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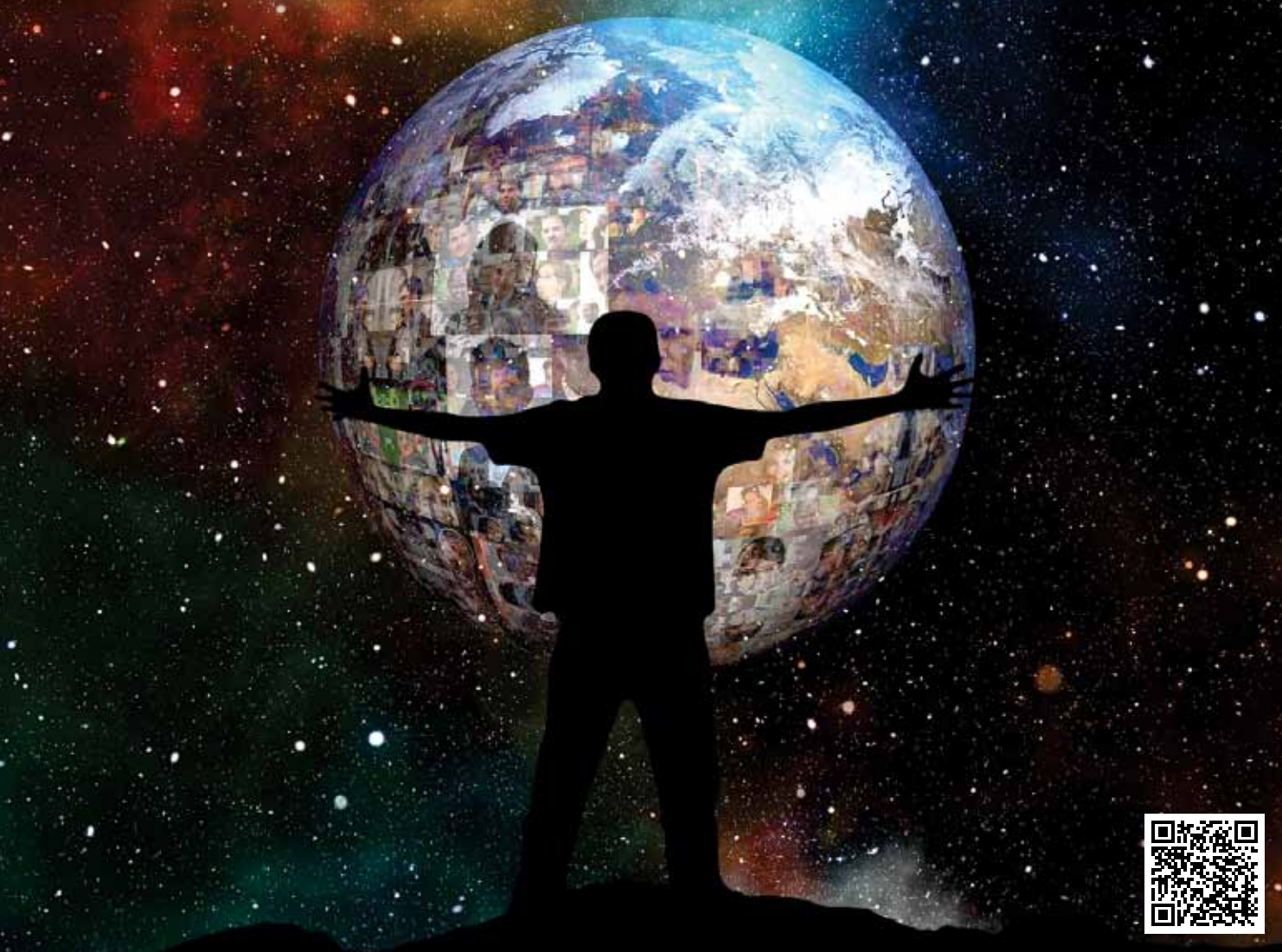

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Virtualization of the human soul

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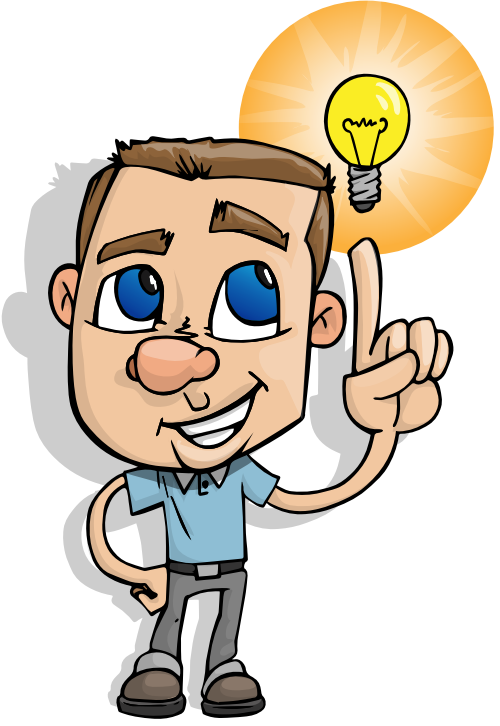

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What is the best 2-in-1 laptop at a decent price–1 Lakh?

■ *Kuber Shah*

You have a decent budget; you can look at – Dell Latitude 13 5320 Convertible Laptop. This is a 2-in-1 laptop with a powerful 11th Generation Intel Core i5-1135G7and Intel Iris Xe graphics. 13.3-inch HD (1366x768) display with dazzling color accuracy and HD Camera. The laptop is coupled with 8 GB memory, 1 TB SSD storage and priced at INR 1,01,220.

What is the best laptop to get in 2021-22?

■ *Debarya Ghosh*

Since you have not defined your requirements and budget, suggesting the best laptop could be difficult. You can check out the HP Spectre x360 Convertible 14-ea0538TU. This laptop is built on Intel Evo platform powered by Intel Core i5 processor with Intel Iris Xe graphics. This lightweight convertible is coupled with 16 GB RAM and 512 GB SSD. It has a 13.5-inch WUXGA+ (1920 x 1280), multitouch-enabled, IPS, display protected by anti-reflection Corning Gorilla Glass NBT. This 2-in-one laptop is priced at INR 119,999.

What type of printer should I buy for occasional use – ink tank and cartridge printers?

■ *Amaan Shaikh*

As you are an occasional user, the better choice would be an ink tank printer for instance HP Smart Tank 500 and Epson EcoTank L3150. Compared to a cartridge-based printer, the risk of dried print head is less, plus refilling is effortless. The per page print cost is also as low as 8-10 paise. These are compact AIO printers delivering beautiful quality prints-crisp text, and vibrant color graphics. Also, it is a great choice for high-volume printing in case you require some time.

Why is my HP Ink Tank Wireless 415 not installing?

■ *Ankita Vasistha*

You have not mentioned the error you are getting. If you are trying to install the printer using HP Easy Start then try these steps –

Turn off the and wait at least 60 seconds, if already off then remove the power cable and wait for 60 sec. Plug the power cord back, turn on the printer, if it does not automatically turn on. Wait until the printer is idle and silent before you proceed. Now download the driver or software from the HP website, and try installing the printer. Create an HP account and register your printer. Connect your printer to Wi-Fi, load paper, and install cartridges.

Hope this will help. If still not, then you need to contact HP Support team to help you fix the issue.

Among these ink tank printers, which one you prefer to choose, Epson L380, Canon G3010, HP 419, or Brother DCP-T510W?

■ *Anupam Anand*

Out of these, Epson and HP Ink Tank printers are good. Their print quality is good and the per-page print cost is also as low as 8-10 paise per print for black. The printer is also great for high-volume printing.

Which printer should I buy, HP Ink Tank 315 or Canon Pixma G2012? Which of this has issues with photo printing?

■ *Sanket Agarwal*

HP Ink Tank 315 is better choice. The compact printer can fit in any tight space. It delivers really godo quality print-outs and the per-page print cost is also as low as 10 paise per print for black. The printer is also great for high-volume printing – up to 8000 color pages. The all in one printer offers print speed up to 8 ppm (black) and 5 ppm (color). It is capable of delivering print quality black up to 1200 x 1200 and color up to 4800 x 1200 optimized dpi.

Do all HP laptops have a CD drive?

■ *Ratul Sharma*

No, from a couple of years OEMs stop including CD/DVD drives with slim laptops. As laptops are getting thin and lightweight, DVD drives are not being included. Also, I think, as more users are getting huge storage capacity within the laptop so they don't require anything external to store any data. Additionally, USB drives and external drives are available at affordable cost and are easy to use compared to CD/DVD drives so CD/DVD usage dropped drastically. So most laptops are not having CD/DVD drives.

But you have a choice, you can have an USB External DVDRW Drive, costing INR 1999. You can use this with any laptop or ultrabook.

Will an windows laptop work with iMac 2020?

■ *Vikash Periwal*

No, Apple iMac models support Target Display Mode, where you can use it as a display and only with certain Mac's. so a straight answer is no, you should consider to buy other company's monitor. You can check out ViewSonic Elite XG270Q Gaming Monitor or LG 29WN600 Ultrawide Monitor. If you are a professional, the LG is perfect choice, for but if you also do gaming then consider ViewSonic.

Is the Apple iPad Air 2020 perfect for college students than laptops?

■ *Pratik Paul*

The iPad Air is a powerful machine, but it's not a replacement for laptops. It will let you run some applications really well, like Microsoft Excel, Affinity Photo, etc. But to run more graphics intensive applications, you need a powerful laptop, as the iPad won't be able to handle them.

If you would code and work on college projectsthen going with an Intel i5 or higher CPU with 8 GB RAM and an SSD will be more than enough. For an architect student, you should opt for a laptop with an Intel Core i5 or higher CPU coupled with at least 16 GB RAM, dedicated graphics, and an SSD. Such a configuration will be able to handle graphics intensive applications like 3DS Max, Sketchup, Archicad, Autocad, Photoshop, etc.

Can the Iris XE from an i7-1165G7 do 4K120Hz?

