Ultimate Download Speed

The Snapdragon 820 packs in Qualcomm's new X12 LTE Modem, which is capable of theoretical download speeds of up to a whopping 600Mbps, while uploads can max out at 150Mbps.

That means when it comes to downloading apps, streaming video or merely surfing the web, everything will load almost instantly.

These speeds will depend on your network and the service it offers, but you can be safe in the knowledge a handset with the Snapdragon 820 will be future proofed for several years.

Versatile LTE-U

As the first commercial processor to utilize LTE-U, Snapdragon 820 can access LTE connections in both licensed spectrum and unlicensed spectrum – boosting your connection speeds and mobile broadband access in normally congested areas.

Kryo CPU and Hexagon 680 DSP

Qualcomm's first custom-designed 64-bit quad-core CPU, the Kryo CPU uses Qualcomm® Symphony System Manager as an intelligent resource management tool for Snapdragon that extends control of task scheduling and power management across the entire processor.

The new Qualcomm® Kryo™ CPU has 2x performance and efficiency when compared to the CPU of Snapdragon 810.

Significant improvement to the Hexagon 680 DSP enables the CPU to offload many tasks for more efficient processing. The Hexagon 680 DSP also allows for ultra-low power "always-on" sensors and advanced low power-image processing.

Snapdragon 820 boasts of 3D Audio, which gives the effect of surround sound through a set of headphones. It also allows you to record 3D Audio, giving your home movies a new dimension -- plus there's an option to directionally record audio, allowing you to cut out annoying background noise.

Visual Graphics: Adreno 530 GPU

Adreno 530 in the Snapdragon 820 processor along with the Kryo CPU are capable of generating photorealistic graphics for console-quality gaming and next-generation virtual reality apps, while delivering up to 40% improvement to graphics performance and compute capabilities when compared to the Adreno 430.

Quick Charge and Longer Battery Life

With Qualcomm® Quick Charge™ 3.0, users can spend less time charging and more time doing. As our fastest and most efficient charging technology yet, Quick Charge 3.0 is 4x faster than conventional charging and 38% more efficient than Quick Charge 2.0. Snapdragon 820

also give better battery life with the chip 30% more efficient than its predecessor. Efficiencies have been made in all the core areas of the chip, with the CPU, GPU, DSP and Modem all boasting improved performance over past offerings. Qualcomm wasn't able to say how many extra hours that will equate to in the real world, and it will depend heavily on manufacturer's implementation and your usage.

Advanced Spectra Camera ISP

Low light photography is a pain point for most smartphone cameras, due to the limitations in sensor and lens size. You can't have the same lens and sensor as a DSLR on your smartphone -- it's simply too big.

With Snapdragon 820, Qualcomm has looked to address this with software enhancements, reducing noise and increasing detail in low light shots. It claims it can remove noise completely from low light shots, given you a clear, brighter and more natural shot. Supported by the latest 14-bit image sensors, hybrid autofocus and multi-sensor fusion algorithms, the Spectra camera ISP captures a wider range of colors and supports computational photography. Plus, the Snapdragon 820 also has Hexagon 680 with HVX (Hexagon Vector eXtensions), which supports advanced imaging and computer vision.

	Snapdragon 808	Snapdragon 810	Snapdragon 820
CPU	Up to 2 GHz dual-core ARM Cortex A57, quad-core Cortex A53 CPU 64-bit	Up to 2 GHz quad-core ARM Cortex A57, quad-core A53 CPU 64-bit	Up to 2.2 GHz quad-core Qualcomm Kryo CPU 64-bit
GPU	Adreno 418	Adreno 430	Adreno 530
Modem	X10 LTE - LTE Advanced 3x20MHz Carrier Aggregation in the downlink - Cat 9 speeds up to 450 Mbps down/50 Mbps up - Global Mode RF360 support	X10 LTE - LTE Advanced 3x20MHz Carrier Aggregation in the downlink - Cat 9 speeds up to 450 Mbps down/50 Mbps up - Global Mode RF360 support	X12 LTE - LTE Advanced 3x20MHz Carrier Aggregation in the downlink, 2x20 MHZ in the uplink - Cat 12/13 speeds up to 600 Mbps down/150 Mbps up - Global Mode RF360 support
Video/audio	1080p and 4K Ultra HD capture, playback, and display 4K playback with H.264 (AVC) and H.265 (HEVC) 4K capture with H.264 (AVC)	1080p and 4K Ultra HD capture, playback, and display 4K capture and playback with H.264 (AVC) and H.265 (HEVC)	1080p and 4K Ultra HD capture, playback, and display 4K capture and playback with H.264 (AVC) and H.265 (HEVC)
Camera	Up to 21MP	Up to 55MP	Up to 28MP 2x Spectra Camera ISP
Display	2K native and 4K external displays Ultra HD on-device display concurrent with Ultra HD output to HDTV	4K native and 4K external displays Ultra HD on-device display concurrent with Ultra HD output to HDTV	4K native and 4K external displays Ultra HD on-device display concurrent with Ultra HD output to HDTV

THE INTERNET OF THINGS

The BEST of 2015

By Rizwana Khan

Technology is possibly the biggest agent that can change the modern world. Although never without risk, technological breakthroughs promise solutions to the most pressing global challenges of our time. And with mankind's intelligence and ingenious prowess, we are coming to an era where technology has become so advanced that amazing and cool inventions have been cropping up at a fast rate. Technology is continually impressing us, leaving us thinking, what's next? The world has already been reshaped with great technologies, making our lives much more convenient. We have covered many new gadgets and technologies in our previous magazines so this time we have pick some new and interesting techs that we didn't discussed previously. So here are some exceptional technology trends that were the highlight of 2015.

