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**Adnan Khan**  
Managing Editor

Dear Readers,

2020 marks the beginning of a new decade with promises of a better digital future. In the last decade, a revolutionary shift in technology took place that changed the way the world worked. Like everywhere else, Pakistan too had made some great efforts to be a part of the digital revolution. We have outlined some of the key steps taken during the last decade in Pakistan's digital journey in our feature article, "How Government Progressed Telecommunications over the decade?"

Today, with the grave possibility of manipulation of our opinions and our decision making by fake news, we as a society are at serious risk of a hybrid war on our collective conscience. The progression in social media penetration and technology uptake, fake news has become a new public dilemma. We have shed light on this issue in one of our articles, "The REAL Problem with FAKE News"

In Pakistan particularly, an astonishing 21 million adults do not have an account due to the unavailability of proper documentation. Among them, the major portion is occupied by the females. The dismal condition of the financial inclusion of Pakistani women has led us to explore the issue to find a plausible solution to the problem. For details read our article, "The state of Women's financial inclusion in Pakistan." Our current issue of Phoneworld magazine also covers articles on mobile health and the challenges of digital Pakistan.

Bjørn Taale Sandberg has been working with the Telenor Group over the past 14 years and is currently heading Telenor Group's research wing. On his recent visit to Pakistan to discuss Telenor's annual Tech Trends for 2020, PhoneWorld obtained an exclusive opportunity to speak with him regarding the technological advancement that will likely start emerging this year.

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

Enjoy Reading...!!!

Thank you,  
*Adnan Khan*  
Managing Editor

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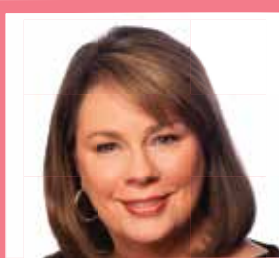
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*Issue 41*

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By Rizwana Khan

# How Government Progressed Telecommunications over the decade?



**2**020 marks the beginning of a new decade with promises of a better digital future. From artificial intelligence to quantum computing and blockchain, a host of new technology solutions will make for a paradoxical and exciting 2020. Undoubtedly, 2020 will be a time of innovation as people better leverage technology but before exploring the future technologies and their impact on our lives let's look back at the last decade of digital transformation and see what we managed to achieve over the last ten years.

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**A major shift in the telecom sector occurred after the re-regulation policy of 2003 that allowed a massive foreign investment in the country and witnessed a significant uptake in internet subscriptions**

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In the last decade, a revolutionary shift in technology took place that changed the way the world worked. Like everywhere else, Pakistan too had made some great efforts to be a part of the digital revolution. Many great

things happened in our industry over the last decade that set the stage for social and economic growth of the country. The Government through its Ministry of IT & Telecom played an important role in bring the much awaited tech revolution in the country. It was only possible through the government's initiatives and support that Pakistan's ICT industry became one of the fastest-growing industries in the world.

A major shift in the telecom sector occurred after the re-regulation

policy of 2003 that allowed a massive foreign investment to the country and witnessed a significant uptake in internet subscriptions. The last decade was especially quite eventful as the government's focus on the growing telecom sector improved and a number of policies were formulated to uplift the industry. Here are some of the notable contributions of government during the last decade that directed the progress in the telecom industry.

### Growing Telecom market

The decade started off with great progress as Pakistan celebrated its "100 million subscribers" in 2010 whereas, broadband subscribers crossed the first million mark in 2013. After that, we saw a rapid growth in the mobile subscriber base of the country.

---

**The decade started off with great progress as Pakistan celebrated its "100 million subscribers" in 2010 whereas, broadband subscribers crossed the first million mark in 2013**

---

Pakistan's emerging mobile industry now connects 164 million people, representing 77% of the country's population. The mobile broadband subscription, on the other hand, stands at 36 percent penetration rate with 74 million users. Impressive growth in mobile uptake started after the introduction of 3G and 4G services in the country. The awareness campaigns of telecom operators along with MoITT and PTA initiatives led to spectacular growth in overall telecom services in Pakistan.

Over the last decade, the growth in the ICT sector has given much confidence to the industry players who have shown visible interest in our local industry and made huge investments. A number of OEMs entered the Pakistani market, some of which even showed interest in local manufacturing. At the same time, mobile operators also made huge investments in the industry in the form of network upgradation and NGMS auctions. Total telecom revenues

increased from Rs. 362 billion in 2010-11 to Rs. 488.8 billion during FY 2017-18. Whereas, the telecom contribution to national exchequer upped from 116.9 billion to Rs. 147.2 billion.

### NGMS Auctions

Over the years, MoITT gave Spectrum management a special focus to end spectrum scarcity and to provide next-generation services in the country. The formal launch of 3G and later on 4G services started a new era of technology boom after which Pakistan's ICT industry progressed by leaps and bounds; uplifting the socio-economic conditions of the country. The process of Next Generation Mobile Services (NGMS) auction started in 2013 and 'Value Partners Management Consulting Limited' was hired as a Consultant for NGMS spectrum auction. Whereas, a successful auction was carried out in 2014 that produced a total of US \$ 1.22 billion for the Government of Pakistan. The uptake of 3G and 4G services increased rapidly and broadband subscribers in Pakistan reached 32.3 million at the end of FY2015-16. Keeping in view the growing demand for next-generation services, in 2016 another spectrum auction was carried out in 850 MHz band which was won by Telenor for the US \$395 million. For the proliferation of telecom services in AJK & GB, government also held WLL spectrum auction where Linkdotnet and PTCL won different lots offered in various regions of the AJK & GB. In 2017 PTA carried out another round of auction for the 10 MHz block of the unsold Next Generation Mobile Services (NGMS) spectrum (4G) which was won by Jazz for \$295 million-plus 10% tax of the auction winning price.

---

**The formal launch of 3G and later on 4G services started a new era of technology boom after which Pakistan's ICT industry progressed by leaps and bounds; uplifting the socio-economic conditions of the country**

---

### Cleaner and better mobile ecosystem

In 2014 the government implemented the 'Biometric Verification System (BVS) for SIM sale' project wherein SIMs are sold and activated only after verification of customer's fingerprints from NADRA. After the implementation of BVS, PTA blocked 521,440 unauthorized numbers and 48,140 unique IMEIs, 423,871 suspected numbers involved in illegal call termination, 752,603 numbers (which were more than 7 per CNIC). In another move to create a clean mobile eco-system and support the industry players, PTA started the type approval of mobile handsets after which only type-approved devices were allowed to be sold in the country. This step played an important role in countering fake and counterfeit devices that were openly sold in the market.

---

**The success of DIRBS can be judged by the fact that other countries like Indonesia and Vietnam have requested Pakistan government to help them in introducing a similar system in their respective countries as well**

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With the growth spurs in the industry, mobile theft and parallel imports of cell phones also stimulated. Grey and counterfeit products are cheaper as compared to genuine products because they are non-taxed and non-duty paid. To counter the issue of counterfeit and stolen devices, a comprehensive system, called 'Device Identification, Registration and Blocking System (DIRBS) was launched. The system is designed to detect sub-standard, fake, stolen and illegally imported mobile phones operating in the country. PTA has so far blocked more than 50 million fake and stolen devices. The success of the system can be judged by the fact that other countries like Indonesia and Vietnam have requested Pakistan government to help them in introducing a similar system in their respective countries as well.



## Policy Changes

In 2015 MoITT introduced its first telecommunication policy with an aim to transform Pakistan into an economically vibrant and knowledge-based country by 2025. The policy covered a number of areas which were ignored in previous policies. It included regulations for Licensing Framework, Transfer of Business, OTT, PTCL, Cross Border P2P, Public Wi-Fi, competition rules, spectrum, infrastructure, telecommunications laws policy review. While in 2018, the first Digital Policy of the country was approved. The policy contains several incentives for the information and technology and services, extension of income tax holiday, 5% sales tax on services (domestic), provision of bank loans to IT/ITeS industry, 5% cash reward on export remittances, Tech SEZs (special economic zones) to create a digital ecosystem with infrastructure and institutional frameworks.

In 2016 'Regulations for Technical Implementation of Mobile Banking, 2016' were introduced after which the interoperability mechanism between multiple banks and multiple operators was made possible that revolutionized the mobile banking sector in Pakistan. In light of the Telecom Policy of 2015, Pakistani mobile operators were allowed to spectrum sharing and trade under certain condition. While to ensure better quality of service for the consumers PTA also changed its tower sharing and acquisition regulations.

The monumental decision of PMCL and Warid Telecom was also approved in 2016. It was the one of the biggest event of the industry that change the shape of the ICT industry of Pakistan.

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**The monumental decision of PMCL and Warid Telecom was also approved in 2016. It was the one of the biggest event of the industry that change the shape of the ICT industry of Pakistan**

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## Consumer Rights Protection

The safeguard of consumer rights has been the top priority of the government over the decade. Creating consumer awareness has been given special importance to keep the public updated about changes in laws and regulation. PTA amended the provisions of "Telecommunication Consumer Protection Regulations, 2009" to protect consumers' interests. As a result of this, all CMOs stopped Inami/Promotional Schemes and fraudulent prize scams are minimized. The Prevention of Electronic Crimes Act 2016 was also passed by the parliament with an aim to counter rampant online harassment and terrorist content although it drew criticism for severely impacting citizens' rights to expression and privacy. But we saw many cases filed and culprits brought to justice for harassment and blackmailing online users, especially women. Whereas, the legislation on personal data protection is in draft/Bill stage and yet to be passed by the Parliament.

---

**The Prevention of Electronic Crimes Act 2016 was also passed by the parliament with an aim to counter rampant online harassment and terrorist content**

---

To ensure the provision of better quality of service, Cellular Mobile Quality of Service Regulations, 2011 and broadband Quality of Service Regulations, in 2014 were also introduced.

## ICT for Girls

ICT for Girls is the biggest initiative that government took in order to overcome gender disparity in ICT. The programme aimed to train young girls with the latest advancement in technologies. The government established over 150 girls empowerment centers where young girls from the marginalized segment are being trained for coding and computing. MoITT under its USF

initiative started this programme in collaboration with Microsoft.

---

**ICT for Girls is the biggest initiative that government took in order to overcome gender disparity in ICT**

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## IT Parks

Technology parks are highly important to improve exports of IT and IT-enabled services (ITES), introduce innovative ideas to create new market place, attract hi-tech business and accelerate the process of transitioning towards a knowledge-based economy.

This helps in creating new jobs and attract foreign investment to increase the overall competitiveness. The ministry through PSEB started the creation of technology parks in 1999 and then during the last decade 15 technology parks were created in Lahore, Islamabad and Karachi.

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**PSEB started the creation of technology parks in 1999 and then during the last decade 15 technology parks were created in Lahore, Islamabad and Karachi**

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## National Incubation Center

The National Incubation Center is Pakistan's largest technology incubation center.

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**NIC provides a creative space for young entrepreneurs to learn the tricks of the trades. So far, 121 start ups have graduated and made their dream a reality**

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The ministry of IT and Telecom set a successful example of public-private partnership by collaborating with Ignite – National Technology Fund, Jazz and Teamup.

The center provides a creative space for young entrepreneurs to learn the tricks of the trades. So far, 121 start ups have graduated and made their dream a reality.

## Awards and Recognitions

It was a very progressive decade for our ICT industry for which MoITT played an important role with its forward-looking approach and solid efforts, the fact that was recognized by the international community as well.

In 2015, Pakistan was awarded with the prestigious 'Spectrum for Mobile Broadband Award' at the Mobile World Congress 2015 held in Barcelona, Spain. Pakistan also won a seat on the ITU Council at the 19th ITU Plenipotentiary Conference held in Busan, South Korea which decided 12 members of the Radio Regulations Board (RRB) and 48 members of the ITU Council through an election. In 2016, Pakistan became a member of iTSUN.