■ *Vipin Mohan*

Yes, the CPU is capable of 4K but with some conditions like you should have a 4K display. An ultra-high-definition monitor can handle content with 4K resolution. If you are planning to play games, then you need a 4k display along with a dedicated GPU that can render 4k graphics. Make sure to connect your PC to the external screen, using the HDMI cable to get the best results.

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Tech has led to more censorship

If you look at the history of mankind, the voice of the common man has been getting louder and louder. For centuries at best he could shout in the town square or seek an audience in the king's court. With the printing press revolution, the number of people who could get their voices heard increased exponentially.

This got much better in the age of journalism with the proliferation of newspapers and magazines. Heads of states kept abreast with the daily newspapers which tried to capture the pulse of the people as best they could. The 24X7 TV news channels, thanks to the battle of TRP ratings, tried their best to woo the masses. The general populace as a rule would get their general view across through mass media.

Millions have been banned

The age of personalization of mass public opinion came in the age of the Internet. Now anyone with a bit of money could launch a website and propagate his views and post a blog with nothing but a device and an Internet connection. Technorati (now inactive) was an advertising platform and search engine that boasted of 4 million blogs in its network. That was unprecedented in the history of humanity.

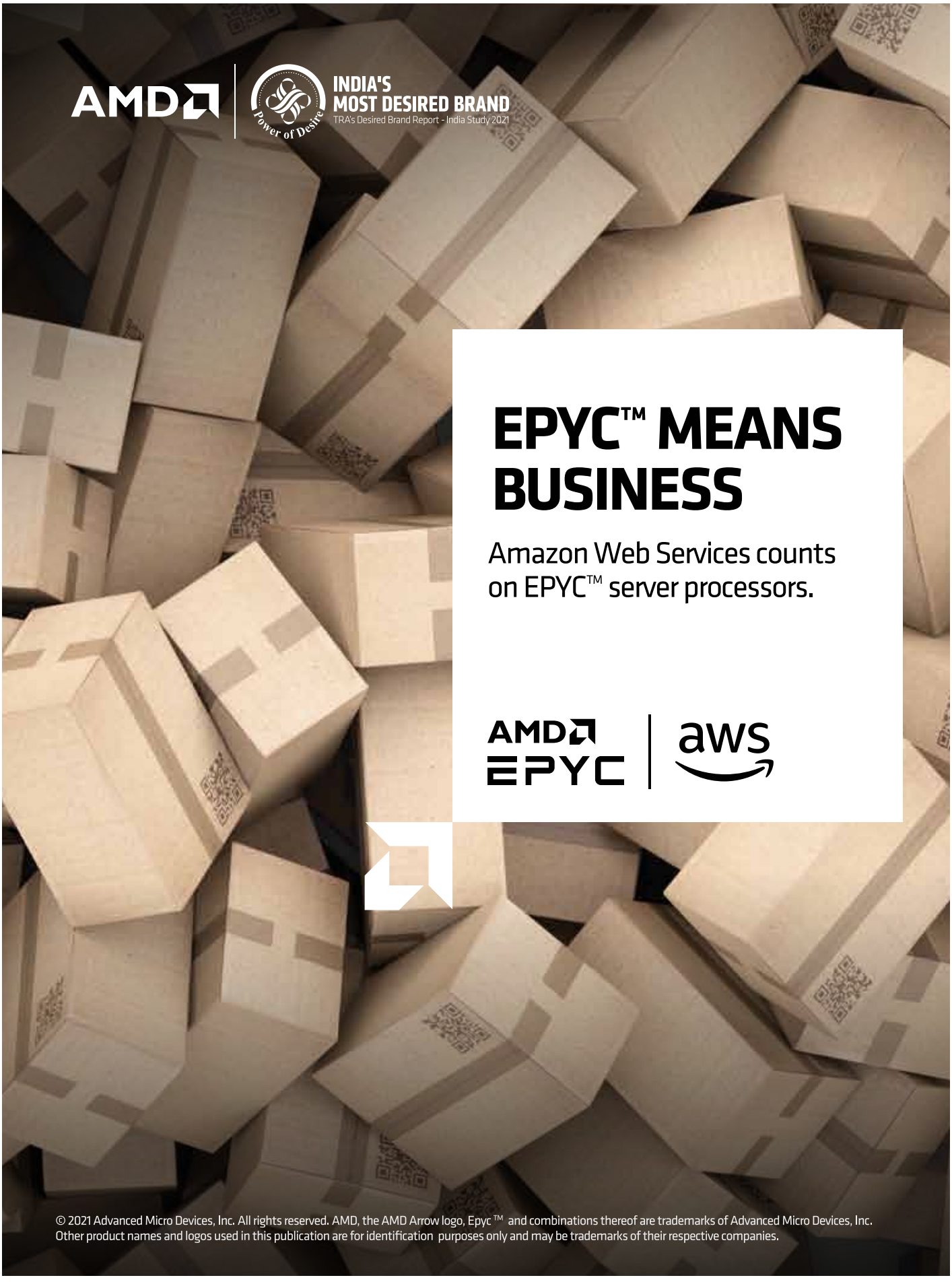
The age of social media went way beyond anything that was imagined. Almost everyone has a social media account in the world today, even children. Facebook is touching 3 billion users, there are a handful of social media giants at 1 billion+ users. Many are in the hundreds of millions. Today anyone rich or poor can put his or her opinion, photo, video, or business information out there in cyberspace for the world to see.

Curiously censorship is now on the rise and the leading country for that is America, the home to Silicon Valley. Tech giants in the US adhere to a narrow rigid ideology and propagate that. They have been in the process of censoring, suspending, shadow banning and life banning all accounts they deem as not part of their narrow ideology.

They kicked out self-declared trolls like Milo Yiannopoulos and conspiracy theory masters like Alex Jones. Then the most powerful man in the world was censored in the form of US President Donald Trump. Now they are going after the most powerful interviewer (maybe in history) in the form of Joe Rogan on Spotify. The reason is Covid misinformation. But what is this Covid misinformation? It is not decided by doctors and medical experts, but Silicon Valley officials.

They even banned Robert Malone, who has been dubbed by some as "the inventor of the mRNA vaccine". Who can fact check him? It seems the common techie can. They have censored millions and millions unchecked so far. Where this will end, no-one knows.

Sunil Rajguru



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Virtualization of the human soul

Sunil Rajguru
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There is mobile evolution: 1G, 2G, 3G, 4G, 5G, 6G... There is a technological evolution which is getting more and more pervasive in our lives. Then there is the evolution of the human soul to match the above changes. The endgame? We may merge with technology one day

The Agricultural Revolution led to the formation of villages followed by kingdoms and nation states. It wasn't just about fields and crops. The Industrial Revolution led to the capitalist states we live in today along with breakneck growth and inventions. It wasn't just about the factories and workers.

Computers changed the way the entire world functioned along with the economy and the Internet supersized that. It's not just about the bits and bytes. Today there is only one company that reached a market capitalization of $3 trillion: Apple. $2 trillion: Microsoft and Alphabet. When you look at the $1 trillion club, it's Amazon, Tesla and Meta. All 6 are tech companies! Tech totally rules our lives.

The Smartphone Revolution led to a lot of changes, and I could go on and on, but probably the biggest impact is how it has affected us all socially. You shut the factory and the worker went home. You shut down the desktop and walked away. While the laptop could be carried around, you still shut it and didn't take it everywhere.

The first time we were "always on"

The smartphone changed the way we lived and depended on technology. This is the first time that we have a device which is always on our person and "always on". You carry your mobile with you everywhere you go, even to the toilet. You sleep with it. It has become a detachable extension of you. It is your best friend. It knows more about you than yourself thanks to your apps, choices, communication, GPS, predictive algorithms... In a way you already have become a cyborg and have merged with your smartphone: Emotionally and spiritually.

5G, the "always on" network

5G is the next stage of tech-society evolution. 1G was voice and 2G included the SMS data pipe. 3G was the Internet and 4G broadband. 5G will go way beyond all that and become the ubiquitous "always on" 24X7 all-pervading network. Initially there was a dichotomy. You had an Internet connection at home, first through a copper wire and then through fibre, which would power all the devices of your home.

While that had limited penetration initially, something that just went viral and mushroomed all over was mobile broadband which has been getting better and better with

each passing year. 5G promises to converge the two. It will unite all the devices of the house.

5G will have short towers all around to make you live in a rich broadband zone which can power everything in its radius. Smart Homes and 5G are made for each other. Thanks to the pandemic, its time has already come. From desktops, laptops and mobiles we are moving on to TVs, fridges and home assistants.

▾ Metaverse, the "always on" virtual world?

As you can see, there is a natural evolution where both technology and humans are getting ready to be online 24X7. The concept of offline is vanishing. We are living in the cloud at home, in the office and for our entertainment. We are living in a virtual world parallel to the real world.It's like a mixed reality of the two.

A lot of people think that the metaverse is about wearing VR glasses all day. Who would want to do that? Seen from that point of view the metaverse is a flop and will not catch on at all. But it's not just that. That's the wrong approach. Ultimately the metaverse will encompass work, business, entertainment, sport and every aspect of our social life. It too will have its own evolution.

Stage 1–XR headsets: With a Virtual Reality headset, you can enter a simulation and that's a virtual world where you can spend hours on end. It could be a movie or a match or a pop concert or a video game. Augmented Reality is not a separate world but brings real life objects into the virtual world. The headset could interact with things in the house, a factory, an office and help you work, train, interact or educate yourself.

The mixture of the two is Mixed Reality and to avoid confusion, a lot of people are already calling the combination of VR, AR and MR as an extended reality or XR. Safe to say with XR you can do anything. In the future you could walk around with it anywhere and interact with the whole city. You could totally get lost in this world. Just ask gamers who can play days on end in their very own virtual gaming universe.

Stage 2–Gloves, skin and glasses: We are not going to stop with headsets. There are gloves, wristbands and skins you can wear to have a complete virtual experience. Many companies are experimenting with virtual suits which give you the 360 degrees experience. Google Glass was a brilliant example of how the real and virtual world could merge all day. It wasn't a failure but had to be withdrawn due to privacy issues. The pandemic forced governments to okay autonomous vehicles and drones, so XR glasses are also coming.