World's first commercially available 10 Gigabit Internet

World's fastest community wide available 10 gigabit internet is now available in Tennessee, USA, offering up to 10 Gbps of internet speed.

Chattanooga, the fourth largest city in the state of Tennessee also known as "Gig City" for being the first in the USA to build a community-wide fibre optic network providing 1 Gigabit (1,000 Mbps) Internet. The city also announced an even bigger breakthrough as the company EPB is now offering world's first 10 gigabit broadband.

Unlike, point-to-point commercial installations which was done previously, EPB's 10 Gbps service is now available for access by every home and business in the EPB covered area. The technology used to provide such vast speed is known as Time and Wavelength-Division Multiplexed Passive Optical Network (TWDM-PON) which is provided by Alcatel-Lucent.

Google Gesture

Google has unveiled an interaction sensor that uses radar to translate subtle hand movements into gesture controls for electronic devices called the Project Soli. Tiny sensors have been created that fits onto a chip.

The sensor is able to track hand gesture at very high speed and accuracy with radar, and use them to control electronic devices without physical contact. By using Google Gesture the need for designing knobs and buttons into the products like watches, radios, phones and medical equipment's can greatly be reduced.

The gestures chosen by the Google team were selected to match the daily gesture that we perform every day. For example, swiping across the side of a closed index finger with a thumb could be used to scroll across a flat plane, while tapping a finger and thumb together would press a button.

3-D Manipulation

Another technology revolution in 2015 was the advancement in 3D software technology. Computer scientists at Carnegie Mellon and the University of California at Berkeley have developed the first application that lets users scale, rotate, and move onscreen objects in the 3-D space.
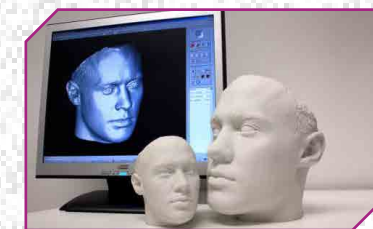
These software's now have tremendous benefits with the 3D printing and modeling, as it allows the physical fabrication of an object based only on a single photograph of the object. Normally, such task required hours of work and professional skills, but these 3D software allows them to do the work in minutes with very little processing power.

X-Ray Vision' Tech Uses Radio Waves to 'See' Through Walls

X-Ray Vision is new technology that uses radio signals to see people movements through walls. According to the researchers, this technology could be the future of smart homes, gaming and health care. This system can beam radio waves and bounce off the human body.
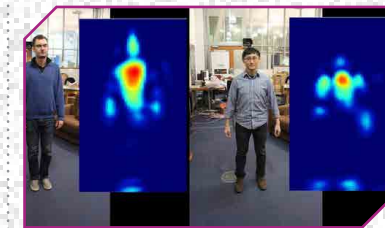
Then receivers pick up the reflections, which are processed by computer algorithms to map people's movements in real time. This system labeled RF captured to identify 15 different people through a wall with nearly 90% accuracy. The RF captured system can even track their movements to within 0.8 inches (2 centimeters).

This technology could have various advantages on the application level as it can be used for gesture-controlled gaming devices like Microsoft Kinect System, the monitoring of hospital patients vital signs, for security purposes and for motion capture for special effects in movies.

Project Fi by Google

Project Fi is Google's project to provide fast and easy cellular service directly to phones.
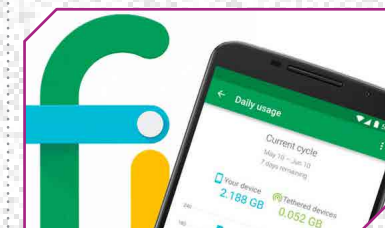
It provide the ability to combine access to both the network operator in USA i.e. T-Mobile and Sprint, with a SIM card that can switch between any of the two networks when there is no available wireless network in the nearby region.

Project Fi leans on WIFI and lets you both call and text when connected to Wifi. Special software provided in the phone empowers user to automatically switch to Wifi in order to help user limit the mobile data usage with the intervention of the user. It routes the data traffic through Google VPN for safety and connection stability.

Internet of things

The internet of things (IoT) isn't new: it's all about connecting devices over the internet. This year some major developments were introduced in IoT. It makes your devices more intelligent and provides more ease to humans. IoT has clever functions that let you turn on heating remotely, set it to turn down the temperature if it's a sunny day, or even turn off when there's no-one home.