In 2017, Pakistan's efforts for the proliferation of telecom services, and bridging the digital divide was also recognized with the 'GSMA Government Leadership Award 2017' at the biggest annual telecom industry gathering at the Mobile World Congress in Barcelona, Spain.

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**Pakistan's efforts for the proliferation of telecom services, and bridging the digital divide was also recognized with the 'GSMA Government Leadership Award 2017'**

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## What did we miss?

The Telecom and IT sector have come a long way, but there is still a lot of room for improvement. There are a number of issues that are hindering the industry from reaching its truest potential and the Government's role in sorting out these issues is colossal.

The License renewal saga started last year but sadly no fruitful results came out of it. Ideally, renewal decisions should have been finalized 18-24 months prior to license expiry to ensure service and business continuity. Jazz, Zong and Telenor made the payments as set by PTA but only after taking the matter in court. But unfortunately government has yet to come up with a comprehensive policy plan. This poses as a huge challenge for the regulatory.

### **The License renewal saga started last year but sadly no fruitful results came out of it**

Policies for regularization of OTT and other online services were an important part of Telecom Policy 2015 but no concrete efforts have been taken so far to develop a proper policy for them. Similarly, there hasn't been any policy formulated for Internet of Things which is quite unfortunate, especially when we are preparing for 5G revolution in the country which is all about faster internet and connected devices.

According to GSMA's Mobile Gender gap Report 2019, there are 78% male mobile phone users while only 50% female mobile users, creating a mobile gender gap of 37%. The situation of mobile internet users is even bleaker with 38% male mobile internet users and 11% female mobile internet users with 71% mobile broadband gender gap. No substantial initiatives have been taken by the government of the regulatory to close this gender gap. Although PTA cannot remove all the barriers to owning a mobile phone but it can ensure the availability of low-cost mobile devices which is the top barrier preventing mobile ownership for both men and women. PTA needs to

apprise its taxation on mobile devices and telecom services so that common people could afford the mobile and telecom service.

### **There hasn't been any policy formulated for Internet of Things which is quite unfortunate, especially when we are preparing for 5G revolution in the country which is all about faster internet and connected devices**

Low literacy rate and lack of digital skills are another most important barrier that government can remove by ensuring that handsets are usable and accessible for less literate users is important. According to GSMA, women are often less confident in independently acquiring the digital skills required to use a mobile phone and are more concerned with the consequences of making mistakes. So, creating awareness about the use of mobile phones and the ease internet could bring in lives is very important, something that government should work on in order to create a digitally society. The MoITT's ICT for Girls started off quite impressively but after some time it lost its momentum. The government should revive the project and keep updating it regularly.

Internet security and data breaches have become a worldwide concern but some countries are better prepared for such situations; unfortunately, Pakistani is not one of them. The major attack of the year started in mid-October, 2018 with Bank Islami that spread across 22 banks in Pakistan and resulted in more the 20,000 cyber robberies. Before that, Careem and Bank Al-Habib data were also stolen whereas; cyber-attacks on various websites have also become a common thing. Pakistan really needs to focus on the development of a comprehensive cyber security strategy to protect its people and government



## 2020 and ahead

After the advent of 3G/4G mobile technology, our ICT industry faced a sudden boom similarly, a growth spurt is expected after 5G introduction. AI, living robots, flying cars, IoTs, blockchain, hyper automation, all these and many other futuristic technologies will become a reality or at least will be near realization. Government will have to take a proactive role and develop strong policies to facilitate the uptake of modern technologies. We hope that we will be able to overcome our weakness and make the next decade even more progressive.

### **AI, living robots, flying cars, IoTs, blockchain, hyper automation, all these and many other futuristic technologies will become a reality or at least will be near realization**





# Jazz Introduces the World's Most Affordable Smartphone



To improve digital access, Jazz, Pakistan's leading digital company has launched Jazz Digit 4G – 'Pakistan ka smartphone' (Pakistan's smartphone). While Pakistan boasts having some of the cheapest tariff rates for voice and data, the main barrier to internet has been the affordability of smartphones. To help address this barrier Jazz has partnered with KaiOS Technologies to release the Jazz Digit 4G smartphone at the most affordable price point, offering a suite of unique features.

Jazz Digit 4G becomes the most affordable smart feature phone on the global market, at a down payment of just PKR 1800 (USD 11\*). The customer is required to sign up for a one-year service with Jazz at an extremely affordable PKR 300/ month which includes 1,000 minutes, 1000MB data, free SMS and free calling to doctors along with unlimited Facebook and WhatsApp for the first 3 months.

This initiative targets the wellbeing of the lesser privileged and underserved segment of our society with over 55% of Pakistan's 165m subscribers using feature and 2G phones with internet penetration standing at 35%. While access to the internet is said to be the most effective driver of GDP for emerging economies.

The smartphone comes equipped with a Jazz Super 4G SIM that powers WhatsApp, Facebook, YouTube, Google Maps, Google Voice, and Jazz TV as part of the 200 and more apps they can access at the KaiStore, since the device runs on KaiOS, the third largest mobile operating system worldwide. With a sophisticated front-and-back camera and flash, Bluetooth, Wi-Fi, and Hot-spot facility, this phone provides an almost all-inclusive feature set that any leading smartphone may have.

The launch event was attended by leading government and telecom leaders who lauded a private sector company for being invested in improving the country's digital and financial inclusion landscape.

Jazz celebrated its 25th-anniversary last year with a robust 60 million subscriber base, and this smartphone launch marks another milestone in the commitment to empowering Pakistan's youth through technology.



By Zainab Saeed

# The REAL Problem With FAKE News



**F**ake news and propaganda have been around for centuries but social media platforms have provided a new means of communication to spread lies in no time like a wildfire. Most people who want to spread fake news among the mass, are using different social media platforms as these are the major sources of communication. There are many fake news pages on Twitter and Facebook which are wide-spreading the misinformation that encourages the element of hate and many other social problems that damage the societies to a great extent.

Fake news is published intentionally on social media to misinform or deceive readers. Lots of things that we usually

read online especially in our feeds on the social media platforms may seem to be real and genuine but these news are often not.

---

**Fake news and propaganda have been around for centuries but social media platforms have provided a new means to spread lies in no time like a wildfire**

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Most of these news are created to influence the views of people, push a political agenda or sow confusion among the mass. Sometimes online publishers also publish fake news to make their businesses more profitable.

The trend of fake news is not new, but it got the most attention in 2017 by many agencies and then it became a hot topic. Traditionally, the credible sources, journalists and media outlets were the major sources that published news who followed strict codes of practice. But now the internet has changed the tradition totally and it has introduced the new way to publish and share the information among the people with very little regulation or editorial standards.

Now getting the news from social media sites and networks has become common, that's why it is not easy to figure out whether stories are credible or not. Lack of understanding among the people that how the internet works also contributes to an increase in fake news or hoax stories.



Spreading fake news has now become a profitable business where publishers generate revenue by creating such type of stories that go viral within minutes. Because they are aware of the fact that the more the clicks a story gets, the more online money they can make.

There are various types of fake news that can mislead anyone, and we need to be aware of it that how they can misguide us in various ways. The most prominent one is Clickbait that is intentionally designed to achieve more visitors to the website. The purpose of this type is also to increase advertising revenue for websites. These types of stories generally use sensational headlines to get the attention of the public and follow a hypertext link to the publisher's website without taking care of any truth or accuracy. For example, usually, you will see the headings like "how the top ten rich people of the world got rich."

**Lots of things that we usually read online especially in our feeds on the social media platforms may seem to be real and genuine but these news are often not**

The other type of fake news is Propaganda that misleads the audiences by promoting a biased point of view or a political agenda. Parody fake news is related to many websites and social media accounts that publish fake news stories for the purpose of entertainment and parody of various well-known personalities, such as The Onion, etc. Sloppy Journalism is a type of fake news where journalists usually publish a story without any authentication or checking all the information whether it is true or not. Whereas, in Misleading Headings, the news is not completely false but it takes help of misleading or sensational headlines to grab the attention of readers. These types of news have only headlines and small snippets of the full article displayed spread quickly on social media and grab the attention of viewers easily.

### **Spreading fake news has now become a profitable business where publishers generate revenue by creating such type of stories that go viral within minutes**

#### **How to tackle fake news?**

One should take a closer look whenever they read any story, especially on any sensitive issue. Readers should always check the source that if it is a credible/reliable source? In case you are reading the story that is published on an unfamiliar site, then check the about section and try to find out detailed information about the author of the story. Otherwise, do a quick search for more coverage or original sourcing.

Whenever you see any sensational headline on any website, try reading the entire article carefully because many fake stories carry shocking headlines in order to grab the attention of viewers.

It has also been observed that most often the headings of fake stories are in all caps and they usually use the exclamation points. You can also cross-check the story on any reputable news/media outlets if they are also reporting on the same topic? Always check the date when the article was published as fake news stories often contain incorrect dates. So it is very important to find out when and where it came from.

Google and Facebook have also taken some serious steps to stop the spreading of fake news on their platforms. Recently, they both have introduced new measures to tackle fake news by reporting and flagging tools. Facebook has introduced a new metric called Click-Gap, which Facebook's News Feed algorithms will use to determine where to rank a given post. Click-Gap, which Facebook launched globally is the company's attempt to limit the spread of websites that are disproportionately popular on Facebook compared with the rest.





Whereas Google has unveiled a tool that helps news organizations tag stories that debunk misinformation so that Google News can more easily feature it. Another new tool provides journalists with a database of all stories with that tag so that they can find those fact-checking stories. Other media organizations such as BBC and Channel 4 have developed the sites for fact-checking.

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**Google and Facebook have also taken some serious steps to stop the spreading of fake news on their platforms**

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The higher authorities of many countries have also realized that fake news is something that must be actively fought and now they have started working on setting up the services to stop the spreading of false stories. The higher authorities of many countries have also started considering the imposing regulations and punishing sites that publish misleading stories.




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**There is a dire need for critical thinking to highlight the vast amount of information available online and rise in fake news**

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Today, with the grave possibility of manipulation of our opinions and our decision making by fake news, we as a society are at serious risk of a hybrid war on our collective conscience. We have to develop tools to cope with it. There is a dire need for critical thinking to highlight the vast amount of information available online and rise in fake news.

It is very important to combat the fake news by creating awareness among the people that they should understand the need to question the story they read because it is not only the responsibility of electric or social media to check the facts but it is the responsibility of the readers as well who read and share news.

---

**It is not only the responsibility of electric or social media to check the facts but it is the responsibility of the readers as well who read and share news**

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# Riversong has officially launched in Pakistan, with Yellowstone as its exclusive official distributor



A smartphone accessories brand – Riversong, with its presence in more than 30 countries, is now going to make its official launch in Pakistan with Yellowstone Technologies (Private) Limited as its exclusive official distributor, intending to ensure the availability of its products, all across the country.

On 1st February 2020, a launch event was held in Pearl Continental, Lahore, where Riversong officially entered into a partnership with Yellowstone. This collaboration is allowing Riversong to cater to its vision of inspiring people's curiosity by passionate innovation.

As an accessories brand, Riversong has an extremely dynamic product portfolio, with all their products designed exclusively in California. The rapidly evolving company offers a wide-range of accessories such as power banks, earphones, smart watches, fitness bands, wall chargers, car chargers, and headphones etc. Given how both Yellowstone and Riversong are united by a mutual quest to provide the finest quality accessory experience to the consumer, all products are to come with a 1-year replacement warranty.

In order to ensure a simplified, seamless business-to-customer experience, Yellowstone also revealed that it has developed an e-commerce portal called Cube, [www.cubeonline.pk](http://www.cubeonline.pk), through which consumers can exclusively purchase legally imported, tax paid Riversong accessories at competitive prices.

It is anticipated that this collaboration between Riversong and Yellowstone will revolutionize the sales paradigm in Pakistan and will be the gold standard for a renewed approach to customer facilitation in the industry.