Stage 3–Complete immersion: What all that will lead to is anyone's guess but the possibilities will be endless. At the end of it all it will not be about a headset or device, but the entire infrastructure would support a virtual world. Every house, every office and every building in the world will be metaverse enabled. Autonomous cars, planes and trains will ensure that we can be immersive even inside them.

Here too, there will be two paths. One is the static path. The most famous one is from the *Matrix* film series. You don't move in the real world in your entire life but still lead a rich life of rich experiences. In the second you will be more dynamic like *Ready Player One*, going into a VR simulation to escape the real world. Which of the two will we embrace?

This will have a big hit on your social life. First the world was disconnected. Then it became a global village and finally it is heading toward billions of individual connected digital silos within the global village. EM Forster's 1909 short story *The Machine Stops*, foretells an "omnipotent global machine" which takes care of all of mankind's "bodily and spiritual needs". People message each other all the time and many live permanently below the ground in a standardised room. Isaac Asimov's robotic series also puts the human population underground.

We saw a bit of that during the pandemic where families became one unit confined to their homes. We can work and watch streaming all day and get everything delivered to our doorsteps, not needing to go out at all. A VR treadmill would make the outdoors redundant. Going forward homes will become more and more smart and cosy, and you may not want to leave them at all. The metaverse will supersize that.

Say you are in your home. There is an "always on" broadband connection. Every wall is a

screen. There are home assistants to speak and listen everywhere. 3D holographic creators are present all over that can create realistic immersive movies, serials, memories, recordings, relay live sporting events, concerts and family-office collaborations. That means you can be at home on your couch and do your work, get entertained, collaborate with everyone in your office and also catch up with family and friends. This is a mixed world. Inside a complete virtual world, the possibilities as mentioned above, are limitless.

This will affect real estate. Do we need cities, towns and villages? Do we need buildings of any kind? Just a digital infrastructure which will immerse you wherever you are. Currency will be fully virtual and transfers automatic. Will the old family structure break down? Will the population go into terminal decline as robots, drones and autonomous vehicles take over all the manual tasks? Man is a social animal who is being pushed into digital isolation. Will we evolve or will we one day break the digital?

Stage 4–The Singularity: This brings us to the singularity or the complete merger of man and machine. Either a Super AI will make the human race obsolete and take over the world or the human race will merge with this AI and we will have a new species: Homo SapiensAI? Homo Technosapiens? In Yuval Noah Harari's *Homo Deus: A Brief History of Tomorrow*, the Deus stands for "God". The book talks of technology and mankind, ending with an interesting question: What will happen to society, politics and daily life when non-conscious but highly intelligent algorithms know us better than we know ourselves?

In the end will human society even exist? We are already on the road that will give us the answer to this question. Metaverse then is not the destination, but just another milestone in the joint journey of man and technology. ■

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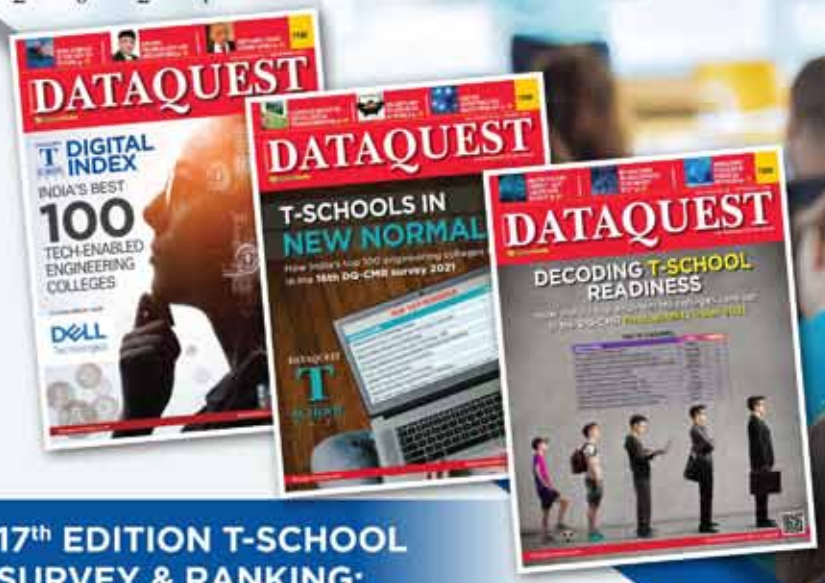

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Ushering in a hyper-connected era with 5G devices

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While 4G has changed how we consume information, 5G is set to expand the mobile ecosystem to new industries, enable new use cases and unlock new business opportunities in the consumer segment. Millions of 5G-ready devices have already hit the market, and as we head towards the 5G rollout, 5G-ready devices are gradually becoming more mainstream. We bring you a curated list of smartphones, tablets and laptops across different price brackets

5G– the next-generation network connectivity is a significant evolution of today's 4G LTE networks. It is designed to meet the very large growth in data and connectivity. The difference between 4G and 5G is about 10 times in density – 5G networks can handle 1 million devices per square kilometre whereas 4G networks currently allow 100,000 devices only. Not only this, the bandwidth has been tremendously increased from 1GB per second in 4G to 20 GB per second in 5G, which is a whopping 20 times faster. 5G is also going to have the ability to further slice the bandwidth and incorporate even more devices with varied bandwidth requirements, making it a versatile connectivity solution. To top it all the latency related to connectivity will be quite low near to zero hence making high speed data available in real-time.

5G operates in the same way as 4G and previous generations networks but uses higher radio frequencies that are less cluttered. This enables instantaneous connectivity to billions of devices. We all are talking about IoT, 5G will not only enable massive machine to machine communications but also has the potential to revolutionize modern industrial processes.

5G will drive an unprecedented amount of data and this will, in turn, drive the backend technology to support these requirements and sustain the capabilities. Telecom companies will be at the centre of this revolution with requirements for Cloud on Core and lots of

SANDEEP LODHA,
Co-founder, Netweb Technologies

5G is going to be a real game-changer. IoT will be the real thing now, Video-based applications are going to see another level of application coming up. Even applications in the field of remote operations of robots with precession will be possible, enabling another big range of applications there.

5G: Transforming industries

As we all know, 5G is much faster than its successor 4G and significantly improves network strength. There will be immense possibilities, when 5G enables industries to connect billions of devices gathering and sharing information in real-time.

- Connected vehicles sharing data in real-time to prevent road collisions
- Autonomously routing vehicles based on real-time traffic and road conditions
- Faster deployment of emergency services to emergencies
- Connected sensors can detect and warn of natural disasters in advance
- Smarter electricity grids to reduce carbon emissions
- Connected autonomous production lines can react to supply and demand
- Early detection of machinery faults
- Improving safety and sustainability
- Remote consultation and diagnosis of patients
- Increased use of IoT in agriculture to efficiently grow crops
- More immersive entertainment (VR, AR and extended reality (XR)) and more engaging education

setup on the edge– wherever they need to process the data they will need to tackle the same. They will need all this to be connected to the 5G radio access network (RAN) and to have complete synchronized scalable Management, Orchestration (MANO) and Automation integration. Further, the requirement and adoption of AI and deep learning will see exponential growth. Everything is going to be virtualized starting from vRAN, vDU (Virtual distribution unit) VNF to the cloud with VM and containers for virtualized storage and network.

Will 5G be bad for our health?

We saw people's concerns and protests against 5G technology. Every wireless signal has some kind of radiation, but that doesn't mean it will harm your health. Many government agencies and organizations advise that there is no reason to be alarmed about the effects of radiofrequency waves on our health.

As with all evolving technologies, the networks will continue to emerge in bits and pieces. Researchers are worried about radiation from 5G's millimetre wave technology. Because it's such a new technology, there is no evidence about what sort of effects it may have on humans, animals and plants.

INDRAJIT BELGUNDI, Senior Director & GM, Client Solutions Group, Dell Technologies, India

As the freedom to work from anywhere gains momentum and many are adopting 'Laptop Lifestyle', 5G LTE will become an important connectivity upgrade. Dell integrates 5G antennas within the speakers to continue its uncompromising compact nature of the devices while giving options for best connectivity. The latest devices offer the eSIM technology that automatically connects to mobile carriers while traveling globally without having to switch SIM cards. eSIM also provides better security as it is registered to the device and is untransferable. Furthermore, a SIM slot is also available on the Dell Latitude 9000 series.

ANKU JAIN, MD, MediaTek India

As a network, 5G boasts the capacity to support multiple connections simultaneously while offering users enhanced speed, latency, reliability, and power consumption. The benefits of this technology would be spread across smart devices and Internet of Things use cases. We are working with phone makers to develop chips and modules tailored to specific applications, and our focus is on offering users a differentiated device, in terms of power and performance. We believe that 5G will enable a humongous difference in device performance and, with digital now becoming a lifestyle, it is not just about traditional voice and data services but also smarter homes, cars, wearables, and smarter experiences overall. MediaTek Dimensity 5G series brings smartphones an unrivaled combination of connectivity, multimedia, AI and imaging innovations and this is just the beginning.

5G infrastructures exposure is at around 3.5 GHz which is similar to existing mobile phone base stations. It uses multiple beams from 5G antennas, exposure could be more variable depending upon users and their usage.

The good news is - to date, the World Health Organization (WHO) did not find any adverse health effects after performing multiple research. Tissue heating is another concern of experts, but radiofrequency exposure levels from current technologies result in negligible temperature rise in the human body.

What do 5G devices offer?

Though India doesn't have a 5G network available for the public, 5G devices have been available for the past couple of months. And consumers are buying them to get better network speed and performance. So what difference will 5G make to the device performance?

▾ Top 5G Devices

Almost every manufacturer has joined the 5G race and introduced devices with 5G capability. You can easily find 5G mobile handsets, tablets, laptops, hot spots and other 5G compatible devices. Let's have a look at some of the power-packed 5G smartphones first.