IoT is more than smart homes and connected appliances, however, it scales up to smart cities - think of connected traffic signals that monitor utility use, or smart bins that signal when they need to be emptied - and industry, with connected sensors for everything from tracking parts to monitoring crops. The Internet of Things is one of those wider ideas that isn't dependent on a single project or product, the idea of connected sensors and smart devices making decisions without our input will continue.

INTERNET SECURITY

The Biggest Predicament of Today's Connected World

By Asma Balouch

Internet security is a vast term that refers to several steps individuals and companies take in order to protect computers or computer networks that are linked to the Internet. Now with the advancement of technology many other devices have also came at risk including, smartphones, tablets, smart gadgets etc. Cisco, a manufacturer of networking equipment, estimates that there are almost 15 billion connected devices. By 2020, it believes, that number of connected devices could increase to 50 billion. One of the basic reality behind Internet security is that the Internet does not have a safe environment itself so the minute an individual comes online, he becomes a potential victim. Data sent over the travel through an ever-changing series of computers and network links makes it easier for predators, cyber criminals and corrupt businesses to access and misuse information.

Due to the rise in Internet use, online presence has increased at a fast pace and so have the internet security risks. Network-based security threats have led to extensive identity theft and financial fraud. Spam, viruses, and spyware cause huge complications for internet users businesses. Immoral hackers and scam artists have plenty of opportunities to divert and modify the information.

> **A computer virus is a type of malware that is purposely written to gain access into the computer, without any awareness or permission**

Hackers have two main techniques of causing problems: they either find a way to get into the system and then modify or take information from the inside, or they try to over-whelm the system with information from the outside so that it shuts down.

> **Hackers have two main techniques of causing problems: they either find a way to get into the system and then modify or take information from the inside, or they try to over-whelm the system with information from the outside so that it shuts down**

A common way used by hackers is e-mail spoofing. This involves sending authorized manipulators of a computer network false e-mail that seems as if it was sent by some official people. There are many types of spoofing attacks that malicious parties use. Some of the most common ways involve IP address spoofing attacks, ARP spoofing attacks and DNS server spoofing attacks. Phishing is also a common way used to hack websites. It is the attempt to acquire sensitive information such as usernames, passwords, and credit card details. Hackers can generate a copy of a website and tell people to enter personal information, which is then emailed to them. Phishing is a constant threat, and the perils are even more for social media such as Facebook, Twitter, and Google+ wheras, PayPal and eBay are two of the most common targets for phishing scams.

Other security issues include viruses, or damaging programs that are introduced to computers or networks. A computer virus is a type of malware that is purposely written to gain access into the computer, without any awareness or permission. An infected file may cause loss of important data. It has the capacity to modify or replicate itself. Some viruses rewrite coding to make software programs unusable, while others terminate data. They adversely affect the systems performance. Computer viruses which replicate through a network in many ways, can be observed as denial-of-service attacks where the victim is not usually targeted. A denial-of-service (DoS) is any kind of attack where the attackers try to stop reliable workers from getting access to the service. The attacker usually sends many messages asking the network or server to validate requests that have invalid return addresses. Here are few precautions that users can take to save themselves from internet security threats.

- Be careful about who you accept as a friend on a social network. Identity thieves might make fake profiles in order to access important information.

- Select your social network carefully. Evaluate the site that you use and make sure you are aware about the privacy policy.

- Never open any attachment unless you know who it's from and why they are sending it. Be cautious, opening any email attachments, even from your friends, especially if it has been forwarded to them.

- There should be a full back up of the system on a regular basis. The best way to clear-out an infected file is to substitute it with an original non-infected file.

- Always use an anti-virus software program, one with both an on-demand and an on-access scanner.

- Don't allow your web browser to spontaneously run programs, such as MS Word or other programs through its e-mail program.

- Protect your computer and smartphone with strong, up-to-date security software.

- Learn to spot spam and scams. Phishing scams in email, IM, on social networking sites, or websites can look very legitimate. The only way not to become a victim of phishing scam is to never click on a link that has been sent.

- Strong passwords should be used. Passwords that are long, strong and that have nothing to do with your personal information are preferable.

- Only use trustworthy websites while placing online orders. Use a website that has a secure, encrypted connection for personal and financial information.

It is nearly impossible to secure every computer connected to the internet around the world, so the data exchange links are likely to be weak all the time. The amazing connectivity of the Internet age has led to massive social and economic benefits, but has also bring together numerous new challenges. In a fully connected world, Internet security threats continue to evolve, keeping ahead of the most advanced defenses. However, this should not deter the use of internet as the benefits of the internet outweighs the risk associated with it.