This partnership will help the smartphone consumers immensely as they will have access to the Riversong creative product portfolio at their doorstep. It is anticipated that this partnership of Riversong and Yellowstone will redefine the sales culture in Pakistan and explore more ways to facilitate its customers at large.





# Honor 9X

## A Big Screen for a Small Price

### Design

The phone feels surprisingly premium. The chassis' materials — particularly the 3D glass back — give the impression of a more expensive handset.

The back of the phone looks only slightly textured under low to average lighting, but when you catch a bright light, you'll see an X-shaped pattern made of tiny diamond-shaped elements appear on the back of the phone. The 9X's Midnight Black colorway is just a plain glossy surface; far more subtle but a lot less interesting to look at.

The 9X's display is notch-free, but there's a very noticeable chin bezel and a smaller forehead containing the call speaker.

### Display

The mammoth 6.59-inch FHD LCD display is why this phone has such an intimidating size. It's a lot of real estate for the price, particularly when you consider it comes without a notch or punch-hole.

The screen has an extended 1080p resolution - 2,340 x 1080 pixels - making for a 19.5:9 aspect ratio and 391ppi density. In our testing, the Honor 9X posted good numbers for brightness and contrast ratio - 464 nits and 1285:1.

### Cameras

The Honor 9X has the same triple camera on its back as the Huawei P30 Lite. The primary is a 48MP PDAF f/1.8 snapper, joined by an 8MP fixed-focus, f/2.4 ultra-wide, and a 2MP, fixed-focus, f/2.4 depth sensor.

There is also a single LED flash.

The main camera uses a Sony IMX582 48MP sensor that has a quad-Bayer array for pixel binning. The resulting image is 12MP in resolution but with less noise. You can shoot in 48MP though, and under the right circumstances (good light), you will get a seemingly native 48MP picture done by demosaicing (reconstructing by interpolation) the missing color information.

Huawei's AI is available, and it can be turned quickly on or off via a toggle on the viewfinder. It will recognize 22 categories of scenes and adjust image parameters accordingly, though the real-life effect, as a general rule, is the pumped-up contrast and boosted colors.

There is also Huawei's Night mode - it will produce good pictures, even if it has its limitations. It creates pseudo long exposures by stacking multiple frames gathering light along the way. We're talking four-second-long hand-held exposures, which would otherwise result in a blurry mess.

### Software

The operating system is not Honor's own Magic UI, which it saves for its higher end models, but Huawei's EMUI 9.1, which means you get an Android 9 Pie user experience.

Honor is pushing the presence of GPU Turbo 3.0, its own gaming optimization software that works with over 20 popular titles to squeeze the best performance out of the phone.

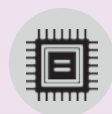


### Performance

The 9X only has one set of internal specs options: a Kirin 710 processor, 6GB RAM and 128GB storage which is still enough for everyday use.

The 9X is powered by a 4,000 mAh battery. The 9X survived about 10 hours of constant YouTube streaming with a little power still left in the tank. It joins a lengthening list of phones released this year that you could happily charge only every two days if you were careful with how you used it. The Honor 9X charges up via a 10W fast charger that performs well enough.





64GB 4GB RAM  
128GB 4GB RAM  
128GB 6GB RAM  
Octa-core



Non-removable Li-Po  
4000 mAh battery



6.59 inches



48MP+8MP+2MP

**PKR.38,999/-**

### Pros

- Gorgeous design
- Large battery
- No notch or hole-punch
- 128GB of storage
- Decent main camera

### Cons

- No NFC
- Attracts fingerprints, dust, crumbs like crazy

### Final Verdict

A gorgeous design and well-made hardware let down a little by some performance glitches. It's an efficient device with enough premium detailing to make it feel as special as devices two or three times its price.

**5G, AI and IoT are the megatrends that are going to be with us for years to come**

**Bjørn Taale Sandberg- Senior Vice President  
Telenor Research**



**F**rom the “Internet of Bodies” and Green Tech to DIY AI and trends in digital trust, a host of new technology solutions, along with complex Big Tech conversations, will make for a paradoxical and exciting 2020. In the last decade, mobile service providers, device makers and Internet companies built a virtual second world for us to live, work and play in – a digital one. At the start of this new decade, Telenor Group’s research arm believes that people will reflect more on how our real world and this new digital reality should safely and productively intersect.

Bjørn Taale Sandberg has been working with the Telenor Group over the past 14 years and is currently heading Telenor Group’s research wing. He was also the first Chief Marketing Officer when Telenor Pakistan launched its services in 2005. On his recent visit to Pakistan to discuss Telenor’s annual Tech Trends for 2020, PhoneWorld obtained an exclusive opportunity to speak with him regarding the technological advancements that will likely start emerging this year.

### **PW: How Telenor research developed its 20 trends for 2020?**

Bjørn Taale Sandberg: We researched certain important areas for the telecom sector like Artificial Intelligence, mobile technologies, as well as regulatory and market developments globally. Based on our research throughout the years, we try and figure out what trends will be particularly significant next year. It is a summing-up exercise at the end of each year that leads us to forecast the top technological developments that we’ll see the following year. In addition to that, from time to time, we carry out a long-term study where we try to peek ten years into the future and foresee how our industry is going to shape up. This gives us a drawing board to start our research directions for the next year.

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**We carry out a long-term study where we try to peek ten years into the future and foresee how our industry is going to shape up**

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### **PW: Which technologies in the 20-tech trend list would be the most relevant to Pakistan?**

Bjørn Taale Sandberg: I think that underlying big trends are the ones that lead up to the ICT sectors with the increased significance of data, AI, IoT, 5G and industry collaborations to evolve the ecosystem. AI, to some extent, is maturing, and we are starting to see the challenges we need to overcome to continue to drive the value from AI. Moreover, developments in network technology will spur cross-industry collaborations to deliver more value to customers and provide solutions around eHealth, logistics, security systems, and remote investigations.

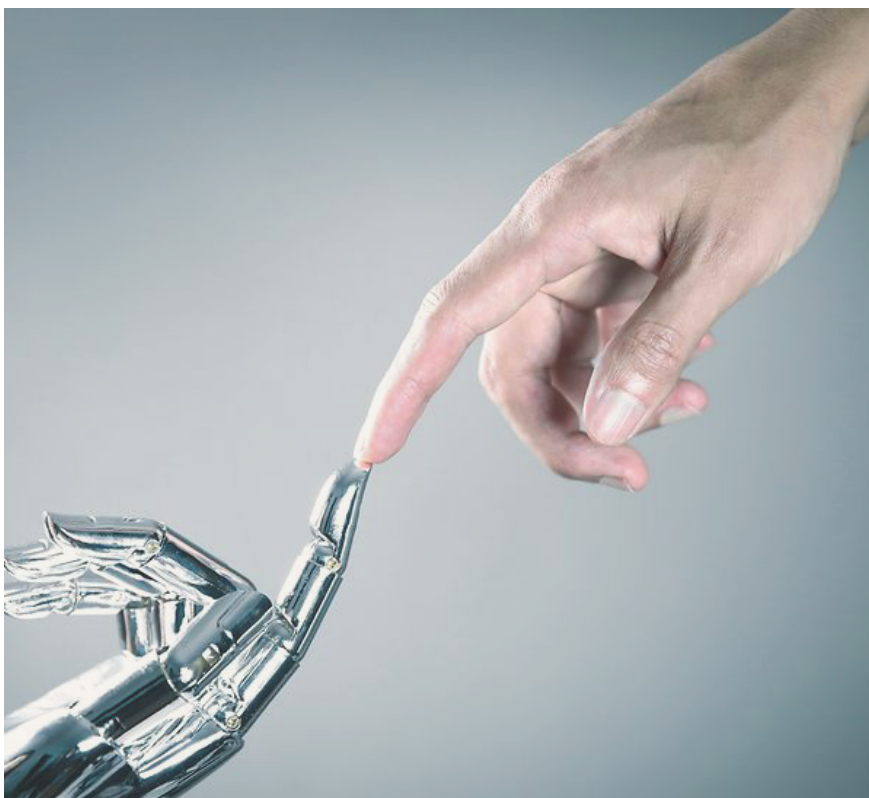


This year, there will also be an increased focus on privacy since consumers, in general, are becoming more aware and concerned about the security of their data. Companies will increasingly compete to win customers’ trust while delivering value. Another trend that will be prevalent is the reality of green tech that will hit home through practical applications. This is already happening and is expected to grow with increased efforts to reduce carbon footprint by using IoT, big data and AI Tech while cutting costs at the same time.

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**Developments in network technology will spur cross-industry collaborations to deliver more value to customers and provide solutions around eHealth, logistics, security systems, and remote investigations**

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## PW: What are the top 3 trends you would highlight in the list?

Bjørn Taale Sandberg: I would like to highlight the next-generation mobile technology (5G) that is starting to roll out in some markets. We have started trials in several of Telenor's business units across the world. With 5G technology, we are creating new opportunities and solutions for industrial development. 5G allows you to build virtual networks with performance criteria for specific customers. As a hypothetical example, an AI system can allow a string of 5 high-speed delivery trucks to run in a row, where truck numbers 2, 3, 4 and 5 are remotely connected via 5G to the first truck with extremely low latency. When the first truck starts to slow down, the following trucks will almost immediately start braking at the same time. The application of this nature can also reduce fuel consumption in trucking by up to 25%.

### With 5G technology, we are creating new opportunities and solutions for industrial development

Another significant trend is the use of AI tech in digitizing industries. For example, in the health industry, you may swallow a smart pill, fixed with a camera, which is connected to 5G and controlled by AI to speed up the camera or zoom in as required.

To develop the market and ready it for 5G, telecom operators will open-up for tech arranged marriages i.e. there will be increased collaborations with third parties to create solutions; since it's not possible to create so many opportunities in isolation.



## PW: How do you think 5G will impact all these trends?

Bjørn Taale Sandberg: I think 5G opens-up for new cross-industry verticals with industrial and societal developments. It will open-up new ground to explore possibilities in IoT more than ever before.

### With 4G, you can connect up to tens of thousands of devices per square kilometer, depending upon the network strength; but with 5G, that possibility of connections grows to 1 million

With 4G, you can connect up to tens of thousands of devices per square kilometer, depending upon the network strength; but with 5G, that possibility of connections grows to 1 million. This means we can put sensors on anything in the physical world and because of the enormity of its volume, these sensors will be cost-efficient. This encourages the ecosystem players to build more sensors and new applications in the market. With more sensors, more data is generated, and this gives life to Artificial Intelligence. Therefore, 5G along with developments in IoT is going to fuel AI, which will be the underlying technology for digitizing the physical world.



## PW: Technological trends carry on from year to year. AI and 5G for example, have been growing for the last couple of years. In your opinion, which developments will continue to influence the world as well as business industries beyond 2020?

Bjørn Taale Sandberg: 5G, AI and IoT are the change-makers and the megatrends that are going to be with us for the years to come. They will continue evolving from year to year. However, there is also the downside of data-driven AI like fake news and we are starting to understand the need for combating information bias and dirty data. This realization is no doubt a good thing because we will continue getting the value out of this technology and it will enable us to foresee such challenges with other upcoming technologies.