5G Smartphones

Apple iPhone 13

Price: ₹79,900

SoC	A15 Bionic Chip
CPU	Hexa Core
RAM	4 GB
ROM	128 GB
Screen	6.1" (2532 x 1170)
Camera	Primary 12 + 12 | Front 12 MP
Battery	3240 mAh
OS	iOS 15

Apple iPhone 13 supports a host of 5G networks. It is powered by the Apple A15 Bionic chip and runs on iOS 15 with up to 128 GB storage. Featuring a 6.1-inch XDR OLED display with HDR10 and Dolby Vision support, iPhone 13 has stereo speakers and supports 20W fast wired charging and 15W MagSafe wireless charging. There is a dual-camera system on the back with a 12MP main camera and 12MP ultra-wide camera followed by the 12MP True Depth Camera system on the front that also powers the Face ID biometrics.

Samsung Galaxy S21 Ultra 5G

Price: ₹1,07,999

Key Specs

SoC	Exynos 2100 (5 nm)
CPU	Octa Core
RAM	12 GB
ROM	256 GB
Screen	6.8" (1440 x 3200)
Camera	Primary 108+12+10+10 | Front 40 MP
Battery	5000 mAh
OS	Android 11, One UI 3.1

The Samsung Galaxy S21 Ultra 5G device features Exynos 2100 chipset which has been paired with 12 GB RAM and 256 GB of storage. The 5G phone is an excellent device for media consumption with 6.8-inch AMOLED display. The new design makes the Galaxy S21 Ultra 5G look way better than previous models. It comes with a 108MP primary camera sensor with Phase Detection Auto Focus and optical image stabilisation (OIS). The phone is powered by a big 5,000mAh battery with support for 25W wired fast charging, 15W wireless charging and 4.5W reverse charging.

OnePlus 9RT 5G

Price: ₹42,999

Key Specs

SoC	Qualcomm SM8350 Snapdragon 888 5G (5 nm)
CPU	Octa Core
RAM	8 GB
ROM	128 GB
Screen	6.62" (1080 x 2400)
Camera	Primary 50 + 16 + 2 | Front 16 MP
Battery	4500 mAh
OS	Android 12, OxygenOS 11

The OnePlus 9RT 5G is bringing a slew of uncompromising features. It is loaded with Qualcomm's powerful Snapdragon 888 processor, flagship IMX766 sensor, 120Hz E4 OLED 6.62-inch display, Warp Charger 65T, a large 4500mAh battery, up to 600 Hz of Touch Response Rate. The phone also has OnePlus' finest VC cooling system to date and the company's clean and smooth OxygenOS.

Xiaomi Mi 11T Pro

Price: ₹39,999

Xiaomi 11T Pro 5G mobile comes with a 6.67-inch touchscreen display with a resolution of 1080x2400 pixels and an aspect ratio of 20:9. The 5G phone is powered by an octa-core Qualcomm Snapdragon 888 processor, bringing 5G connectivity support to the phone. The mobile is not only strong at network connectivity, it also has Wi-Fi 802.11 a/b/g/n/ac/ax, and Bluetooth v5.20.

Key Specs

SoC	Qualcomm SM8350 Snapdragon 888 5G (5 nm)
CPU	Octa Core
RAM	8 GB
ROM	128 GB
Screen	6.67" (1080 x 2400)
Camera	Primary 108 + 8 + 5 | Front 16 MP
Battery	5000 mAh
OS	Android 11, MIUI 12.5

OnePlus Nord 2 5G

Price: ₹29,999

In the mid-range segment, OnePlus Nord 2 5G is one of the perfect smartphone. It is powered by MediaTek MT6877 Dimensity 900 5G processor, coupled with up to 12 GB RAM and 256 GB storage options. The Nord 2 5G features a 6.43-inch Full HD+ AMOLED display with 90Hz refresh rate support and runs on OxygenOS 11. There is a Sony IMX 766 50 MP primary camera followed by an 8 MP ultra-wide-angle camera and 2 MP depth sensor.

Key Specs

SoC	MediaTek MT6877 Dimensity 900 5G (6 nm)
CPU	Octa Core
RAM	8 GB
ROM	128 GB
Screen	6.43" (1080 x 2400)
Camera	Primary 50 + 8 + 2 | Front 32 MP
Battery	4500 mAh
OS	Android 12, OxygenOS 11

Motorola Moto G51 5G

Price: ₹14,999

Motorola's budget 5G smartphone is powered by the Snapdragon 480+ 5G chip that has an octa-core CPU with Adreno 619 GPU. It features a large 6.8-inch Full HD+ display that supports up to 120Hz refresh rate. The punch-hole screen holds a 13MP selfie shooter. At the back, it has three cameras consisting of a 50 MP main camera, an 8 MP ultra-wide camera and a 2 MP macro camera.

Key Specs

SoC	Qualcomm Snapdragon 480 Pro
CPU	Octa
RAM	4 GB
ROM	64 GB
Screen	6.8" (1080 x 2400)
Camera	Primary 50 + 8 + 2 | Front 13 MP
Battery	5000 mAh
OS	Android 11

5G Tablets

iPad Pro – 11 inch

Price: ₹1,48,900

Key Specs

SoC	Apple M1 chip
CPU	Octa Core
RAM	8 GB
ROM	1 TB
Screen	11-inch (2048 x 2732)
Camera	Primary 12 + 10 | Front 12 MP
Battery	40.88 Wh
OS	iPadOS 14.5.1, upgradable to iPadOS 15.3

Packed with an 11-inch Liquid Retina display, this 5G tablet delivers an immersive viewing experience. It is powered by the same chip powering Apple Laptops - the M1, so you experience mind-blowing performance and all-day battery life. The tablet houses advanced pro cameras, the LiDAR Scanner, and the ultra-wide front camera with Center Stage for amazing photos, AR, and more natural video calls.

Samsung Galaxy Tab S7+ LTE

Price: ₹78,998

Key Specs

SoC	Qualcomm SDM865 Pro
CPU	Octa Core
RAM	6 GB
ROM	128 GB
Screen	12.4-inch (1752 x 2800)
Camera	Primary 13 + 5 | Front 8 MP
Battery	10,090 mAh
OS	Android 10, upgradable to Android 12, One UI 4

Work and play on the super-fast 5G tablet with an ultra-smooth 120Hz display. This modern tablet is powered by the Qualcomm SDM865 Pro, Octa-Core processor to deliver PC-like performance. It is an immersive tablet for productivity apps and multitasking.

Lenovo Tab P11 5G

Price: ₹43,490 (Expected Price)

Key Specs

SoC	Qualcomm SM7225 Snapdragon 750G 5G (8 nm)
CPU	Octa Core
RAM	6 GB
ROM	128 GB
Screen	11-inch (1200 x 1200)
Camera	Primary 13 | Front 8 MP
Battery	7700 mAh
OS	Android 11

The 5G powered Lenovo tablet is made to amplify your entertainment and video call experiences. Capable of delivering ultra-high speeds and low latency, you can enjoy immersive cinematics on a 2K display with a quad-speaker JBL system, enhanced with Dolby Vision and Dolby Atmos. Lenovo Tab P11 5G tablet is expected to arrive in the Indian market by Feb 2022 in two variants 6/128 GB and 8/256 GB.

5G Laptops

Dell Latitude 9420 Business Laptop or 2-in-1

Price: ₹1,58,767 onwards

Processor	11th Generation Intel® Core™ i5
OS	Windows 10
RAM	8 GB LPDDR4X
Storage	256 GB PCIe NVMe M.2 SSD
Graphic	Intel® Iris® Xe graphics
Display	14-inch (1920x1200) IPS
Battery	40Wh

Dell designed this laptop to deliver the best connectivity & collaboration experience. Latitude 9420 features SafeShutter, 3D speakerphone and Intelligent Audio. Stretch the limits of productivity with ExpressConnect, 5G LTE and 16:10 screen with ComfortView Plus.The sleek and portable all-metal design convertible is built on the Intel vPro platform. It is one of the world's most intelligent business laptops and most secure as well with 5G LTE support.

Acer Spin 7

Price: ₹1,34,999 onwards

Processor	Qualcomm Snapdragon 8cx Gen 2 5G compute platform
OS	Windows 10
RAM	8 GB LPDDR4X
Storage	512 GB UFS
Graphic	Qualcomm Adreno 685 GPU
Display	14-inch (1920x1080) IPS
Battery	56Wh

This convertible ultrabook is powered by Qualcomm Snapdragon 8cx Gen 2 5Gcompute platform that brings the best of the smartphone to premium ultrathin fanless laptops; with powerful performance and leading efficiency to advance Always On, Always Connected PC experiences. The Snapdragon 8cx supports both mmWave and sub-6 GHz 5G frequencies. The laptop sports a 14-inch FHD IPS display with a 360-degree hinge that makes it very versatile to use.

ThinkPad X1 Titanium Yoga

Price: ₹1,99,136 onwards

Processor	11th Generation Intel® Core™ i5
OS	DOS/Windows 10
RAM	8 GB LPDDR4X 4266MHz
Storage	256 GB M.2 2242 SSD
Graphic	Integrated Intel Iris Xe Graphics
Display	13.5-inch 2K (2256x1504) IPS
Battery	4 cells, 44.5Wh

Lenovo ThinkPad X1 Titanium Yoga is a powerful laptop with a thin profile. This convertible machine comes with a great screen, 13.5-inch IPS panel, 450 nits of brightness and Dolby Vision support. Combining the latest hardware, ThinkPad X1 Titanium Yoga is equipped with Qualcomm Snapdragon X55 5G modem for 5G connectivity, along with an LTE modem.

Is 5G the missing piece of the Digital Experience puzzle?

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Winning the hearts of Digital Natives ain't easy and 5G technology could be the solution to many user experience headaches faced by the businesses in this always-on digital era

The ongoing COVID-19 pandemic crisis has transformed businesses and customer expectations radically. The growing dependence on digital technologies not only forced companies to change their business models to adapt to the new market reality, it also made it hard to keep up with the 'always-connected' customers and their expectations. Now, with 5G around the corner, and given its potential to transform the businesses and digital experiences, it becomes even more important for businesses to pull their socks up.