> **Be careful about who you accept as a friend on a social network, identity thieves might make fake profiles in order to access important information**

By Memoona Neelam

iNew® L4
The New Power Device in Town

Shenzhen ChuangXinQi Communication Co, Ltd. is a high-tech enterprise that has recently launched its smartphone brand in Pakistan by the name of "iNew". Its products are exported to more than 40 countries, 70% to Europe, Southeast Asian market, 30% to the USA & the South American and African markets. The new iNew L4 comes with 5.5 inch screen but looks wider because of its design .It has resolution of 720 x 1280 and comes with Gorilla Glass protection and has beautiful shape and looks very stylish in hands with its leather textured back and strong shinning metal used on sides. iNew L4 is packed with 16 GB ROM and 2GB RAM and MediaTek Quad Core Processor MT6735 clocked on 1 GHz frequency.

iNew L4's highlight is its 5000 mAh heavy powered battery that provides convience to use the device for two days and stand by time of up to 480 hrs. L4 White runs on latest android version that is 5.1(Lollipop) and ARM Mali-T720 graphical performance

which is very cost-optimized version designed specifically to bring high quality, energy efficient GPU compute graphic features of the device. iNew L4 is available in two colors that is white and dark blue. It has 13 MP Rear camera and 5 MP front camera that enables you to capture best moments in your life.

Accessories

iNew L4 comes with a high quality charger, hands free and a charging cable.

Operating System

L4 is a multitasking device with latest Android version 5.1 (Lollipop) that enables the device to perform various tasks at the same time without affecting the performance.

Processor

iNew L4 has 1.0 MediaTek Quad Core Processor MT6735 clocked at 1 GHz frequency that enables the device to process all the features fast without slowing the performance of the device.

RAM

Although L4 has only 2 GB RAM but still it has power to run number of 3D games without slowing down.

Camera

Today camera has become the biggest and most important feature for almost all the users, therefore iNew has introduced L4 with 13 MP Rear cam with power LED flash that brighten your photos taken even in night mode. L4 has 5 MP Front cam that is voice controlled which enables you to take pictures with pressing a button or tapping the screen.

Battery

iNew L4 has battery of 5000mAh that works for 2 days even with heavy usage and it has ability to stand by for almost a week.

Memory

iNew L4 has 16 GB internal memory that is expandable up to 32 GB, So you don't have to worry about storing the data.

Connectivity

iNew L4 has built in connectivity functions such as Bluetooth 4.0 with A2DP that enables you to transfer files. It also has built in USB, Wifi and FM radio and supports GPRS, EDGE, HSDPA, HSUPA, 3G, and 4G.

Performance and Benchmarking

Benchmarking is the key to evaluate the performance of smartphones with the help of multiple apps that check the processing, overall system, battery, stability and the graphics performance. The results are given in the following sections in detail.

AnTuTu

Antutu is an international app used to check the overall performance of a device and to show the chipset, specs, camera and all other modules attached with it. After checking iNew L4, the projected score was 20245 which is an impressive total for a 1.0 GHz Quad core processor device.
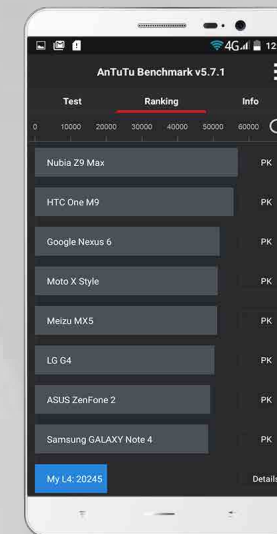
Vellamo's Bebchmarking

Vellamo is another smart application that checks for the browser's performance, Single core and multicore performance in particular. The total scores for its substituents are:

- Scores for Browser: 1915
- Scores for Multicore: 1204
- Scores for Metal: 774
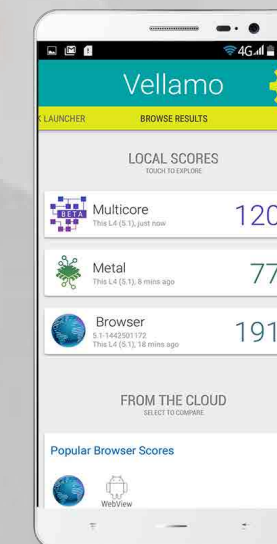
Stability Test

GPU Benchmarking app is a great application that checks minimum and maximum number of frames per second while evaluating the average total of the lower and the upper range of frames per second. The total score for our iNew L4 is 12,007 which is a decent total with its 1GHz Quad-core processor and GPU chip set of Mali-T720 graphics module.
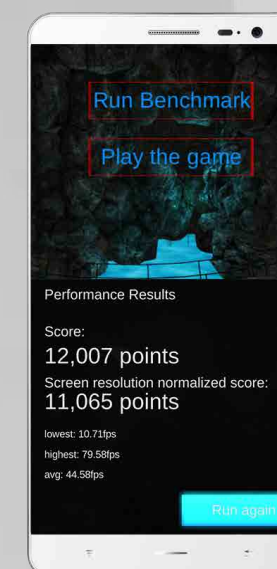
Key Specifications

- **Display Size:** 5.5"
- **Memory:** 16GB / 2GB, Expandable up to 32GB
- **Processor:** 1GHz Quad core
- **Camera:** 13MP Rear, 5MP Front
- **Battery:** 5000mAh
- **OS:** Android version v5.1 (Lollipop)(32 bit)

Pros
- It comes with a power bank
- L4 hot knot feature can be used to transfer data through touch panel
- It comes with quick charging technology and big battery of 5000mAh
- Voice controlled camera

Cons
- Processor Frequency is somewhat low which may effect its performance

Price

iNew L4 is a high-end smartphone for those who want a device with all the major specs at an economical rate of PKR 20,800.