### There is also the downside of data-driven AI like fake news and we are starting to understand the need for combating information bias and dirty data



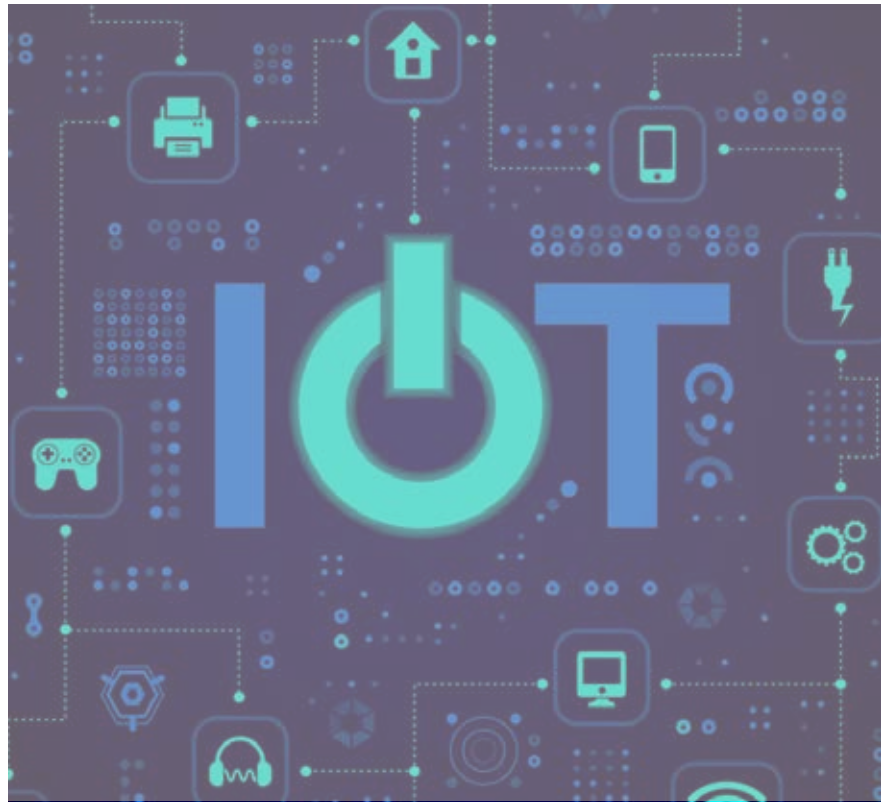
**PW: Any suggestions for Pakistan to cope with the fake news trend?**

Bjørn Taale Sandberg: I think the most important thing is to combat fake news by creating awareness among consumers and understand that they need to question the story they read and the content they see; especially if there is a new twist to the story. Many people come across content on social media which is difficult to differentiate from reality. Therefore, we as individuals need to be constantly aware of this and question the content we read and see. In short, don't take anything as fact until you check it.

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**we as individuals need to be constantly aware of this and question the content we read and see**

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# Vivo S1 Pro

## With Trendsetting Diamond Quad Camera

### Design

The S1 Pro has a diamond-shaped camera module on the rear. It's eye-catching, given that not a lot of smartphones these days have varying styles of camera modules. Vivo has stated that jewelry was the company's inspiration for the S1 Pro's overall design language, hence the diamond.

Upfront, the S1 Pro sports a display that has a waterdrop notch, housing the front camera. Slim bezels surround the panel, with the chin wider than the rest.

The S1 Pro has a premium feel to it, thanks to its glass construction, paired with a metallic frame. It's robust in the hands, but it is quite thick and hefty. Despite that, it's comfortable to grasp because of its slightly curved rear. As always, with glass back smartphones, the S1 Pro is prone to fingerprints, smudges, and dirt, so we advise users to use a case with it.

### Display and Multimedia

The S1 Pro possesses a rather sizeable Super AMOLED display, measuring at 6.38 inches and with an FHD+ (2340 x 1080) resolution. There's no Gorilla Glass protection equipped on this, but Vivo did install a screen protector over the display. As the S1 Pro has a Super AMOLED display, it produces vibrant and punchy colors with good contrast and sharp details.

### Camera

Sitting on the rear of the device and inside that diamond camera module is a 48MP primary camera, 8MP ultrawide, 2MP depth, and a 2MP macro lens. Meanwhile, residing in the waterdrop notch on the front is a 32MP camera.

For selfies, images produced look pretty modest, with nice details and good colors. Portrait-wise, subject-background separation is present; however, highlights can appear blown out at certain times.

Photos produced by the rear cameras look rather decent. The S1 Pro's shutter speed can get slow, though, depending on the lighting condition. However, the dynamic range can get pretty good, and there's sharpness in the details as well. For portrait images, the subject-background separation is quite good.

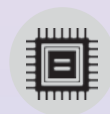


### Performance and Benchmarks

Qualcomm Snapdragon 665 powers up the S1 Pro, paired with Adreno 610 GPU and 8GB of RAM. The chipset is moderate at best; basic tasks such as browsing, navigation, productivity, media watching and streaming, and multitasking can be handled by the S1 Pro pretty good without noticeable lags or delays.

The S1 Pro pretty much has everything, including dual SIM capability, 4G LTE, WiFi, GPS, and Bluetooth 5.0. The S1 Pro's 4,500mAh battery yielded us 21 hours and 52 minutes of playback. As the S1 Pro has Dual Engine Fast Charging support, filling up its battery to a full 100% took us just under two hours.





128GB 8GB RAM  
Octa-core



Non-removable Li-Po  
4500 mAh battery



6.38 inches



48MP+8MP+2MP+2MP

**PKR.43,999/-**

### Pros

- Premium-looking design
- Decent selfie and rear cameras
- Long battery life
- Good performance
- Schott Xensation 3D for better protection

### Cons

- Minor differences from the S1
- No Gorilla Glass protection

### Final Verdict

The S1 Pro has a beautiful design, a well-calibrated AMOLED display, and a long-lasting battery. On the downside, the chipset is a bit lackluster and the camera performance doesn't lend it a competitive edge.

By Osama Anjum

# The state of Women's financial inclusion in Pakistan



**T**he so-called 'third world' countries in the world are experiencing a huge dilemma. Rather than going in the upward direction in terms of growth, they are still moving down in many areas. One of the major among them is financial inclusion. Particularly, the financial inclusion of women. The state of which is worsening as the population is on the rise. They are currently holding an inverse relationship among them. But what basically is financial inclusion and why it is so critical?

According to WorldBank.org, Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs

– transactions, payments, savings, credit, and insurance – delivered in a responsible and sustainable way. In easy words, access to a transaction account is the first step toward broader financial inclusion. By the transaction, we mean allowing people to send, store and save money. Thus, a transaction account acts as a gateway to other financial services and opportunities.

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## Access to a transaction account is the first step toward broader financial inclusion

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In the developing part of the world, the state of financial inclusion is discouraging. The most recent report of "Global Financial Inclusion and Consumer Protection Survey 2017",

published by the World Bank has reported that the majority of the adults especially women remain excluded from the financial system in more than 60 countries. In Pakistan particularly, according to Global Findex, an astonishing 21 million adults do not have an account due to the unavailability of proper documentation. Among them, the major portion is occupied by the females. And this is not a good sign for any developing country. The women constitute about 52% of our total population. So currently, there are more than 100 million females in our country. Unfortunately, a handful of them is being included in the financial sector. For any country to become truly prosperous, Gender Gap disparity in terms of financial inclusion must be excluded.



On the contrary, Pakistan is unable to do that and rather continues to widen that gap. The World Economic Forum's Global Gender Gap Index 2020 was released a couple of days ago. The results for Pakistan are dismal and further exacerbating the current fragile condition. Our beloved country is ranked 151 out of 153 countries. According to recent report by Dawn, Pakistan faces a great issue with only 26 percent female participation in the workforce. Now that's scary for any country that wants to become a part of the developed world.

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**Global Gender Gap Index results for Pakistan are dismal and further exacerbating the current fragile condition. Our beloved country is ranked 151 out of 153 countries**

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**Barriers to financial inclusion of women**

Traditionally, in our country women have very little role in entrepreneurship and other financial activities. A kind of stereotype prevails in our country that women have less to do with entrepreneurship or business because they don't understand it. Now, this stereotype has to be changed for the financial inclusion of women. This can be done through the propagation of awareness among the masses. The women who are included under

financial banner mostly belong to Upper-Middle or Upper-class. The conservative middle class of the remote areas needs a good counseling session to remove the prevailing stereotypes from their minds. Because, they are the ones who are actually stopping their mothers, wives, and daughters from progressing and becoming an active part of the financial sector.

Another basic problem that limits our women is lack of access to physical and financial capital. That actually plays a major role in excluding women from the financial banner. I will quote some examples for further justification. According to Consortium for Development Policy Research (cdpr), only 2 percent of the women in Pakistan own a house independently while 7 percent own jointly. Furthermore, just about 4 percent of women own agriculture lands while the same percentage of women have taken loans from the banks. Now, we can understand that access to physical and financial capital is very important. It is considered as a primordial step towards financial inclusion. Therefore, authorities must also take some serious notice of this issue as it can lead to positive results.

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**A basic problem that limits our women is lack of access to physical and financial capital**

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We are living in a globalized and technological world where everything is interconnected. One can send remittances and transactions with just one click, thus being included in the financial sector. And still, we are lagging behind the world. The reasons are obvious; inadequate education and underdeveloped technological sector have played a major role in undermining the state of financial inclusion.

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**Inadequate education and underdeveloped technological sector have played a major role in undermining the state of financial inclusion**

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**Measures taken to address the issue**

To tackle this worsening situation, economic policymakers in Pakistan are emphasizing on expanding financial inclusion through various measures. This has led to a variety of policy formulations over the last decade. Like, the promotion of microfinance, the setting up of small and medium enterprise (SME) finance, and the enabling of digital finance. These measures started to show results, according to data from two rounds of the Access to Finance Surveys (A2FS) for Pakistan (2008 and 2015), the proportion of the adult population served by the formal financial sector rose from 12 percent to 23 percent. It picked up momentum when the Government of Pakistan launched its National Financial Inclusion Strategy (NFIS) in 2015. This strategy encompasses some very ambitious objectives. The main goal among the objectives is to provide access to formal accounts to 50 percent of the adult population by 2020, ultimately pursuing the agenda of universal financial access. The policymakers have come to the realization that this strategy cannot be implemented successfully until the promotion of financial inclusion of women. In 2015, only 11 percent of adult females had formal accounts. Therefore, another primary goal of this strategy is to increase the percentage of formal account holders up to 25 percent.





The Punjab Government has also taken some steps to overcome the issue. The main focus of the government is to improve women's skills, so they can generate income through entrepreneurship. Also, another important step is to provide loans. Like, the government has launched a program Akhuwat, under which it provided smaller loans to over 700,000 women in 2016.

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### **The government has launched a program Akhuwat, under which it provided smaller loans to over 700,000 women in 2016**

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### **Technology; the real enabler of financial inclusion**

There is always an indirect role of technology in spreading awareness among the people regarding many problem of society. The same is the case with the financial inclusion of women. The advent of social media and even television has raised the level of information provided to the general public. There are programs, TV shows, and documentaries etc. which show the statistics and provide an upsurge to raise its importance. In addition to that, the internet itself has played a vital role in the issue as well.

The early most important breakthrough which technology brought regarding financial inclusion was the inception of digital cash transfer. The credit goes to mobile operators working in our country. The likes of Easy Paisa, Jazz Cash, Mobi Cash, U paisa,, etc. It allowed people to transfer money without any bank account in an instant. Identity cards and mobile numbers were the only requirements to transfer money at the initial stages. And now, the whole system has been transformed into Bio-Metric. Along with it, there are apps available for these digital cash transfer platforms, where you can make an account as well and earn more. Similarly, a mobile phone money account is one of the primary steps towards elevating financial inclusion.

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### **The advent of social media has raised the level of information provided to the general public**

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The online banking has been playing a vital role in this issue. It allows the masses to receive credit and insurance to start and expand their businesses. This also helps in breaking many stereotypes which are considered as barriers towards financial inclusion. Like, in remote areas people don't tend to send their females to banks as they feel insecure. So, by the inception of online banking, this problem is easily solved.

Another very familiar initiative is the Benazir Income Support Program (BISP), which has also little bit contributed to addressing this issue. It was initiated in 2008. The program has assisted the women of rural areas in a way that it has given access to formal accounts and transaction cards which is a primary step towards financial inclusion. The technology has also played its part in it. There was constant awareness spread among the masses through mobile phones whenever the scheme was launched in a year. Without going to any bank, people had the information regarding the amount of capital through text messages.