There will be many use cases which will emerge out of 5G technology alone. But there are many existing use cases which will simply be augmented by it. 5G, with the good high speed connectivity, higher bandwidth and lower latency will enable new business models with a wider range of services and immersive experiences across industries such as BFSI, Retail, Healthcare, Manufacturing, Automotive, Education, Media & Entertainment, etc. which can be offered even on the mobile handheld devices. Let's look at some of the use cases, where digital services and experiences will transform radically by 5G.

Smart City: 5G just might be the final

piece of the smart city puzzle. Smart cities involve always-connected sensors and devices generating an exponential amount of real-time data. If managed well, this real-time data can create new opportunities like smart buildings, smart lighting, smart metering, smart transit, and improve the smart governance and service delivery efficiency within the smart city infrastructure.

Smart Transport: Truly connected vehicles will become a reality. With 5G, the vehicles will become a software-defined, network-aware, ultra-connected that will interact with the road and every other vehicles around it. 5G-enabled vehicles will allow drivers to enjoy their favorite entertainment apps, such as music streaming services or audio book services, from the comfort of their vehicles. Smart vehicles and real-time traffic management will make the daily commute faster as well. In fact, 5G will allow drones to fly with a lot of accuracy making drones a crucial part in transportation and logistics.

Smart Home: By offering a viable alternative to fixed internet access, 5G looks set to cause a fast-paced adoption of the smart home products and solutions in households. The impact of rolling out internet connectivity to smart home devices and appliances can be huge, and it will eventually change the way we live and work, especially considering the fact that Work from Home and remote work have become the new reality over the last two years.

Immersive Learning & Training: 5G has the potential to transform teaching, training, and learning to a great extent making it truly immersive. The forces of Augmented Reality (AR), Virtual Reality (VR) and Extended Reality (XR) have started driving education into a more experiential dimension and with 5G will create more opportunities in education and training environments and make it easier to explain complex and abstract concepts to students in an experientially rich environment.

Immersive Gaming & Entertainment: 5G can finally deliver a platform-agnostic future for gaming. Mobile-first gamers are increasingly exposed to immersive, and multi-player gaming experiences that were previously restricted only to consoles and PCs. Cloud gaming, XR gaming and 5G will make many more of those premium gaming titles available on mobiles.

Internet-streamed content has radically changed customer behavior and the home entertainment space, and it will continue to evolve further with 5G. Live events will capitalize on the speed and potential 5G. Sports, Concerts, Live Performances, Movie Premieres, and all such location-based activities will be able to reach a truly global audience across time zones.

Metaverse: As 5G continues to blur the boundaries between the physical and the virtual worlds, it's impact on the Metaverse economy can be far more interesting than what we expect it to be. For example, now you need either a wired connection or fast Wi-Fi to connect to the Metaverse, but the high-bandwidth and low-latency 5G networks will allow people to use a fully-featured VR headset or some similar kind of hardwares on the move.

Tejinder Singh, Head-Product, Lava International said, "Metaverse is a new horizon which has potential to change how people connect, interact both in social life and work space as well. There will be many use cases that will emerge in the Metaverse which will be powered by 5G technology. The real time digital movement to other locations in the Metaverse with the ability to touch and feel will only be possible if high speed networks will support the same which will be possible via 5G networks." ■

iValue onboards **Mr. Shrikant Shitole** as **Chief Executive Officer** to augment Geographic Expansion

SHRIKANT SHITOLE

Value InfoSolutions, India's premium technology enabler, announced the appointment of IT Veteran Mr. Shrikant Shitole as its CEO. This appointment comes in as part of the strategic planning iValue InfoSolutions has designed for next 5 years. iValue, as a technology enabler is looking to extend the core business by expanding the portfolios based on relevance and investing in promising adjacent markets. iValue has planned to execute a framework consisting of three distinct phases that will unfold during the coming fiscal year which will be defending, extending, and transcending the core business. Shrikant's expertise around Cloud Services, Cyber Security, IOT, Smart City, Data Center Services, IT Infrastructure Planning & Management, and Outsourcing services will go hand-in-hand in creating a futuristic win-win situation.

iValue has been maintaining its growth at CAGR 40% YoY. iValue has been persistently investing on growth, allowing it to develop at 3X plus market growth rate in the last 10+ years. Its focus has been to address the complete needs around Data, Network and Application for Enterprise customers in a consultative way. Following the PE investment in 2019, iValue launched 3 main efforts to continue the company's growth trajectory:

- Expand geography coverage: iValue expanded to South-East Asia with a Singapore office. Appointed a CEO and team for South-East Asia covering SAARC markets with direct presence across Sri Lanka, Myanmar, Cambodia, Nepal, and Bangladesh along with Singapore & Malaysia.
- Technology investment: iValue established COE, training centres, and services connected to customer life cycle management in order to give a better customer experience and efficiency
- Exploring acquisition: iValue has been actively pursuing inorganic growth opportunities across India, SAARC, and Southeast Asia to accelerate next phase of growth.

With Shrikant's 25+ years of strong leadership experience iValue looks to turnaround the processes to grow at 5X times in next 5 years. Shrikant has been known in the industry for his B2B business management leadership roles across IT, Telecom, VAS, Software, and Cyber security industries, in his energetic 30+ years of experience. Shrikant, with his management skills, will focus on differentiating iValue to capitalise on the changing Cloud adoption & Cyber-Security landscape.

Welcoming Shrikant into the new role, Mr. Sunil Pillai, Founder & Managing Director of iValue InfoSolutions

SUNIL PILLAI

said, "I am delighted to welcome Shrikant as CEO of iValue. I have known him for a long time, and value his ability to develop, manage and grow product and solutions businesses. I look forward to leveraging his entrepreneurial abilities to disrupt existing markets and accelerate our growth into new segments. His strategic vision, as well as operational expertise and rigor, will be pivotal in the company's next phase of growth, and the iValue Board looks forward to working with him."

Shrikant takes over from Krishna Raj Sharma (KRS), who led iValue through a strong period of growth and raised capital from highly reputed private equity firm, Creador. KRS has steered iValue to become an enterprise company with a significant footprint in India as well as the Southeast Asian (SEA) markets. KRS moves on to overseeing iValue's Southeast Asian markets.

Welcoming the appointment, Mr. Varun Khandelwal, Director of Creador said, "I am pleased to welcome Shrikant into the role as Chief Executive. He has brought incredible experience, vision, and pragmatism to every organization he has been associated with. With his excellent leadership and business acumen, I am confident that iValue can become even more of a force to be reckoned with in the tech industry." Creador is a leading South- and Southeast Asia-focused private equity firm, with over USD 2bn in assets under management. The company invested in iValue InfoSolutions in 2019.

Accepting the responsibilities that come with the leadership role at iValue, Mr. Shrikant Shitole said, "Thanks to KRS and his able leadership, iValue has grown into a remarkable organisation. It would be an honour to learn, work, deliver, and expand on our strategic imperatives to transform and modernise our business, remove complexity for our partners, and become an indispensable organisation behind the numerous brands we support."

Mr. KrishnaRaj Sharma, Founder & Director of iValue InfoSolutions said, "We are excited to get Shrikant Shitole on board. I am confident that Shri, with his domain experience built throughout his career, is going to help iValue to create incredible value in the years ahead."

With the addition of SEA market as part of iValue's geographic expansion strategy, there has been a build-up on Consulting & Services business over the last 2 years. iValue has seen encouraging response from enterprise customers which has led iValue to continue its focus on Consulting & Services business for next few years. Apart from this, iValue will continue to focus on BFSI, Government and Enterprise practices which have always given iValue a heads-up around emerging needs at Top 100 customers. Analysing these demands will help iValue explore and on-board the best available technology OEMs to address the market needs on an on-going basis.

About iValue InfoSolutions:

All of the statistics about our magnitude, diversity, and years of experience, as impressive as they are, bear little resemblance to the ultimate measure of iValue: the differentiating impact we bring on to our fraternity. Here at iValue, we're constantly reinventing how we work and how we approach market constraints so that we can keep delivering meaningful, sustainable, and long-term results for our clients and communities.

We strive to be the best at everything we do, from assisting customers in realizing their goals to making a positive impact on society with numerous CSR drives apart from maximizing the performance of our employees. This inspires us to come together to make an impact that matters in the world.

A market leader in smart, cutting-edge technology solutions who assists businesses in managing, optimizing, and protecting their digital assets. iValue stimulates creativity as a leading Technology Enabler by providing comprehensive services that support Data, Network, and Application (DNA) management for businesses. Our "Go to Market" consists of niche, compelling, and complementary offerings that assist businesses of all sizes and verticals with their optimization and transformation efforts by leveraging the Customer Life Cycle and Product Life Cycle Adoption framework.

iValue is proud to have served for over 6000+ customers across industry verticals through 900+ Partners & direct alliances with 65+ "Best of Breed" Technology OEMs. iValue has a direct presence across 18+ locations covering South-East Asia & Africa continents with Consulting; Solutioning; Vertical & Horizontal focused teams, addressing Technology enablement, Pre-sales, Sales & Post-sales needs of Customer for Private, Public and Hybrid cloud needs. iValue ASEAN operates with HQ in Singapore, with local entities in Cambodia, Bangladesh, Sri Lanka apart from Nairobi (Kenya) office for Africa foray. We continue to grow at 4+ times market growth rates, at 50%+ CAGR for the last 13+ years.

For more information, visit **iValue** and follow us on **LinkedIn** and **Twitter**

Top tech trends that business can't look away from in 2022

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The pandemic has pushed companies to the tipping point and transformed business forever. Technology adoption has taken a quantum leap at both the organizational and industry levels in the last two years. In the January 2022 edition of PCQuest, we gave you a glimpse into the 'Top tech trends that business can't look away from in 2022'- unique perspectives of the technology experts and industry leaders on the technology and industry trends that are likely to shape 2022 and beyond and how businesses are planning to align those tech with their strategic priorities and overall business goals. In this final installment of that we bring you the trends that are going to transform BFSI, and Healthcare in the coming days.