Final Verdict

Long battery life of 5000 mAh and voice controlled camera are major highlights of iNew L4. With 16 GB ROM, 2GB RAM and quad core processor iNew L4 is decent buy at a good price rate.

Rating

★★★★☆
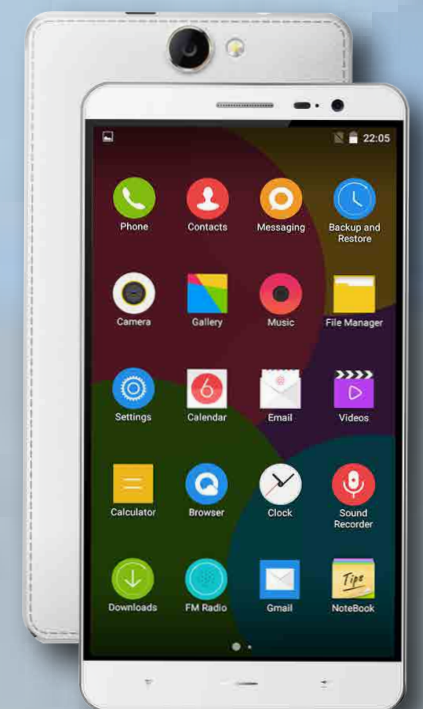
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QMobile Noir S2
OS: Android v5.1 (Lollipop)
Display: 5" HD IPS
CPU: Quad core 1.3 GHz
Camera: 8 MP
Memory: 8 GB, 1 GB RAM

Rivo Phantom PZ18
OS: Android v5.0 (Lollipop)
Display: 5.3" HD IPS
CPU: Quad-core 1.3 GHz
Camera: 13 MP Auto Focus, Triple LED Flash Light
Memory: 16 GB, 2 GB RAM

Huawei Mate S
OS: Android v5.1.1 (Lollipop)
Chipset: HiSilicon Kirin 935
CPU: Quad-core, 2.2 GHz & Quad-core 1.5 GHz
Camera: 13MP, Autofocus, dual-LED (dual tone) flash
Memory: 32/64/128 GB, 3 GB

Gfive President G Note 3
OS: Android v4.4 (KitKat)
Display: 6"
CPU: 1.3 GHz
Camera: 20.7 MP, LED flash
Memory: 8 GB, 1 GB RAM

Rivo Rhythm RX200
OS: Android v5.0 (Lollipop)
Display: 5" HD IPS
CPU: Quad-core 1.3 GHz
Camera: 8 MP, LED flash
Memory: 16 GB, 1 GB RAM

Haier Esteem i40
OS: Android v5.0 (Lollipop)
Display: 5"
CPU: Quad-core 1.3 GHz
Camera: 8 MP, flash
Memory: 8 GB, 1 GB RAM

QMobile Titan X700i
OS: Android v5.0 (Lollipop)
Display: 5"
CPU: Quad-core 1.3 GHz
Camera: 5 MP, Autofocus, LED flash
Memory: 16 GB, 2 GB RAM

Huawei G8
OS: Android v5.1 (Lollipop)
Chipset: Qualcomm MSM8939 Snapdragon 615
CPU: Quad-core 1.5 GHz
Camera: 13 MP, autofocus, dual-LED (dual tone) flash
Memory: 16/32 GB, 2/3 GB RAM

Haier Esteem i80
OS: Android v4.4 (KitKat)
Chipset: MTK MT6592
CPU: Octa-core 1.4 GHz
Camera: 13 MP, AF Dual LED
Memory: 2 GB, 16 GB RAM

QMobile Bolt T2
OS: Android v5.0 (Lollipop)
Display: 5" HD IPS
CPU: Quad-core 1.3 GHz
Camera: 5 MP
Memory: 8 GB, 1 GB RAM

By Ikram Ullah Khan

Experience the New High with
Haier Esteem i80

I t has been less than a year since Haier brand entered Pakistan market, and it is already giving tough competition to other leading brands of the country including Huawei, Samsung, QMobile, RIVO and GFive.

Design and shape

As both the Haier Esteem i70 and Haier Esteem i80 are from the same series, so one can expect the same shape and design as we are having here. The weight of Haier Esteem i80 is 135 grams which is quite low. The dimensions of Haier Esteem i80 are (139 x 72 x 6.5) mm which are best dimensions for a smartphone with 5" display, 13MP Rear camera and battery capacity of 2300 mAh.

Display

The display of Haier Esteem i80 is 5" IPS display which is an advanced technology and has a better display as compared to the previous

technologies that consumed more battery and had relatively lesser outcome on the. The display driver is of MediaTek and the chip set used for GPU is Mali-450 MP. The screen supports 1080 x 720 pixels and the average density pixels per inch are 320 which is a better total.

The screen supports up to 5 points multi touch over its touch screen.