There is a very recent initiative taken under the Ehsaas program to counter financial exclusion. It is known as the Ehsaas Innovative digital payment system for the poorest women. Under the umbrella of Ehsaas, the program is called as the Khilafat Cash-transfer program. The program will be launched in the province of KPK first. Then it will propagate further. This program will utilize a fully biometric payment system to provide safe, digital cash payments to millions of women. Therefore giving them access to the bank account for the very first time.

The state of financial inclusion must be brought under scrutiny. Because it is a very serious matter and requires much attention. Therefore, the policymakers in our country must play a key role. The barriers to financial inclusion must be eliminated instantly. A new yet more effective policy framework and its proper implementation is required to counter this issue. As financial inclusion is pivotal to a developed and prosperous nation.

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### **A new yet more effective policy framework and its proper implementation is required to counter this issue**

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# TECNO Cricket SuperStar Challenge hits Lahore ground



TECNO Cricket Superstar fleet has finally knocked at the doors of Superior University, Lahore; with Abdul Razzaq. After the enthralling presence of Pakistan's one of the greatest batsman, Younis Khan at NED University, Karachi; TECNO's Cricket fever is breaking all the records in Lahore with the electrifying ardor of students, taking part in various cricket combats.

The cricket legend, Abdul Razzaq, is regarded as the youngest cricketer in the world to take a Test cricket, hat-trick in a match. He is globally recognized as one of the most cultured bowlers. Having his birth roots in Lahore, he ignited the passion for cricket within students and spent many hours among the participants. He gave interesting tips to the students and taught them various tricks, regarding the art of cricket. Later, he shared with them his struggle of emerging as a phenomenal Cricketer and highly encouraged the blooming cricket enthusiasts.

TECNO'S General Manager, Mr Creek Ma, upon his sheer delight on the event's success and having AbdulRazzaq on board said, "TECNO feels privileged to boost the Cricket aura among the Asian crowds. The Cricket Superstar Challenge is a way to enmesh and infuse the en masse through a platform of quality service and wide consumer access reaching the audience through their most cherished sport."

Students were enthralled to have Abdul Razzaq amongst them. They participated with full zeal and zest in all the challenges such as, "Hit Your Aim", "60 sec challenge" and "Dart Game". The participants took many selfies with the cricket legend. The overwhelming response by the students took Razzaq by surprise and he extended his gratitude towards TECNO for pulling off such a spectacular event.

TECNO, aligning with its legacy of promoting Pakistan's cricket culture left the Lahori crowd ambushed with its leading Cricket Superstar Activity. The brand revealed that its next destination would be Islamabad. So, get ready for the brands next BOOM!



# Samsung Galaxy A51

## Top features at an attractive price

### Design

The Galaxy A51 has an Infinity-O display. The centered punch hole for the front camera allows for a slimmer top bezel. It's made from the same "glasstic" material as previous Galaxy A devices. It doesn't feel cheap or obviously plasticky and it's not slippery either. The subtle curves at the back allow for a comfortable grip during prolonged use.

The new L-shaped camera setup dominates the back, which is adorned by a prism-like crisscross pattern. It's much more subtle than a gradient finish and the light plays off of it beautifully.

### Display

The Galaxy A51 comes with a 6.5-inch Infinity-O Super AMOLED Full HD+ display, with 1080×2400 pixel resolution and 20:9 aspect ratio. It's marginally taller than the Galaxy A50's 6.4-inch panel. The bezels are a bit slimmer than its predecessor but there's no edge-to-edge action happening here. It's a flat panel that actually feels like a refreshing break if you've been using curved displays for a long time. A screen protector comes pre-installed.

Samsung pumps out exceptional OLED displays without breaking a sweat. It gets nice and bright with excellent viewing angles, deep blacks and rich colors.

### Camera

This is where the Galaxy A51 really comes into its own element. The camera setup is the biggest selling point of this smartphone and Samsung is offering an interesting mix. The Galaxy A51 has a 48-megapixel f/2.0 primary and a 12-megapixel ultra-wide f/2.2 camera that has a 123-degree field of view. It retains the 5-megapixel f/2.2 depth camera of its predecessor.

The resulting images are nice and sharp with great color reproduction. Low-light performance is certainly better than it was on the Galaxy A50. It doesn't tend to overexpose shots as much under artificial lighting.

It's the 5-megapixel macro camera that most people will be interested in. That's really what's "new" with this device. A macro camera allows you to take incredibly detailed close-up photos of a small subject as they can focus closer to the subject compared to conventional lenses. This lets you fill the frame with the subject and thus capture more detail. Despite its 5-megapixel resolution, the macro camera is capable of taking some good close-up shots.



### Software and performance

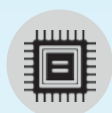
The Galaxy A51 is its first smartphone to ship with Android 10 and One UI 2.0, coming out before this year's Galaxy S flagship. It's covered for the next two Android platform updates.

The Galaxy A51 is powered by Samsung's Exynos 9611 processor. It's an adequate setup, coupled with 6GB RAM. The Galaxy A51 packs enough punch to handle whatever you can reasonably throw at a smartphone in this segment. Given that it has four 2.3GHz Cortex-A73 cores to do the heavy lifting, the Galaxy A51 will be able to support your PUBG habit at the highest graphics setting without breaking a sweat.

### Battery

The Galaxy A51 has the same 4,000mAh battery with 15W fast wired. It's a pretty chunky battery, one that's easily going to get you through the day with substantial usage. If your usage isn't as intense, the battery can easily last you just under two days, particularly if you have just one SIM in the phone. Sadly, the A51 doesn't come with 25W fast wired charging.





64GB 4GB RAM  
128GB 4GB RAM  
128GB 6GB RAM  
Octa-core



Non-removable  
Li-Po 4000 mAh  
battery



6.5 inches



48MP  
+12MP  
+5MP  
+5MP

**PKR.53,999/-**

### Pros

- Big screen and battery
- 4 rear cameras

### Cons

- Not water resistant
- No wireless charging

### Early Verdict

The Samsung Galaxy A51 appears to get the mix right when it comes to features vs price point, and it's a smartphone you should definitely keep an eye on this year as it could be an affordable handset champion.

# Digitization of the health sector in Pakistan. Where do we stand?



**A**ccess to basic health facilities is the basic right of every individual. It is not only important at a personal level but also at the national level because a healthy population makes up productive human capital. Luckily, advancement in technology has significantly improved our way of living in every aspect. Information technology, Biotechnology, Artificial Intelligence, the development of medical devices and equipment, and pharmaceuticals all have made substantial contributions to improvement in the health of people. From very small innovations like ankle braces, adhesive bandages, wearable sensors and health trackers to more compound technologies like MRI machines, everything has changed after the boom of the technology revolution.

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**Information technology, Biotechnology, Artificial Intelligence, the development of medical devices and equipment, and pharmaceuticals all have made substantial contributions to improvement in the health of people**

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The limitations of healthcare facilities are a serious problem in most developing nations. According to the World Health Organization (WHO), in 2010, around 5.3 million people died because of infectious diseases, HIV, malaria, tuberculosis (TB), hepatitis and neglected tropical diseases such as leishmaniasis. The death rate reduced

to 4.3 million in 2016. In Pakistan, the infant mortality rate was 83 per 1,000 live births in 2000. Major causes of infant mortality are immunization diseases, diarrhea, malnutrition, and poor environmental sanitation. In 2018, the rate reduced to 69 per 1000 live birth, technology played an important role in this improvement.

There is a large population that lives in rural areas and do not have the necessary healthcare services. The extension of Information and Communication Technology (ICT) has set up an exceptional opportunity for the delivery of healthcare facilities and infrastructure to resolve problems of accessibility and timely health care service provision. In Pakistan, digital health initiatives have been introduced

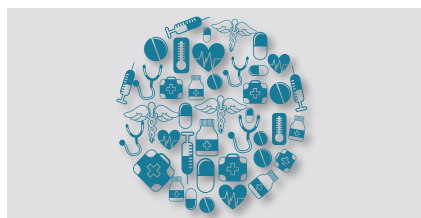
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In recent years, especially with the increase in the 3G/4G penetration rate, the IT and Telecom sector has shown an astonishing growth. 3G/4G services have made it easy to collect the patients' real-time data and transmit them to a database shared by doctors with the fast internet. The 3G-enabled handsets provide a videoconferencing facility or a means of transferring imaging data (e.g. X-ray).

The four mobile operators, Jazz, Zong, Telenor, and Ufone, are collectively driving the country towards the digital world. They have also provided m-health facilities to its users in rural areas too. Jazz has done some commendable work in m-health by developing its Healthpass application to improve health outflow management. Other initiatives in the healthcare by the operators are Jazz BIMA Sehat service, Zong Accidental Insurance, and Ufone's Utahafuz.

**In Pakistan, the infant mortality rate was 83 per 1,000 live births in 2000. Major causes of infant mortality are immunization diseases, diarrhea, malnutrition, and poor environmental sanitation. In 2018, the rate reduced to 69 per 1000 live births**

Digital health is permitting people to better track, manage, and improve overall health, live better and more productive lives. It is also helping to reduce inadequacies in healthcare delivery, improve access, reduce costs, increase quality, and make health services more accessible and effective.



### **The extension of Information and Communication Technology (ICT) has set up an exceptional opportunity for the delivery of healthcare facilities and infrastructure to resolve problems of accessibility and timely health care service provision**

The following are some of the advantages brought by technology to Pakistanis.

#### **1. Accessibility to information**

The availability of good health services within reasonable reach of those who need them has become easy for people because of the progression in IT. People who feel hesitant in discussing some of their issues can get information on their phones by staying at home. The Internet put a great effort in getting the medical information quickly, conveniently, and privately.



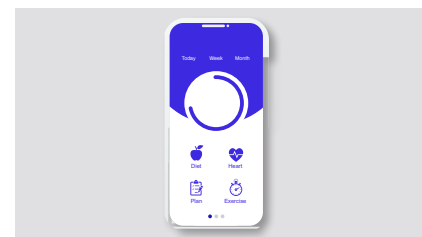
#### **2. Remote checkups**

Advancement in the IT world has made it easy to remotely connect to a doctor anytime and anywhere. Today, mobile phones have become an essential part of our life; now people neither need to carry their medical records nor to visit the doctor physically. They can now contact their doctor anytime they want, share their medical records and get medical advice accordingly.



### **3. Health applications**

With the advent of new innovations in the e-health, there are a variety of apps available for Personal health records, chronic care management, Medication management, Diagnostics, Fitness, Women's health, and weight-loss, etc. These health apps provide more flexibility to doctors, administrators, and patients. They can help to promote better health awareness.



#### **4. Prevention before treatment**

Digital health technologies aid patients to self-manage their health conditions by monitoring and tracking the symptoms regularly. It acts as a tool for the early detection of significant changes to disease progression in a patient. Digital health platforms are of so importance, especially for respiratory disease patients and for the patient whose life is at risk.



#### **5. Lower Cost of Treatment**

Digitization of the health sector allows the patients to remotely connect to a doctor and makes the treatment more cost-effective. As people do not need to travel and hence lowering the cost of traveling.





Due to the unlimited benefits of technology in health sectors, the government is putting a lot of focus on merging its health sector with technology to improve the overall state of health in the country. The Ministry of National Health Services, Regulations and Coordination (NHSRC) have set out an Action Plan 2019-2023 to transform the health sector of Pakistan by addressing the challenges, health sector reforms, and thus improving the health results of people of Pakistan. This action plan will expand current health sectoral and sub-sectoral strategies in the country and will help in achieving the Sustainable Development Goals (SDGs), International Health Regulations (IHR) and Universal Health Coverage (UHC) goals in the country. The government has started a number of projects to improve the health conditions in the country. the Punjab government and PITB especially played an important role in this regard. Pakistan Information Technology Board (PITB) has introduced a Hospital Information Management System (HIMS). Initially, this system has been designed for Pakistan Kidney and Liver Institute's (PKLI) Hepatitis Prevention and Treatment Centre (HPTC). This system helps to take information regarding patient registration, billing of consultation and diagnostic services, financial assessment, nursing, e-prescriptions, medical records, investigations orders, templates for investigation reports, diagnostic machinery integration, pharmacy automation, an appointment mechanism, inventory control, waste management, human resources, accounts, and payroll.