The march towards precision medicine and precision health

Girish Raghavan, VP, Software Engineering, GE Healthcare, South Asia

Our march towards precision medicine and precision health is driven by advances in medical sciences and Technology that would significantly improve clinical outcomes, thereby helping millions live healthier lives. The healthcare systems of the tomorrow will be very different from what we have today, driven predominantly by new age technologies through 5G, AI, advances in data sciences, cloud computing, computer vision, Natural language processing (NLP) and the likes. Virtual care, remote monitoring and advanced visualization would forever change the landscape of healthcare delivery systems across the world.

Data would be the center of all that we do towards precision health. In the foreseeable future, our ability to leverage data to optimize the cost of drug discovery would help in reducing the cost of medicine, thereby making them more accessible to the masses. We would be able to effectively triangulate data coming from multitude of healthcare modalities and systems like imaging, genomics, pathology and the likes to provide longitudinal data for a patient which would be a huge step towards precision medicine.

Patient twinning will transform precision healthcare

Dileep Mangsuli, Head, Development Center, Siemens Healthineers

Digital, data and AI, will enable better diagnosis, linking diagnosis with therapy, and guiding treatment through digital companions. They will also improve workflow efficiency by reducing the burden of basic repetitive tasks. By uncovering actionable insights, they will facilitate personalized and standardized decisions along disease-specific care pathways.

Advanced technologies will help in building 'patient twin', a digital copy of a patient to support clinical decision making, help predict outcomes of procedures or aid in providing the next therapy option. Eventually, 'Patient Twinning' will drive the personalization of diagnosis, therapy selection, therapy guidance, after-care, and managing health.

Smart sensing technologies such as photon-counting CT scanners enable drastic improvements, including an increase in resolution and a reduction in radiation dose. This is a huge step in furthering patient care in a wide range of clinical domains by effectively revealing aspects previously not possible with conventional CT scans, while putting less strain on patients.

Image-guided robotic systems that integrate the power of robotics and advances in medical imaging, will augment the eyes and hands of physicians and nurses and make treatments even more efficient and precise.

Hybrid model combining virtual services and in-person care

Subhro Mallik, SVP & Global Head- Life Sciences, Infosys

The growth of telehealth in coming years is likely to be spurred by further innovations in consumer wearables, mobile apps, and digital devices with wireless remote monitoring capabilities. The use of telehealth, particularly for the management of chronic diseases, has significant potential and is likely to be one of many emerging technologies, for which the pandemic has served as a catalyst, that is here to stay.

As telehealth increasingly shifts the centre of patient care away from hospitals and clinics to the home and digital devices, the healthcare industry is witnessing a transition towards consumerism. Growing expectations for real-time, on-demand access to health services, rapid prescription refills, and increased convenience, are fuelling consumerism akin to that observed in other industries. Increasing integration between telehealth and traditional modalities of patient care in coming years will likely lead to a new hybrid model, where virtual services complement in-person care. Rather than patients travelling to hospitals, emergency care services are now making their way directly to patients.

Ramped-up innovations in mobile medical devices, digital therapeutics

Ajit Narayanan, CTO, MFine

Many call this the Internet of Medical Things (IoMT) or wearables etc. Extremely portable medical devices in a wearable form or devices using nothing more than basic sensor capabilities of your mobile phones are going to see a lot of innovation in the next year. This will take monitoring and tracking of your daily health or even remote tracking for telehealth applications as a must have in the future. Combine this with AI and telemedicine, we could see a world of healthcare delivery quite differently in the coming years.

As telehealth becomes the main mode of consultations world over, expect to see more state of the art platforms with multi channel experiences over chat and video and longitudinal health records in 2022.

With the help of these technology trends, we should be seeing a superior set of solutions emerging for patients where the industry will start to move away from a 'one size fits all' to more 'precision medicine' and a bigger move towards digital therapeutics- a host of software only tools will emerge that will be evidence based and will start to prevent, manage and at time even cure a medical disease or disorder. While this may not become mainstream in the near future, I expect to see a lot of innovations especially around the role of AR and VR in training, upgrading skills while not being physically present.

Bridging the rural-urban healthcare divide

Gaurav Parchani, Co-founder & CTO, Dozee

We're at a juncture where the gap between the number of patients and the specialized healthcare providers required is the highest and is only going to increase further. Bridging this gap to deliver quality healthcare for each citizen will require no less than a tech revolution in healthcare. We've seen seeding of the same during the COVID-19 pandemic but trends like remote patient monitoring, telemedicine, AI-enabled management and smart screening techniques, personalized medicine, etc. are only going to amplify.

We will see a new class of healthcare providers that are much more open to use technology and data to provide personalized and proactive care. Another problem to tackle in healthcare is equity for rural and urban areas. With remote monitoring and telemedicine we will see specific solutions for smart screening and triaging in the rural setup to ensure timely escalation and intervention.

A central piece for most of these trends is availability of data that will be fueled by widespread use of cloud computing in healthcare. We will also see patient inclusion and participation with data ownership and privacy guidelines kicking into policy.

Increasing consumerization will transform healthcare delivery

Srinivas Vivek, Co-founder, Resolute Active Care

The inevitable consumerization of healthcare is accelerating and we will see signs of those trends in 2022. More convenience focussed, quick access virtual and at-home care services including online consultations, remote health monitoring, and diagnostics at home will have deeper penetration. The other trend is around health and wellness getting integrated. Consumers are demanding more holistic services and levers beyond consults and drug prescriptions. This includes personalized nutrition and exercise, functional health, stress, and sleep management which produces evidence-based health and wellness outcomes. Overall consumers are demanding more at-home services and there is a shift towards holistic whole-person health.

Non-invasive, faster diagnostic solutions will be in demand

Arun Malavarapu, Co-founder & CTO, Fedo.ai

Year 2021 saw trends in remote patient care and telemedicine sweeping into every household and generating value for mankind. It saved lives and at the same time completely changed the traditional healthcare services. 2022 is going to be the year for Diagnostics.

With technology at the core, 2022 will be a cornerstone of a new group of non-invasive, faster and effective diagnostic products and services, which will rule the market in the years to come. 2022 will see a better adoption of AI/ML based imaging devices providing more accurate and faster outcomes in disease diagnosis. Real-time capture of vital signs, from wearables, will be high with robust data management and features to integrate with the healthcare providers. Services related to instant feedback for any irregularities will give way to predictive and preventive healthcare.

That said, what we need is the increase in the adoption rate by the healthcare providers and patients. The past couple of years have witnessed how technology has closed the gap between the doctors and patients dynamics in the world of social distancing. Yes! The adoption of newer technology in healthcare has certainly increased but not enough for an industry revolution.

Rise of Voice UI in healthcare

Punit Soni, Founder & CEO, Suki.ai

India is an innovation hub for the global market and healthcare being a priority for the government currently will give rise to multiple healthcare technology products and services using AI, ML, NLP etc. and voice user

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Harminder Singh, Associate Vice President - Online Expert, harminders@cybermedia.co.in

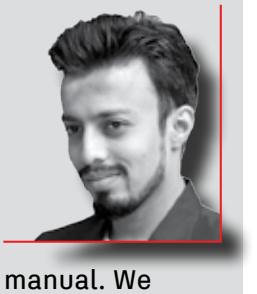
interfaces (UI) will indeed be the next interface for the overall Healthtech space.

Voice will be the next big evolution in how we interact with tech, much like how mobile transformed user interfaces in 2007. Voice will be especially transformational in healthcare, an industry that is generally served by cumbersome, unintuitive software.

One of the main advantages of voice recognition for clinicians, such as doctors or nurses, is that they can take care of administrative tasks like clinical documentation, coding, or retrieving information from the electronic health record (EHR), by simply speaking. By streamlining complex workflows, voice AI is already assisting doctors to concentrate more on patient care and have a significant direct impact on the bottom line for hospitals.

Tech adoption will improve supply chain efficiency

Talha Shaikh, Founder, Biddano



The Indian healthcare ecosystem, similar to the global, is still, by and large, recovering from COVID's impact. While the healthcare supply chain management industry is powering through this crisis, here are some trends that we feel are going to pick up in the coming year. One of the most prominent trends would be the ease in the adoption of AI and ML into digital systems. This will eventually help to optimize sourcing, purchases, inventory and expiry management systems that are still currently manual. We have seen that digital awareness has led to an increased willingness among the stakeholders to use applications that can make their business more efficient. Another key trend would be the application of predictive analytics to increase customization. One of the pain points for distributors and pharmacies in the healthcare supply chain is the lack of predictability which causes constant readjustments and unreliable data patterns. The use of predictive analytics will help in the overall improvement of supply chain efficiency by personalizing and optimizing inventory management.

Emerging tech find its way into dentistry and cosmetology

Dr Priyanka Goyat, Founder, Rejové Clinique

Technologies such as predictive analytics, AI/ML, 3D Printing etc are poised to make further inroads into India's healthcare sector. Technology has been an agent of change owing to which India's healthcare sector is experiencing a quantum shift. On one end, where automated technologies such as AI & ML are being leveraged in Orthodontics to generate a precise course of action and even provide the patients with a glimpse of how they will look post treatment, 3D printing technologies on the other have recently been brought into play and is being used to graft clear aligners. The integration of cutting-edge technologies such as laser technologies, AI, etc. are also enabling dermatologists and skin care specialists to deliver a diverse range of solutions for holistic healthcare, skin care, and hair care treatments.

COVID-19 will reshape future healthcare trends

Dr Angeli Misra, Director, Lifeline Laboratory

Virtual healthcare solutions for primary care of chronic medical conditions with tele-medicine and tele-consultation, personalized service, doorstep testing, focus on accessible and affordable quality preventive healthcare and well-being, and pharmacy services at a click have come to the fore in a big way. Improved technological innovations in manufacturing of testing equipment, data analytic solutions and process automation, upgradation of skills of the workforce, extensive research and development, improved marketing techniques and employment of social media to spread the message, health insurance needs and a re-invention of national health policies, bearing in mind the urgent need for meeting the challenges of improving emotional and mental well-being of people, which has suffered in the wake of social isolation and economic crisis in the lockdown scenario, are pressing and immediate concerns which are shaping the future trends for 2022.