Processing

The processors of both Haier Esteem i70 and Haier Esteem i80 are the same and both have MTK MT chipsets. The chipset for Haier Esteem i80 is MTK MT 6592 which is an Octa core processor and gives better results with its 32 Bit type OS. The frequency modulation is in between 728~1365 MHz.

Memory

Haier Esteem i80 is set with a huge memory of 2GB keeping the smartphone fast and efficient for its fast browsing, switching and fast execution. The main advantage of a smartphone with 2GB RAM is that you are able to dial fast, browse fast and operate fast without any experiencing any noise.

The internal storage is also huge and you do not need extra card as the internal has been set to 16GB. The initial system memory occupation is almost 5GB and the available memory is 11GB that enables you to store any of your media, images, snaps, text data or any other data.

Camera

Haier Esteem i80 comes with 13MP rear and 5MP front cam with wide angle access. The features contain GPS Location, Exposure, color effect, Scene mode, White balance, Image properties and Anti-flicker etc. The dimensions for its rear camera are 4160 x 3120 and the total size being captured is almost 6 MB in a perfect day light. The dimensions for its front camera are 2560 x 1920 and the total captured size is almost 2 MB in a perfect day light.

Network/ Connectivity for Haier Esteem i80

Haier Esteem i80 is 3G enabled handset with Octa core processor, it can support the high bands of 3G which includes HSPA and HSDPA. It is a dual SIM supporting device both supporting frequency of 850 / 900 / 1800 / 1900 MHz.

Battery performance & Internal Storage

Battery is one of the most important aspects for a device. Haier Esteem i80 has been released with a 2300 mAh battery which lasts for almost a day. Similar capacity battery has been introduced in Huawei Honor 3C as well. The technology is Li-ion technology. The cover is un-detachable and so is the battery.

Interface Experience

The home interface along with the menu icons and the layout are dim colored and eye-catching. Haier Esteem i80 has up to 5 fingers multi touch support.

Performance and Benchmarking

Benchmarking is the key to find out the rank of a smartphone, similarly we can find the reliability of a smartphone. We have run three main tests on our Haier Esteem i80 to check its performance and consistency in detail. Here are the results.

AnTuTu

In Antutu's benchmarking score of almost 28 thousands is an achievement for Haier Esteem i80 as it left behind many of the superior smartphones like HTC One, Xiaomi Redmi Note and Xiami MI2.

Velamo

Vellamo is an application that tests the ability of single core, multi-core and browser's performance separately. The overall performance of Haier Esteem i80 is satisfactory with its Octa-core processor, 2GB RAM and 16GB ROM that keeps the smartphone performing smoothly. For browser performance, Haier Esteem i80 obtained 1875 points. For its multi-core performance Haier Esteem i80 achieved 1324 points leading Samsung Galaxy Nexus with great margin and following Asus Zenfone 2 with a slight deviation.

GPU

Checking the performance of GPU for Haier Esteem i80, the overall score of almost 13 thousands was witnessed. Whereas, screen resolution normalization score was 12 thousand. The total number of frames per second, lowest frames and highest frames per second are the same as Haier Esteem i70 because both the have the same chipset for GPU which is Mali 450-MP.
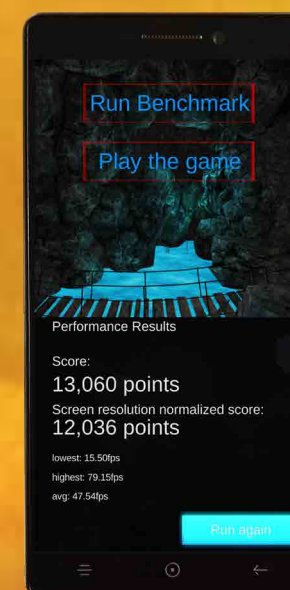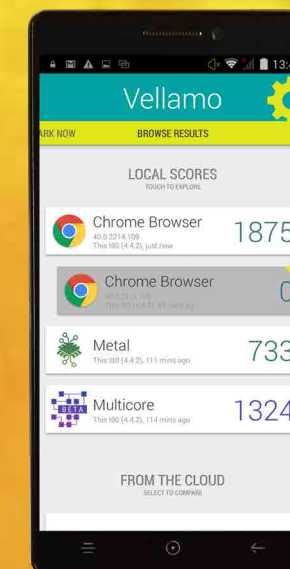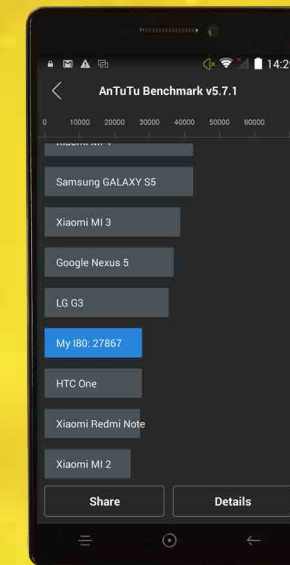
Specifications

Weight: 135 g

Display Size: 5" HD IPS

Memory: 2 GB RAM, 16 GB ROM, Expandable up to 32GB

Processor: 1.4 GHz Octa core processor, Chip-set: MTK MT6592

Dimensions: 139 x 72 x 6.5 mm

Camera: 13 MP AF Dual LED Flash Rear Camera + 5MP Selfie Camera

Battery: 2300 mAh, Li-ion technology

Pros   Cons

- Patterned back cover and the golden color adds even more beauty with the slim touch and attractive look

- 2GB RAM, Octa-core processor with 13MP camera at price of just 19,500/- PKR is the biggest asset of Haier Esteem i80

- Its special features include GAMELOFT, DTS sound system, Dragontrail, infrared Zaza Remote for TV, AC, Projector, DVD etc.