**The Ministry of National Health Services, Regulations and Coordination (NHSRC) have set out an Action Plan 2019-2023 to transform the health sector of Pakistan by addressing the challenges, health sector reforms, and thus improving the health results of people**

This is not only the one program the government is working on. PITB has introduced many other initiatives like Dengue Activity Tracking System, Biometric Attendance System for Health Facilities, Monitoring System for Polio Campaign and many more.

**There is only one doctor for 963 persons, one dentist for 9,413 persons and the availability of one hospital bed for 1,608 people**

According to the Economic Survey 2018-19, the number of public sector hospitals has increased to 1,279, Rural Health Centers (RHCs) reached to 686, Basic Health Units (BHUs) improved to 5,527, and dispensaries to 5,671 by the year 2018. The total registered doctors are 220,829, registered dentists are 22,595, and registered nurses are 108,474. Despite the extensive efforts of the government, there is still a lot of room left for improvement. The stats clearly indicated that there is only one doctor for 963 persons, one dentist for 9,413 persons and the availability of one hospital bed for 1,608 people. with technological interventions this dismal situation of health sector can easily be changed.

The Government should take appropriate actions while making the health sector more digital through the partnership between health and ICT sectors. As the popularity and penetration of mHealth apps with advancing technologies like Blockchain, AR, IoT are progressively growing and improving the healthcare ecosystem on a regular basis. Additionally, the Government of Pakistan should run gender-based awareness programs to let people think about the importance of their health. Also, the government should urge health care professionals to use innovative technologies and mechanisms to improve a patient's experience. To improve the health sector, government should make policies that will promote technology and contribute to the social and economic development of the country.

**To improve the health sector, government should make policies that will promote technology and contribute to the social and economic development of the country**



# TECH TWIST



World's first 1 GB hard drive was announced by IBM in 1980. Its price was of \$40, 000!

1



1, 000 Computers are used by a single Google query in 0.2 seconds to retrieve an answer.

2



At 3:15 pm on the day Michael Jackson died, Twitter, Wikipedia, and AOL IM all crashed.

3



More than 6,000 new computer viruses are created each month.

4



CAPTCHA means "Completely Automated Public Turing Test to tell Computers and Humans Apart".

5

By Aiza Riaz Butt

# The challenges of a Digital Pakistan



The classic Pakistani Politician's moto 'Roti, Kapra, Makan' has been amended by the government of PTI as 'Roti, Kapra, Makan and Internet.' Other than the fact that the youth faces serious breathing issues without an internet connection nowadays, this initiative holds greater ambitions and vision; A vision to transform Pakistan to a Digital nation.

Prime Minister Imran Khan launched his program 'Digital Pakistan Vision', with the aim of revolutionizing Pakistan technologically, enhancing connectivity, improving digital infrastructure, investing in digital awareness and education, along with encouraging innovation and entrepreneurship in Pakistan.

Tania Aidrus, the ex-senior Google

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**A combination of private and public stakeholders, including the IT ministry and NITB, will work together and be aligned for execution and matters related to policy**

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executive is leading the initiative while the Digital Pakistan project will operate from the PM Office and set the direction. This just shows the level of importance that has been given to the project. A combination of private and public stakeholders, including the IT ministry and NITB, will work together and be aligned for execution and matters related to policy. Such an initiative, taken on the government level shows the government's keen commitment towards the need of generating a digitalized ecosystem

in Pakistan for its progression and prosperity.

However, it is no trivial task. The hurdles to be tackled on the road towards achieving the dream of Digital Pakistan are of more considerable magnitude and require a lot of time, investment, and hard work. But nothing in this world is impossible, so, if the government remains true to its words of digitalizing Pakistan then these challenges can be overcome by focusing on a few key points.

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**The hurdles to be tackled on the road towards achieving the dream of Digital Pakistan are of more considerable magnitude and require a lot of time, investment, and hard work**

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## Awareness and Affordability

Illiteracy is one of the core issues Pakistan faces. What is the use of all the costly setup and equipment when people don't know how to utilize it for their benefit? The first and foremost challenge to be tackled is making people aware of the use of digital facilities, why is digitalization necessary at all for Pakistan? And what wonders can be achieved by digitalization? This awareness will not only help the population grow as a nation but will become a push for the initiative to become successful. After all, its success purely depends on people's will and support.

Secondly, considering the poverty ratio and high inflation in Pakistan, people will always view the digital facilities a luxury rather than a necessity. Thus, to ensure it is considered as a necessity the government will have to treat it as the other necessities like Roti, Kapra, and Makaan are treated. The internet's installment fee, internet device's cost, data cost, maintenance cost, taxation, all should be well-calculated and kept within a lower limit so that the internet becomes an easy affordable necessity and not a luxury. If this isn't taken care of, the whole point of digitalization will remain at a halt and will benefit a small number of people only.

**What is the use of all the costly setup and equipment when people don't know how to utilize it for their benefit**



## Connectivity and Accessibility

The dream of a digitalized Pakistan cannot be fully translated if every region of the nation doesn't get equal opportunity to connect. The Northern and Desert areas of Pakistan are highly under-developed and lack basic facilities of life. Moreover, the geographic complications make it even more difficult to develop digital infrastructure there to generate a digital ecosystem. These are the problem areas to be treated with maximized focus and attention. Uniform connectivity and accessibility is something that holds the key position in the digital Pakistan's dream. For it doesn't aim to digitally transform an area or two but the nation as a whole.

**Uniform connectivity and accessibility is something that holds the key position in the digital Pakistan's dream**

Moreover, the availability of wide-spread, cheaper, internet services throughout the country are very important. The availability of digital services depends solely upon the availability of internet connection and thus it is obligatory to provide internet connectivity through various means to every area of the country in order to generate, maintain and run it as a digital platform.



## Digital Infrastructure

Else then the infrastructure required related to the internet connectivity, there are a number of infrastructural needs to be fulfilled to upgrade Pakistan digitally. The government needs to innovate and introduce modern and digital methods of tax or other payments, setup digital identity systems to create a safer, securer and much efficient identity records in Pakistan. Initiatives like digital voting may also be a very positive and productive step in the formation of Digital Pakistan.

Furthermore, the government may take steps towards setting up a very transparent 'E-government' through which it may not only be able to offer paperless services, but also work more transparently and efficiently. The record keeping and data sharing between different governmental departments will become much easier.

Along with this, the digital ecosystem will need digital law and order bodies to maintain order, keep regulating the system and keep a check and balance on the ongoing activities. A digital setup and increase e-commerce activity will require a lot of security and regulatory management so that the trust of the foreign and local market may be gained, and a fool proof and fraud proof system may be regulated. Currently if Pakistan is not capable enough of welcoming corporates like PayPal, it can at least strive to generate such a secure and smooth-running digital ecosystem.

**the government may take steps towards setting up a very transparent 'E-government' through which it may not only be able to offer paperless services, but also work more transparently and efficiently**

## Teaching Digital Skills and Training

Focusing on teaching digital skills and training the masses to digitally upgrade them may prove to be the wisest decision of the time. The already arrived and yet to arrive time holds technological advancement as its major obligation to survive. Preparing and training the population digitally means making them able to be a part of the global village they today live in and make them capable of benefitting from the untapped opportunities the world has to offer to the digitally aware individuals.

The government will have to have training centers and offer such courses in order to prepare a team of digitally aware beings so that they may serve the initiative well and can also use their skills to help build the Pakistani economy. 100% Government Subsidy for IT Graduates and Unemployed IT Youth on Advance IT Trainings/ Certifications by Ministry of IT & Telecom/PSEB, Kamyab Jawan, Presidential Initiative for Artificial Intelligence & Computing (PIAIC) are some of the initiatives taken by the government to impart digital skills in the youth which will carry out a monumental role in the digital future of the country.

**Preparing and training the public digitally means making them able to be a part of the global village they today live in and make them capable of benefitting from the untapped opportunities the world has to offer to the digitally aware individuals**



## Supporting Innovation and Entrepreneurship

The Digital Pakistan Vision aims to support innovation and entrepreneurship in order to help encourage business start-ups and healthy economic activity in Pakistan. However, that means the government will have to offer positive incentives in order to support people planning to go for start-ups. The two main reasons that currently affect the promotion of start-ups in Pakistan are the lack of opportunities and the investment issues and both need to be tackled. Secondly, favorable government policies and taxation plans may also help ease an entrepreneur's journey. Setting up innovation centers, leadership and entrepreneurship training centers, and incubation centers may also prove to be of great help.

**The Digital Pakistan Vision aims to support innovation and entrepreneurship in order to help encourage business start-ups and healthy economic activity in Pakistan**

The current government is paying special attention to digitally upgrading and modifying Pakistan and this is the best initiative that could have been taken as per the time's demand.

**Digital Pakistan Vision if implemented properly can be viewed as the first step taken in years towards a progressive Pakistan. It not only meets today's needs but also gives hope for a better future and a better Pakistan-A Digital Pakistan**

A digitally run and developed Pakistan will not only prove to be corruption-free, but it can also be more efficiently managed. This initiative can be viewed as the silver lining in order to help stabilize Pakistan's economy, efficiently regulate its political and social system, improve law and order conditions and revive the long-lost glory of Pakistan internationally in order to welcome the foreign market. This program, if implemented properly can be viewed as the first step taken in years towards a progressive Pakistan. It not only meets today's needs but also gives hope for a better future and a better Pakistan-A Digital Pakistan.



# Lisa Jackson

**The vice president of environment, policy, and social initiatives at Apple, is showing the world that corporate success and environmental responsibility are a winning formula**

Apple has perfected the art of building hit products like the iPhone and the Mac.

For Lisa Jackson, who joined Apple as the vice president of environment, policy, and social initiatives in 2013, success means helping Apple master another challenge: eliminating the need to mine new materials from the earth to create products.

The sleek new iPhone you purchased may not look like much more than a slate of glass and metal, but manufacturing it requires the mining of aluminum, iron, cobalt, and gold, among other materials.

Apple is already making progress on this front, thanks to efforts headed up by Jackson. For example, the company now uses recycled tin in the main logic board of the iPhone, which prevents the mining of 10,000 tons of tin ore in a single year, and the speaker enclosure for the iPhone XS is now made with 35% post-consumer recycled plastics.

It's an ambitious long-term goal for Apple, but so was getting all of Apple's facilities worldwide to run on 100% renewable energy, which the company announced it had accomplished last year.



*“When we set out to do this, people said it couldn’t be done,” Jackson said of the milestone during Apple’s iPhone launch event in September. “And if you know Apple, those are exactly the kinds of challenges that we love.”*



By Fizza Atique

# How Startups can drive economic growth in Pakistan



Great changes have been witnessed in the outlook of Pakistan's status in the international market and its demographics. According to Mckinsey's report on Pakistan's entrepreneurship scene, Pakistan is an emerging economy projected to be among the fastest-growing the coming years with a projected annual growth rate of ~6% through to 2026. Moreover, in 2016 MSCI reclassified the country's status from frontier market to emerging market, easing international funding access. Despite the economy undergoing a challenging period, with a significant balance of payments issue and a declining currency, the intrinsic drivers suggest tailwinds for growth. In

addition to that, being the sixth most populous country in the world, Pakistan is home to around 200 million people with the fifth largest youth population in the world in absolute terms, with roughly half the population under the age of 25. Household consumption accounts for ~80% of Pakistan's GDP and consumer spending is projected to grow at ~15% in the coming years driven by the expanding middle class.