Health Informatics will see an uptick

Vijayashree Natarajan, SVP- Technology, Omega Healthcare

The healthcare continuum's focus on providing quality patient care has grown tremendously with greater use of technology to combat the pandemic-induced changes. Adoption of IoT, IoMT, and telemedicine have converged and paved the way for smart hospitals, smart operation theaters, smart remote monitoring, and other forms of tech-enabled healthcare service. This has led to a new paradigm called Health Informatics, which will see an uptick with healthcare service providers. With technology like Big Data, Cloud-native platforms, AI, and Analytics, it promises faster knowledge, analysis, and sharing of information too. Leveraging such data-driven insights of patient health combined with telemedicine will enable clinicians to provide a better level of care and produce better outcomes.

While these tech trends make the healthcare space even more competitive, they also necessitate cutting-edge strategies to give businesses the advantage and stay ahead of the curve. Hyperautomation will witness a rampant adoption helping achieve scalability, remote operation, and business model disruption. Decision Intelligence automated through AI, simulations, and augmented analytics, is yet another technology that will be widely used to enhance organizational decision-making. With such heightened use of technology, focus on security will increase. Cybersecurity Mesh, a flexible architecture that can integrate widely distributed and disparate security services, will be more widely used by healthcare systems and other service providers.

Retail pharmacies will go digital

Shreyans Mehta, Co-founder, Sehat Sathi

2022 will see the healthcare sector transform digitally, especially the retail pharmacy industry.

Going digital will help the retail pharmacies manage their inventories, include data intelligence as a part of their working, reduce wastage of medicines, reduce capital expenditure, and increase their profit margin. The pharmacies will connect, manage and engage with a larger set of customers online.

Digitization of the pharmacies will add productivity and provide value-added services to customers to compete with the e-pharmacies. They will include services, such as online payments, accepting online orders and delivering medicines to the customers at their homes, providing e-consultations to customers with specialist doctors, and providing lab tests facilities at home. The pharmacies will become an omnichannel platform for healthcare services. The services will optimize costs for both the pharmacies and their customers.

Retail pharmacies can become a one-stop solution for all the healthcare needs making them a last-mile access point for healthcare services.The digitization of retail pharmacies will bring significant change in India's perception of healthcare in Tier-2, 3 cities by bringing many facilities to the doorstep.

HPC, advanced analytics will see greater adoption in medical research

Vivek Sharma, MD- India, Lenovo Infrastructure Solutions Group

More Indians using smartphones, heightened interest from investors, and the country's digital drivers - startup and entrepreneurial ecosystems- have set the stage for personalized, quality, and real-time care, and medical research. This accelerated trend means processing more, widespread data for real-time insights.

With medical sensors, electronic health records, and digital imaging systems pushing large volumes of data, 2022 will see healthcare institutions automating operations, leveraging technologies like AI, hybrid/multi-cloud, edge computing and IoT to a greater extent. Edge becomes a necessity to not just address dispersed and global consumers, it is also crucial to enable real-time diagnostics for critical care.

Advanced analytics with High-Performance Computing (HPC) will see greater adoption to improve and accelerate research into basic science, infectious disease, and precision medicine supporting individual labs to population-level efforts at scale and with affordability.

Furthermore, organizations looking for an overhaul of their IT will benefit immensely from consumption-based or pay-as-you-go models that allow them to scale up and down without heavy CapEx or OpEx investments.

Digital and contactless payments will evolve further and be more inclusive

Lalit Manchanda, VP- Research and Development, Mastercard

2021 witnessed a significant uptake in ecommerce and digital payments, and contactless modes of payment like contactless cards, mobile phones, and QR codes. Technologies like AI/ML, blockchain and analytics were applied extensively in improving cybersecurity, fraud detection and also understanding consumer spending behavior.

In 2022 and beyond, digital payments will be faster, safer, borderless, and more inclusive, with an invisible and a smart multi-rail network of payments optimizing the connection between every kind of buyer and payment instrument, with every kind of acceptor and point-of-sale machine. The rising presence of IoT smart devices, with their sophisticated AI moving towards the edge, will expand personalization to help businesses anticipate and also motivate purchases. As 5G makes inroads, offering higher bandwidths and lower latency, greater interconnectivity of devices will enable consumers to receive hyper-personalized shopping experiences.

Walk-in and walk-out payments capability for transit and food and beverage use cases will increase with advancements of technologies like Ultra-wideband (UWB) and Bluetooth Low Energy (BLE) enabling contactless payments from longer distances. The use of secure tokens will help bring security and consumer control to remote and in-person payment scenarios. With the physical and virtual world blending, metaverse will propel the future of AR/VR. And much like in the physical world, payments will have a role to play here as people interact in the virtual world.

APAC region poised to drive greater CBDC innovation

Amit Ghosh, Chief Information & Services Officer, R3

Blockchain has proven to be a core technology for organizations to minimize risk, enhance efficiencies and facilitate greater collaboration across industries and borders during this time. The financial sector is demonstrating this to great success as banks digitize trade finance processes through blockchain - DBS Bank, HSBC, and Standard Chartered, which are all members of the Contour network, built on R3's Corda, are trailblazing the pathway to the future of trade finance. We expect a surge in blockchain uses next year, through both business use cases as well as tokenization and digitalization of mainstream assets.

In the financial sector, we anticipate permissioned blockchain technology to be a key facilitator for the eventual convergence of the traditional finance services stack with the DeFi distributed stack, especially now that central banks are stepping up their involvement with Central Bank Digital Currency (CBDC). The APAC region looks poised to drive greater CBDC innovation through various pilot projects. All eyes are on the Monetary Authority of Singapore (MAS)' collaboration with the Bank of International Settlements (BIS) on Project Dunbar, an experimental project aimed at developing prototype shared platforms for cross-border transactions using multiple CBDCs. Not only will this advance the case for cross-border interoperability for CBDCs, it will then just be a matter of time until CBDCs gain the traction it needs to take off worldwide.

Neo banking, e-wallets will see increased interest and traction

Jayesh Nema, Director, Product Management (Tech), Blackhawk Network India

As consumers increasingly look for convenient mobile banking options and improved customer experience, the year ahead will see an upward trend in neo banking. The increased migration to neo banking will significantly change the perception of the banking sector on the whole. Real-time analytics will be a critical enabler in optimizing heavy and automatic online operations. Neo-banks will thus rely on real-time analytics to tap new consumers and build loyalty via incorporating safer and faster processes. Alongside providing speed, real-time analytics will also offer better security, enhanced by bio-authentication and voice recognition solutions. Deploying security measures to identify, flag, and restrict suspicious transactions would further prevent the loss of customer data, thereby reducing fraud.

Besides this, 2022 will see a surge in e-wallet app usage as the digital population increases and people get comfortable using technology for financial transactions. This would widen the opportunity for payment providers to provide a better and personalized customer experience basis the spending habits. For example, providing personalized discount vouchers wherein a fitness enthusiast would get a gym membership offer whereas a foodie would get a restaurant's discount coupon.

Maturity of UPI with 'UPI backed by Credit' as well as Recurring-UPI

Karan Mehta, Co-founder & CTO, Kissht

In 2022, digital payments will completely break out into the next orbit. Maturity of the UPI platform - which will occur once 'UPI backed by Credit' as well as Recurring-UPI go mainstream - will make UPI the most flexible as well as the most powerful mechanism of payment. Seamless payments using UPI as well as the ease of accessing transaction histories of customers using the account aggregator model will also allow a host of new products/services to emerge and thrive. Another significant trend that will peak in 2022 is the use of seamless/invisible credit in the form of Buy Now Pay Later or Pay in Parts products. These products will be widely adopted and accepted by a larger population across segments and demographics.

While most innovative products and solutions are designed to provide a seamless experience for customers, there is a lurking fear of it coming at the cost of customer privacy. 2022 will also see this customer sentiment bubbling up to the surface, requiring the industry to introspect and answer some hard questions as well as start to be more transparent about their data privacy and security practices. Customer trust will be the determining factor in which products/companies thrive and which perish.

AA framework will transform the way traditional banks and NBFCs lend

Milan Ganatra, Founder & CEO, 1SilverBullet

One of the most important tech-driven trends that we will witness in 2022 is the widespread adoption of Account Aggregation. The lending space will be one of the biggest beneficiaries of this as the AA framework will transform the way traditional banks and NBFCs lend. This will eventually lead to the already dynamic fintech space in India becoming more robust and easier to access. There have been a lot of ongoing conversations about the potential of Blockchain over the past few years and in 2022, we will see actual use cases emerge. Blockchain is set to transform the way things work, especially in the financial space, as it helps to phase out the need for a lot of physical processes and paper-based documents. Blockchain's potential to help tackle the risk of data manipulation is one of its key strengths and it will be one of the major reasons why more industries will adapt to it.

Also, as Gen Z and millennials continue to have an increasing effect on demographics, traditional financial institutions such as banks and NBFCs will pivot their strategies and become more fintech-oriented. Similarly, as more and more young people across India become financially literate, consumer tech brands will also shift their focus to emulate super apps wherein a larger number of financial services are included in their portfolio of offerings.

Buy Now Pay Later will gain traction online and offline

Parikshit Chitalkar, Co-founder, StashFin

The biggest trend is the rise of digital payments in fintech. The new normal of payment post pandemic will intensify contactless methods such as smartwatch, smart gears and so forth due to the consumers' desire to touch as little as possible while spending.

The increased demand for shopping and spending will pave the way to new payment options. One such mode is Buy Now Pay Later (BNPL) that will grow and even offline channels will adopt it sooner or later. So much so, BNPL will be used for all simple and small transactions.

AI and ML is here to stay and will be widely used by fintechs, as it provides advantages such as – increase of customer database, assess users' profiles, reduced risks of loans, seamless experience, better risk management and efficient operational use for data collection and analysis and enhanced customer experience.