- Still no OTG (On the Go) which was not even in the prior Esteem i70

- Much similar than Haier Esteem i70 in terms of shape and design

Final Verdict

Haier Esteem i80 is a worthy choice with 2GB RAM, Octa-core processor with quick multi-tasking multi-tasking and switching sharply with better efficiency. The price for Haier Esteem i80 is its greatest strength making it an affordable mid-range smartphone with great specs and performance.

By Rizwana Khan

Expanding Horizon
PhoneWorld Participates in

GITEX TECHNOLOGY WEEK 2015

GITEX Technology Week 2015 has marked another successful year with a raft of new product and solutions driving Middle East innovation in the Internet of Things era. It provided a platform for global visionaries from world's leading companies together at a one place and to evaluate and predict the newest technology trends.

More than 130,000 attendees from 150 countries partake in the event which provided a gateway to the Middle East, Africa and South Asia's ICT Industry. Besides many great international companies some Pakistani tech companies also participated in GITEX this year. Here is the list:

- EfroTech
- Abacus Consulting Technology Abtach
- Airlink Communication
- Amos Global

- Brain Logix
- Code Informatics
- Digital Research Labs
- Five Rivers Technologies
- Jin Technologies Private Limited
- Mazars Consulting Pakistan
- Pakistan Software Export Board
- SoftwareSoftronic Systems
- Systems Limited
- Teletimes International
- TechnologyTrade Development Authority

Alongside these companies, PhoneWorld also showcased its products and services in the region's largest ever showcase of future technologies. Phone World Magazine in the only local IT and Telecom magazine that participated in the event and represented Pakistan's ICT sector on international platform. Phone World stall was visited by my many Tech leaders and our magazine was well-received by event attendees who appreciated our team's research and marketing efforts.

Glamorous and Star-studded Launch of
Huawei Mate S and G8

At a glittering and auspicious event, Huawei unveiled its latest flagship smart phone, Mate S, organized at the Royal Palm, Lahore, 9th October, 2015. The evening was star-studded; prestigious media personalities, famous celebrities, fashion icons and high ranking bloggers adorned the event with their presence. The launch event's Red Carpet was hosted by the talented Anoushey and Faizan ul haq wheras the stage event was hosted by charming Ali Safina and his beautiful wife, Hira Tareen. Huawei Pakistan's CEO, Mr. Aragon Meng, opened the evening with a presentation, highlighting Huawei's successful journey in 2015.

There was a series of thrilling music and dance performances by Ahmed Ali Butt with Humayun Saeed joining him later, as a mega surprise for his fans. Emerging Music icon, Sara Haider won over the audience with her sweet voice.

To add to the heat of the event, unique clothing line of Ali Xeeshan was presented on the runway by the stunning models like Cybil Chaudary and Rabya Chaudary and many others. The runway was enlivened with the performance of Uzair Jaswal and Nabeel Shaukat. A Selfie booth, radiating Ali Xeeshan's matchless sense of style was also set up, along with the experience zone, which carried the innovative, star of the evening smart phones, Mate S and G8.Music maestro, Mr. Rahat Fateh Ali Khan, created magic with his enchanting voice and left the audience spellbound for several minutes. The event ambiance was alluring and the aura of it conveyed the matchless prestige of the Huawei brand.

The gem of the evening, Mate S and Huawei G8 were put up on exhibit on the stalls, so that the honored guests could have a first-hand experience of these, elegantly crafted smart devices. The launch event was further escalated with the series of entertainment programs and engaging activities. Mr. Fraz M Khan, Huawei's Head of Marketing, along with the sizzling model Mr. Waqar Ali Khan, gave out a detailed insight to the audience about the exquisite wonders, wrapped in the Mate S and G8.

The innovative "Power of Touch", was the main highlight of the event. Huawei officials emphasized on how the technology world has been glorified with the "Powerful Touch" primarily launched through Huawei Mate S. Another exclusive and modernized feature being delivered through Mate S is the advanced fingerprint scanner, which has broken all the barriers of the conventional smart phone control by giving fool proof access to the main functions of the phone at the single touch and swipe of the finger.

Among the esteemed guests at the Launch, CEO Airlink, Mr. Moazzam Paracha, Muzzaffar Paracha, M& P CFO, Munaf, Xulfi, Maria B, Porche owner Abuzar Bukhari, Tricon village owner Asif Kamal and Farhan Masood CEO of Solotech were also there at the event.