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**Pakistan is an emerging economy projected to be among the fastest-growing in the coming years with a projected annual growth rate of ~6% through to 2026**

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Beyond economic indicators, digital consumption is on the rise driven by an improvement in connectivity. Local telecoms boast ~164 million subscribers with ~35% of these having access to 3G/4G. The number of 3G/4G subscribers has grown four-fold in the last three years alone, reaching ~74 million subscribers as of November this year. All of these indicators show the immense potential Pakistani market has for entrepreneurship and startups. Some of the biggest funding deals in Pakistan have taken place in recent years, highlighting the vast opportunity for local startups and increased investor focus on a country that is still yet to produce its first high-valuation startup.

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Startups fulfill an absolutely vital role in the country's economy that equally benefits local communities and larger businesses. Their importance is likely to grow over the coming years. These days starting a business is quite easier than before. This era of technology has facilitated people in running small businesses. The ever-growing popularity for Social media marketing and brand awareness has also given rise to the number of startups. Small businesses are more innovative as they keep on looking for new technologies and new ways of doing business to engage customers. In this way, Startups can spur the economic growth of the country and at the same time, benefit the community.

Startups may be small, but they create a great impact when it comes to the country's economy that changes people's way of living. Old giant companies are more focused on investing in R&D on existing technologies and innovation. Whereas, startups are more interested in bringing unique and new technologies and cutting-edge innovation. They are free from multilayered corporate bureaucracy, so they are more flexible and easily transform an idea into a product and will consistently improve it upon consumer demand having more accelerated decision-making.

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**Small businesses are more innovative as they keep on looking for new technologies and new ways of doing business to engage customers**

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Startups usually create new markets and can even transform the old markets completely. New technologies introduce new opportunities. With time startups create cumbersome advantages over the mature business. In this way, they inspire the competition, impacting the country's economy to evolve.



All the senior analysts believe that startups have disproportionately higher technology which drives up production of goods and services. In a 2017 report by the Center for Economic Studies at the US Census Bureau, it was discovered that startups generated more revenue with the same number of capital inputs as compared to older companies.

Startups have direct impacts on the cities where they are located. For instance, we can take an example of Google and how it changed Mountain View California. Such startups bring in wealth in the city by attracting experienced professionals from other locations and building new industries over time, and once they are developed enough, they become money-making engines now just for the owner but also for the employees and country.

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**Startups generated more revenue with the same number of capital inputs as compared to older companies**

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**Greater Employment opportunities**

Pakistan has many universities that are graduating millions of students every year. Due to more students graduating and less job creation, approximately 3.58 million people are still unemployed even when they are eligible. It is a major issue in Pakistan, and it needs to be addressed. This problem can be overcome by the creation of jobs through new businesses and startups. The transition of youth from the role of job seeking to job creation has helped immensely in the case. According to a rough estimation, thousands of jobs have been created as a result of new emerging startups in country.





## **The transition of youth from the role of job seeking to job creation has helped immensely**

### **Stronger Build Economy**

The increasing startup culture in Pakistan is helping in stable economic expansion in the country having long-lasting solutions and stable business models. Startups can support the country with the economic growth provided they have brilliant ideas, a qualified team, and excellent infrastructure. The Gross Domestic Product (GDP) in Pakistan expanded 3.3 % YoY in Jun 2019, following a growth of 5.8 % in the previous year; tech revolution played a major role in it.

Financial experts believe that this boom of financial development in Pakistan is due to the kick start of startup culture. The penetration of innovative ideas has given life to economic dynamism for the very first time in Pakistan.

### **Spiking Interest from International Business Community**

Some startups in Pakistan, including Pakwheels, Zameen, Patari, Netsol and QMobile have received investments from international investment firms. This foreign investment is a big boost to the economy of Pakistan.

The growing interest from the international community has proved Pakistan as a viable contributor on the map of the global tech ecosystem. The Pakistani startup Cowlar has recently received investment from Ashton Kutcher, which clearly shows the growing confidence of foreign investors in local businesses.



### **Increase in Import and Export**

Many startups in Pakistan are acting as a middle man when it comes to connecting local artisans to international markets. Traditional handicrafts and cultural products are imported to different parts of the globe. Pakistan is full of talent, even the footballs for FIFA world Cup 2014 were made in Sialkot. As the startups in this sector are rising, they are bringing the expertise of local workers to the international markets. It is helping in the increase in imports and exports of the country.

### **Empowerment of Women**

According to the Global Entrepreneur Monitor, there are around 200 million women entrepreneurs in 83 economies globally. Sadly, in Pakistan, only 22.7% of women contribute to the labor workforce as compared to 83.3% of men. Pakistan has 48% of women, so the above figure is quite alarming.

**With the increasing number of startups in Pakistan, the interest of women in starting their own business is also increasing, and many women are running their own startups quite successfully**

With the increasing number of startups in Pakistan, the interest of women in starting their own business is also increasing, and many women are running their own startups quite successfully. Such startups have also helped the economy of the country to grow as more women are contributing their skills instead of wasting them by sitting at home.

Pakistan is at the cusp of the startup drive, the government and the private sector should take steps to help in expanding startup business ventures.

**To bring a digital revolution across the board, requires channeling local entrepreneurs into industries like defense, healthcare, ports, oil and gas, education and governance**

All talented and innovative minds should be given opportunities to come forward and give life to their ideas. To bring a digital revolution across the board, requires channeling local entrepreneurs into industries like defense, healthcare, ports, oil and gas, education and governance. The government should also facilitate new firms in the IT sector to boost the local technology industry, besides providing a chance to create more jobs and develop the nation as a whole.





# PTCL announces 5% Final Cash Dividend



Pakistan Telecommunication Company Limited (PTCL)'s Board of Directors has declared a final cash dividend of 5% i.e. Re 0.50 per share, which is in addition to the interim cash dividend of 5% i.e. Re 0.50 per share. The total dividend for the year thus stands at 10% i.e. Re 1.00 per share.

PTCL Group's revenue has shown a year-on-year (YoY) growth of 2.1% to reach Rs 129.5 billion. All Group companies have contributed positively to this growth. Ufone continued its acquisition drive in 2019 to cross 23 million subscribers resulting in an improved market share. U Bank, a microfinance banking subsidiary of PTCL, has shown significant growth of 48% in its revenue over last year as a result of rapid expansion in its branch network. PTCL Group posts operating profit and net profit for the year of Rs 6.7 billion and Rs 2.4 billion respectively. The decrease in profits is attributable to higher inflation, significant rupee devaluation, and increase in interest rates and hike in power tariffs.

PTCL revenue of Rs 71.5 billion for the year is slightly higher than last year. PTCL's flagship fixed broadband services posted revenue growth of 5% YoY. Fiber-To-The-Home (FTTH), deployed in 11 major cities of Pakistan, has enhanced the value proposition of PTCL brand. The recent upgrade in its fixed-line network infrastructure has enabled PTCL to significantly reduce customer complaints and offer high-speed internet packages to its customers. In addition to the network upgrade, PTCL also took other customer-centric initiatives like experience management, implementation of customer-care systems and adoption of related best practices. This year, PTCL has been recognized for its customer services at the 14th annual CEM Telecom Awards during the Telecom Global Summit held in London.

Corporate and Wholesale businesses continued their growth momentum from 2018 and have achieved 13% overall revenue growth by securing new and strategic ICT and cloud projects. PTCL has successfully maintained and expanded its market leadership in the IP bandwidth business. This expansion coupled with growth in VSAT has enabled PTCL to become the sole bandwidth provider for different cellular, LDI and local loop operators.

PTCL's operating profit for the year has decreased by 24% from last year. It remained under pressure mainly due to an increase in operating cost on account of inflation, a significant hike in power tariffs and currency devaluation. PTCL has posted a Net Profit after Tax of Rs 6.3 billion for the year, which is 14.5% lower than last year. Increase in non-operating income (net of finance cost), due to higher income on investments as a result of the increase in interest rates and translation gain on forex denominated assets, has helped reduce the 24% decrease at operating profit level to 14.5% at the net profit level.



# Huawei Y6S

## Large Storage with Powerful Processor

### Design

The Y6s' two-textured finish is similar to the Google Pixel and the Huawei Y9 Prime 2019. In a color tone named Orchid Blue, the upper portion of the plastic back is glossy, while the lower half takes on a matte finish. It's slim and lightweight, and while the Y6s is constructed with plastic, the device feels solid in the hands.

Housed on the upper half of the Y6s's back are its camera and the circular fingerprint scanner.

### Display

Huawei Y6s possesses a 6.09-inch display, with a 1560 x 720-pixel HD+ resolution. It has an impressive 6.09" Dewdrop display with 87% screen-to-body ratio<sup>2</sup> that provides an ultra-broad view. The HUAWEI Y6s also blocks out harmful blue light with a TÜV Rheinland certified screen. Color reproduction is satisfying, and details are rather sharp as well.

### Camera

Y6s has a single 13MP shooter on the rear, while the front camera is an 8MP snapper. The images look quite decent in normal lighting conditions. For a low price range smartphone, the main camera cuts a good figure.

Videos can be recorded in 1080p and 30 fps at most, the quality is good here, as long as the lighting conditions are suitable. The front camera makes quite okay selfies, the screen can be used for brightening up.

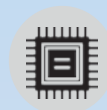
### Memory

Huawei Y6s has an average memory space. The smartphone comes in 2 different variants with respect to the memory space. First variant has a storage space of 32 GB while 3 GB of RAM. The other variant has 64 GB internal memory accompanied by same 3 GB of RAM. Along with it, for users with large memory requirement, there is an option for micro SD card as well.

### Operating System and Performance

Huawei Y6s is equipped with the operating system, Android 9.0 (Pie) EMUI 9.1. The chipset installed in the smartphone is Mediatek MT6765 Helio P35. There is an Octa-core (4x2.3 GHz Cortex-A53 & 4x1.8 GHz Cortex-A53) processor. So, the overall performance of the smartphone is satisfactory if we compare it with the price in which it's available. The Huawei Y6s has a non-removable Li-Po 3020 mAh battery.





32GB 3GB RAM  
64GB 3GB RAM  
Octa-core



Non-removable Li-Po  
3020 mAh battery



6.09 inches



13MP

**PKR.20,899/-**

### Pros

- Competitive price
- Great storage options

### Cons

- Average battery size
- Single rear camera

### Early Verdict

Huawei has visibly tried to get something out of the limited possibilities for the Y6s: there is finally a fingerprint sensor and quite a bit of memory, plus a dedicated microSD slot and a decent speaker. The camera still takes good pictures and the device always stays cool.



# TCL Launches C8 4K UHD Android TV in Pakistan



TCL, one of the world's top three TV brands, has marked the launch of its brand-new Android TV in Pakistan with the introduction of TCL C8.

TCL C8 4K UHD TV features advanced AI technology that uses Android P OS, HDR10+, Dolby Vision, Dolby Vision, an Onkyo Sound Bar. Together, these features ensure the delivery of powerful in-home entertainment experience.

The C8 comes with Google Assistant, allowing users to control the TV by voice, and has built-in Google Chromecast functionality providing simpler navigation and it allows users to stream content directly from their mobile devices.

Speaking about the C8, Sunny Yang, GM TCL Pakistan stated that, "We are extremely pleased to announce the launch of the C8 4K UHD Android TV. We are looking forward to giving Pakistani consumers an outstanding viewing experience. We look forward to continuing delivering top quality products that enhance the consumer experience."

Majid Khan Niazi, Marketing Manager TCL added, "C8 is another step in the goal of our plan of delivering an ever-improving range of products to the Pakistani market. With its range of innovative features and elegant design, it fully embodies our plans for 2020 to share smart products that deliver a refined and immersive viewing experience to Pakistani consumers."



TCL is one of the leading players in the Global Consumer Electronics industry with a global presence in over 150 countries. TCL has emerged as the top-selling brand in Pakistan and one of the Top 3 Leading LED TV Brands in the world with a particular focus on High-End 4K UHD and Big Size TVs, in which it has a significant market share.