Aragon Meng (Huawei CEO)

Huawei Officials along with celebrities

Moazzam Paracha (Airlink CEO), Aragon Meng (Huawei CEO), Shawn (General Manager Huawei Pakistan Device), Fraz Malik Khan (Head of Marketing) , Muzaffar Paracha (Airlink CEO)

Mr. Shawn (General Manager Huawei Pakistan Device) , CEO (Huawei Pakistan) , Fraz Malik Khan (Head of Marketing) along with Ali Safina and Hira Tareen

Mr. Fraz Malik Khan along with Huawei Brand Ambasadors (Syra Shehroz and Shehryar Munawar)

Ahmed Ali Butt

Uzair Jaswal

TELECOM CAMPAI((GNS

By Saima Ibrahim

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.

Samsung Galaxy J Series

3.8

Samsung's campaign to promote its latest Galaxy J Series smartphones "Galaxy J5 and Galaxy J7,, in Pakistan is more than mare introduction of new devices. The stunning Rup Magon and Qurram Hussain conveyed well the idea of "Galaxy J5 and Galaxy J7,, selfie-focused smartphones to the users. The ad has been pictured at beautiful location with good music and performance by the brand ambassadors. A job well done by Ahsan Rahim and his ream at Adcom.

Verdict: Nicely Presented Campaign

Ufone Super Recharge Offer

5

Ufone has good repute for producing innovation and out of the box advertisements. Super Recharge Offer is a wonderful campaign which pleasantly introduces viewers with an exciting package. The jolly Adeel Hashmi's performance has explained well this campaign. Settings and music also added more value to the campaign. The social media reviews on advertisement also indicates positive response from users.

Verdict: Awesome Ad, Hats Off to Ufone

Warid Mahana Offer

4.4

Operators are now releasing TVCs for each and every package while making the marketing campaigns more challenging. Now extraordinary efforts are required from marketing teams to advertise their campaigns. This time, Warid signed the most favorite and stunning Fawad Afzal Khan for their „Warid Mahana Offer TVC" which definitely earned good fame for the ad. As previously, Warid ad with Amir Khan & Shahid Afridi was a big flop. This time „Warid Mahana Offer TVC" come up with good music, theme, setting and of course the most demanding Fawad khan performed well.

Verdict: Impressive!

QMobile Noir i6i

4.8

QMobile, Pakistan's number smartphone and feature phone brand has often introduces its phone with Indian celebrities and this time again the handsome Shahid Kapoor appeared on screen to launch QMobile Noir i6i. The fast music along with Shahid Kapoor's dance moves focuses on the high speed processor of the device. As per the QMobile's marketing norms, the ad went well in all aspects.

Verdict: Shahid Kapoor Noired

Haier Mobile - Esteem i40 & i50

4.5

Haier Mobile - Esteem i40 & i50 TVC is the latest campaign that is currently running on the television. It is a well-conveyed and nicely presented commercial. The charming Ayesha Omer has added life to the TV advert. She has effectively highlighted powerful i40 & i50 smartphones by relating their heavy usage capacity to her fast pace daily life. Suitable environment and interesting setting have increased the emphasis on campaign and didn't allow the audience to transfer their attention even for a second.

Verdict: Thumbs Up to Banta hi hy 👍

Mobilink Younus Khan 19 Runs

5

Younus Khan has just broken the 22 year old record of Javaid Miandad and became Pakistan's leading Test run-scorer. Mobilink Younus Khan 19 Runs TVC is a special campaign to pay tribute to Younus Khan for his outstanding performance in Test Series. Mobilink has already good place in generating advertisement campaigns. This time „Mobilink Younus Khan 19 Runs TVC" is also good attempt by the operator with perfect settings and theme.

Verdict: Rocking advert for a Rocking star!

M. Mohsin Rehman

TOP MUST HAVE APPLICATIONS & GAMES FOR YOUR SMARTPHONE

Brain Challenge

Rating : 4.2   Price: Free

Brain Challenge App is a lovely Word Puzzle Game for every one, you can boost your knowledge and increase your skill, where you just have to find the word in 4 very addictive game play.
Brain Challenge App Includes Free Hints to help you find the missing word.

PAKISTANI SOFTWARE DEVELOPER APPLICATION

APPNEX

e-Khidmat Center

Rating : 4.2   Price: Free

e-Khidmat Center is the flagship project of Government of Punjab. Multiple services will be offered to the citizens under one roof.
e-Khidmat Center concepts to integrate seventeen governmental services under one roof for citizens, easing Citizens vs. Governmental inter-phase.

www.pitb.gov.pk

PAKISTANI SOFTWARE DEVELOPER APPLICATION

KP Citizen's Portal

Rating : 4.7   Price: Free

The Khyber Pakthunkhwa Citizen's Portal is a step forward towards establishing responsive governance in the province. This android based application allows the citizens to register their complaints about multiple sectors of service delivery.

PAKISTANI SOFTWARE DEVELOPER APPLICATION

Coursera

Rating : 4.3   Price: Free

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