# How To!

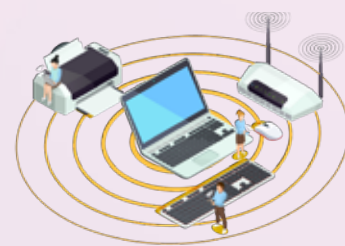
## improve your printer speed

**Feel the need for speed? Here are some ways to supercharge your printer**

### Network used for printing

If the network is congested or has issues related to your server or the network configuration, you will notice that documents do not transmit as quickly to the printer itself, which slows down the printer speed. To address this problem, make sure you resolve any network issues.

In addition, print speed will be impacted by the network you use - whether it is a wired network or wireless and even the speed of the network itself.



### Security features

One thing that can slow printing speed is when security features are not configured properly or when the wrong security features are used. It's worth the time to investigate any printer slowdowns related to printer security, both on the network and on the printer itself.



### Quality settings

One of the most dramatic changes you will see in printer output speed has to do with the quality settings. If you're used to printing in full quality mode, then decide to change to the draft output setting, you will notice a major increase in speed for all documents. Not every document needs to be printed at the highest quality setting. By lowering the quality, you can even double the output speed for some models.



### Firmware updates

Most printers do not benefit greatly in terms of speed after you install a new firmware update. The fact is, a printer is rated at a certain speed of output based on the components used for that device and even the processor used for that printer.



### Paper choices

The paper you use can have a slight impact on print speed, mostly because the best paper materials will travel smoothly through the print head.



### Processor and RAM upgrades

There is a way to improve printer speed by upgrading the components inside of a printer. In some cases, this could mean adding more RAM to the device. With the processor, print speed can increase because the printer is able to handle more jobs at once and process documents faster, although this does not impact the printhead speed.



# TELECOM CAMPAIGNS

## Vivo S1 Pro- Upgrade your Style

The recent ad of Vivo highlights the key features of S1 Pro in a very innovative manner that grabs the attention. The background music of the ad is also good as it is not so noisy. All the performers performed well in the ad. The ad communicates smartly that why Vivo S1 Pro can be a perfect choice for you.

**Verdict: Nice ad!**



## Ufone- Tez Internet aur Saaf Awaz

Ufone's new ad has specifically highlighted how important it is to keep in touch with your friends at every moment of the life and you can make that possible only with the fast internet speed. With Ufone internet, you feel connected with your dear friends all day long without any lag. The ad is classy and delivers the message with the true essence of friendship.

**Verdict: Adorable!**

## Vivo V17- Clear as Real

Vivo V17 new ad, featuring Ali Rehman Khan & Hareem Farooq, is very typical and ordinary type. Though the ad highlights key features but I am not seeing anything outclass or special in the ad. Well, at the same time I am also not giving bad tag to the ad.

**Verdict: Yeah OK**







### Jazz Weekly Super Plus Offer

This is one of the perfect advert when it comes to launching a new package. The song make you feel good and at the same time explains all the features in a go. The overall music, acting, dancing is perfect. The message is also well conveyed.

**Verdict: Best Music**



### EXPLORE PESHAWAR

### Explore Peshawar with Careem

Careem might not be the best ride hailing service in Pakistan, but when it comes to their TVC, they are not the best in town. Just like other TVCs, Careem this TVC helps us exploring the marvelous and beautiful place in Peshawar with a perfect message “Explore Peshawar with Careem”. This message clearly depicts that Careem is trying to expand its services in the City of Flowers- Peshawar.

**Verdict: Zabardast TVC**

### Samsung Galaxy A71 - Fast Charging

It is a thought provoking TVC and is very well produced. By featuring a bed, the advert clearly depicts the fast charging feature of the device. The advert shows that how in less time red battery turns green and the device stays charged for a long time. The overall concept behind this TVC is superb and well-conceived.

**Verdict: Outstanding**



# TOP 10 INNOVATIONS BY 2050

## LIKELIHOOD ESTIMATION %

### DREAM DOWNLOADS

By scanning brain activity it's already possible to decode what someone is watching. By 2050 it might be possible to actively monitor or download dreams, which makes one wonder whether it might one day also be possible to upload false memories.



5%



### PEOPLE MARRYING ROBOTIC COMPANIONS (CIVIL PARTNERSHIPS)

Human-robot relationships are just entering the 'first date' stage. We are already seeing individuals in Japan preferring avatar girlfriends to the real thing, so how long before people start having sex with robots or legal marriages with robots.



10%



### FIRST CHILD BORN IN SPACE

A child conceived in space seems fairly certain. Would anyone on a long distance mission go the whole way and chance having a child born in space?



10%



### MOON HOTEL

Space tourism has taken off (sort of) and we are promised low-cost moon tourism. The next logical step would surely be a moon hotel (probably 3D printed from lunar dust).



25%



### 150 YEAR HUMAN LIFE SPANS

200 years ago or thereabouts the average lifespan in developed regions was about 40-45. Today it's around 75-80, so why wouldn't it hit 150? (unless of course, poor diet and sedentary lifestyles reverses the trend).

### CROP POLLINATION ROBOTIC INSECTS

If bees and other pollinators disappear would we invent robotic alternatives? A even more likely outcome might be insect sized surveillance drones.





40%



40%



### FIRST CLONED HUMAN

We had cloned mammals as far back as 1996, so someone, somewhere, will be curious enough to try with people.



60%



### SPRAY-ON SKIN (OR 3D PRINTED SKIN)

No, not spray on skinny jeans (they have already been invented) but skin that's made on a 3D printer or sprayed out of an aerosol.



70%



### ELECTRONIC DISPLAY TATTOOS (OR VIDEO TATTOOS)

Tattoos are so 2014. How about programmable LED tattoos or even animated tattoos? Check out Ray Bradbury's 1951 sci-fi classic The Illustrated Man for a bit of inky inspiration.



80%



### ACTIVE CONTACT LENSES (VR CONTACTS)

Think Google Glass, but in with a contact lens.



90%



nowandnext.com

Design by:





# Top Applications and Games for your Smartphone



## **DEAD TRIGGER - Offline Zombie Shooter**

Get ready for Non-Stop Action in this Award Winning Shooter Game



## **Brave Privacy Browser: Fast, safe, private browser**

The Brave Privacy Browser is your fast, safe private web browser with ad blocker, private tabs and pop-up blocker. Browse without being tracked by advertisers, malware and pop-ups.



## **Onavo Extend**

Onavo Extend saves your mobile data so you can do more of what you love on your phone without spending more on your bill. Once the app is installed on your phone, it works in the background when you use mobile data to find ways to save.



## **Buffer: Social Media Manager**

With the Buffer Publish mobile app, you get the intuitive social media planning and scheduling experience that has made Buffer a favorite tool for marketers, plus powerful new publishing features built especially for Instagram.



## **GRID™ Autosport**

Ignite your high-speed career as a pro-racer in GRID Autosport, engineered to deliver an irresistible mix of simulation handling and arcade thrills.



### **Elevate - Brain Training**

Elevate is a brain training program designed to improve focus, speaking abilities, processing speed, memory, math skills, and more. Each person is provided with a personalized training program that adjusts over time to maximize results.



### **Hotel Empire Tycoon - Idle Game**

Build your own hotel empire and become a tourism tycoon! Start running a small hotel and work hard to make your business grow. Improve every detail and turn your modest installations into a five-star resort.



### **SHADOWGUN LEGENDS - FPS PvP and Coop Shooting Game**

Experience epic story campaigns, competitive PvP or cooperative online games!

From the authors of Dead Trigger, Dead Trigger 2 and Unkilled, successful zombie FPS games downloaded by more than 200 Million players around the world.



### **Madden NFL Mobile Football**

An action-packed adventure game available as free download for iOS devices. Embark on epic adventures to rescue the Incrediballs!



### **Spark - Email App by Readdle**

Spark brings the best email experience for professionals and their teams. Effortless, beautiful and collaborative.



**Samsung Galaxy  
Note10 Lite**

Display: 6.7 inches  
Memory: 128GB 6GB RAM, 128GB  
8GB RAM  
Camera: 12MP+12MP+12MP



**Xiaomi Mi  
Note 10**

Display: 6.47 inches  
Memory: 128GB 6GB RAM  
Camera: 108MP+12MP+5MP  
+20MP+2MP

**An Online Store with  
Official Warranty**  
[www. phoneexpress.pk](http://www.phoneexpress.pk)



**Oppo  
Reno2 F**

Display: 6.5 inches  
Memory: 128GB 8GB RAM  
Camera: 48MP+8MP  
+2MP+2MP



**Samsung Galaxy  
S20 Ultra**

Display: 6.9 inches  
Memory: 128GB 12GB RAM, 256GB  
12GB RAM, 512GB 16GB RAM  
Camera: 108MP+48MP+12MP+0.3MP





### Oppo A5 (2020)

Display: 6.5 inches

Memory: 64GB 3GB RAM, 64GB  
4GB RAM, 128GB 4GB RAM

Camera: 12MP+8MP+2MP+2MP



### vivo V17

Display: 6.38 inches

Memory: 128GB 8GB RAM

Camera: 48MP+8MP+2MP+2MP



### Realme 5s

Display: 6.5 inches

Memory: 64GB 4GB RAM,  
128GB 4GB RAM

Camera: 48MP+8MP+2MP+2MP



### Huawei Y9s

Display: 6.59 inches

Memory: 128GB 6GB RAM

Camera: 48MP+8MP+2MP



### Infinix S5

Display: 6.6 inches

Memory: 128GB ROM,  
6GB RAM

Camera: 16MP+5MP+2MP



### Nokia C1

Display: 5.45 inches

Memory: 16GB 1GB RAM-

Camera: 5MP

# SMART MOVES

## Mobile app to help recover missing children

Khyber Pakhtunkhwa government has launched the “Mera Bacha Alert”, a mobile application developed with an aim to help people and departments concerned in recovery of missing children in the province. The application is providing complete mechanism to the parents to register a report if their child goes missing. They will be able to add a picture of the missing child along with his/her attributes.

The application will generate alerts and SMS would be sent to the district police officer, RPO, IGP and chief secretary. All the details including registration of FIR, start of investigation, dispatching of team, evidence collection and completion of investigation would appear on the dashboard of district police officer.

The application will also help in developing a directory of all the cases of missing children at provincial level and can be monitored by the chief minister and chief secretary as well.



## HEC introduces online verification & attestation of academic documents

Pakistan Higher Education Commission (HEC) has introduced a repository system for the verification and attestation of the academic documents.

The new system will tackle the rampant problem of forged documents and will make the educational institutions responsible for assisting students in acquiring verified and attested educational documents.

A comprehensive and inclusive centralized digital attestation and verification system will be available across Pakistan through a service portal. All the public and private institutes will have access to the e-attestation of the academic documents. The degree holders will have access to their digitally verified degrees on a publically sharable tiny-URL.



## Upgraded police website allows filing of e-complaints

Inspector General of Punjab Police (IGP) has launched an upgraded website of the department with new features to register e-complaints in a user-friendly manner.

Police Khidmat Marakaz, 8787 Complaint Centre, 15 Emergency Service, Rasta App and 89.8 FM radio are integrated with the new website. The new features will enable the citizens to register their e-complaints. This website will augment smart and modern policing. It has been redesigned in collaboration with the Punjab Information Technology Board (PITB).





# RIVERSONG

## Motive

A Distinctive Art on Your Wrist



- Heart Rate and Sleep Monitoring ✓
- Real-time Notifications ✓
- Blood Pressure & SpO2 Monitoring ✓
- 25-Days Battery Life ✓
- IP67 Water Resistant ✓
- 2.5D Tempered Glass ✓
- Zinc Alloy Metal ✓
- Fitness Tracker ✓
- 365 Days Replacement Warranty ✓
- FREE Silicon Strap Included ✓



## Horizon 10

10000mAh

Perfect for Your Daily Use

- ✓ Affordable Price
- ✓ 2.4A Fast Charging
- ✓ Type-C and Micro USB Input
- ✓ Dual USB Output
- ✓ 365 Days Replacement Warranty
- ✓ Elegant Textured Design





TECNO



QUAD CAMERA PHONE

# Night Photography

COMING SOON