The blockchain architecture will disrupt the fintech centralized business structure and will ensure that data stored right from its source, gathering, consolidation, and exchange of information will be completely secured, automated and in real-time. Therefore, blockchain will be the game changer for fintech.

Financial services rollout gets easier as Banking-as-a-Service gains ground

Raj N, Founder & Chairman, Zaggle and ZikZuk

As more and more banks are opening up online platforms along with the booming neo-banking sector, banking is expected to undergo a paradigm shift in the year to come. Banks are going to become more technology-driven and distributed, thereby shifting from the old centralized structure. Banking-as-a-Service (BaaS) has also emerged as a cost-effective and efficient way for delivering financial services using open banking concepts. Banks must adopt a modular architectural approach in delivering innovative digital services. We can expect many more financial institutions to partner with fintech companies by using BaaS services to put more innovative tech on the table and bolster their offerings.

The adoption of AI in the fintech industry has changed the entire landscape of this sector. Besides, blockchain technology, which has already started dominating the fintech market. Big data is going to become more of a commonplace in 2022, as most institutions these days are relying on fintech firms to understand the behaviors of the financial customers. Lastly, data aggregators are also a part of the sweeping changes in the tech ecosystem as they are increasingly being responsible for the way data is exchanged between the customers and the financial institutions.

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India is at the cusp of operationalizing its own open banking framework

Vineet Tyagi, Global CTO, Biz2X

The disruptions that we have witnessed so far in fintech are just the beginning. We are being ushered into an era of contactless payments, discount broking, minimum fee-based wealth management models, and super-fast delivery of insurance products, etc. These disruptions are significant, however, there's much more to follow in the coming years. A key advancement that grabs attention is open banking. India is at the cusp of operationalizing its own open banking framework. Open Banking is the practice of giving third-party providers access to consumer financial data through application programming interfaces (APIs). The emergence of Banking-as-a-Services is another critical component for traditional banks and financial institutions on their digital transformation roadmap. These trends will accelerate the growth and development of the financial industry and will cater to consumers' new expectations. Thus, creating a blue-print for digital banking regulatory framework and policy offers India the ability to cement its position as the global leader in fintech.

Creating hyper-personalized banking experiences will be a key focus

Sandeep Gogia, Director- Investment Banking, Equirus

Fintech in India is going through a transformational period. Startups are rushing to solve specific problems; whether it is customer acquisition of old financial products like insurance, lending, payment instruments, or new-age personal finance products like BNPL, AI/ML-based investment strategies, etc. These intents are usually executed through a mobile app as a front-end and as a technology platform including various algorithms at its heart.

The next phase of the revolution, however, will be characterized by new trends. API plug and play tools will enable every company (financial or non-financial) to add fintech as a feature and build on the ecosystem they control or influence. Risk assessment will become more innovative and there will be an increase in the use of the customer's digital footprint for financial profiling and underwriting. As regulatory scrutiny increases in the segment, the pressure to maintain and store data will lead to an increase in innovation against data leaks, platform downtimes, and information theft.

Mature players in the industry will have to move away from their image as and when customer aggregators would grow engines and would start monetizing their customer base. We will see these mature players creating financial services Super App and introducing hyper-personalized banking experiences.

FinTechs will leverage cloud, quantum computing for agility

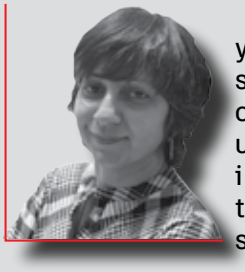
Uday Chaudhari, Senior Director- Technology, Synechron

Anticipated demands will continue to feed the curiosity of fintech players. A strong strategy to induce growth can be achieved in a billion ways, but the question remains 'how'. As for the fintech industry, customization, security, and feasibility hold key positions. The desire to achieve faster will inspire the industry to leverage quantum computing, predominantly because of the higher standards of security, agility and accurate processing, for cases in Credit Scoring, Client Profiling, Portfolio Management, Fraud Management, payments and even bettering AI/ML models.

Back in 2020, when the pandemic started, Cloud Computing rose to become the protagonist. What started as a solution, has now become a strength and we anticipate amplified adoption and advancement of cloud technology, as more and more fintech players turn to remote working and operating models. The adoption and deployment stage is now a story of the past, now more focus will be on remodeling and bettering functions, such as with self-serving applications for customers to manage their accounts remotely, strengthening security and data protection practices - aligned with the values of the financial services industry, storing and working with the high volume of data for onboarding, identity mapping, account management, etc., and most importantly, leveraging agility to amplify innovation.

Blockchain and data will unleash new innovations in the FinTech space

Tanul Mishra, CEO, Afthonia Lab



Data is likely to change how the fintech industry works in the coming years. It is going to be foundational to building intelligent, intuitive, and sharper solutions that find resonance in the market quicker. The wealth of opportunity that data is going to accrue for the fintech industry will be unparalleled, provided that privacy remains a top agenda for innovators in this space. The usage of blockchain in this regard will revolutionize the way data is handled by fintech innovators and augment the scale and serve the end customer better.

Another area I see evolving in fintech solutions will be, in terms of how and where they are deployed. I definitely see fintech innovations playing an instrumental role in providing the right impetus for growth to the MSME sector, which contributes upwards of 30pc to the country's economy both in GDP and employment generation. Traditionally, for instance, wealth management companies have focused on high-net-worth individuals (HNI) and ultra-high-net-worth individuals (UHNWI). The HNI and UHNWI groups in India have witnessed significant growth in the last decade and this is a demand driver for wealth management services. Being able to extend those suites of services to businesses in India can provide the fillip the MSME sector needs to fuel growth and ensure a gush of capital in a sector that can act as a growth engine for the Indian economy.

ML and Open banking changing the enterprise lending landscape

Harshwardhan Mittal, CTO, CredAvenue

India's Debt to GDP ratio is one of the lowest globally. This has a direct implication on business and economic growth. Banks are finding it increasingly difficult to evaluate the creditworthiness of enterprises due to the ever-changing nature of business and increased sophistication in frauds. With the help of advances in technologies like ML and open banking, debt markets in India are bound to get deeper.

Advances in data sciences and ML have allowed new aged fintechs to solve some of the core problems such as a) Curating thousands of data points about the credit profile of an enterprise, b) Ensuring validity and accuracy of these data points and flagging fraud by anomaly detection, c) Validation of sanctity of electronic copies of documentation by using Computer Vision, d) Providing industry and cohort-specific benchmarks, and e) Providing recommendations to filter applications with closest matches to banks investment preferences.

Open banking has helped by bringing fintechs and banks together via API integrations so that banks can continue to use systems they are familiar with and still benefit from new capabilities fintechs are bringing. This is also helping by increasing the speed of transactions and reducing manual inputs and errors caused by those.

Hybrid processes will rule the InsureTech space

Rana Biswas, VP- Insurance & Wealth Solutions, APAC & ANZ, Equisoft

Although the insurance industry has invested heavily in digital transformation, much of the sales process is still mired in old school processes- tedious, paper-based, and frustrating enough that clients abandon the process before completion. Streamlining sales and improving consumer experience requires advisors and agents to be available during the digital sales process. Hybrid digital and advisor-led sales processes can reduce frustration and dramatically increase policy application completion rates. Automating routine client service tasks can free up advisor time for more profitable activities, like relationship management and cross-selling. That's where modern digital tools make a difference, with the likes of e-Applications and client portals enabling all industry stakeholders to stay connected. Customers will receive the accelerated, highly personal care they desire. Advisors will be able to meet with prospects and clients either in person or at a distance. These integrated systems will go a long way towards a seamless customer experience and also enhancing the efficiency and productivity of the frontline sales team.

Wealth management and broking are ready for its UPI moment

Ujjwal Jain, Founder & CEO, WealthDesk

In 2021, brokers have seen an unprecedented surge in participation by retail investors, which has mirrored the rise in indices. The falling interest rates on fixed income instruments like fixed deposits and awareness about long term wealth creation through equities has led to financialization of savings taking the mainstream route. In addition, the increasing availability of financial education and knowledge has led to the new age investors understanding the need to invest. The brokers have also supported the growth in retail investment by developing and adapting technologies that make broking accounts opening and trading easier.

We believe that wealth management and broking is ready for its UPI moment- an internet-scale Unified Wealth Interface (UWI) ecosystem. Traditionally, brokers, research & advisory arms, independent SEBI registered advisors and research houses used to work in silos. But this ecosystem will be aggregating best investments and wealth solutions on a broking platform led by the UWI vision. UWI will ensure that retail investors can seamlessly leverage these solutions to build wealth on top of Broking. This will significantly affect people who invest without doing their research.

AI will transform how people invest with contextually intelligent investment ideas

Akshaya Bhargava, Founder & Executive Chairman, Bridgeweave

Emergence of fintech and clever use of technology has made it possible for a wide range of non-bank players to offer financial services. We see four large ecosystems emerging within fintech – these are around Payments, Lending, Open Banking, and Investments/Wealth.

Speaking only with respect to Wealth and Investments, we see some important trends for 2022. AI will transform how people invest by providing timely and contextually intelligent investment ideas. AI will get more embedded into a normal investment cycle, providing the right information at the right time for both individual investors and investment advisors. Mobile wallet firms will expand into adjacent financial services like investments. This is a logical extension of a transactional product moving into Savings and Investments. A good example is Paytm Money who is leveraging the huge customer base of its parent company to attract more investors by offering incredibly innovative and affordable investment products.

Investment in digital assets will grow exponentially. Crypto investment has moved from a fad to a much more legitimate activity. As regulatory positions in various countries become clearer, guidelines around investor protection and authorisation of service providers will give a massive boost to crypto investments. Web 3.0 use cases will begin to emerge into everyday life. Awareness of how new technologies will impact many aspects of everyday life will become greater as innovative companies launch use cases.

More new-age FinTechs will target pre-teens and teens

Ankit Gera, Co-founder, Junio

The year 2021 has been a promising year for fintech startups where we have witnessed record-breaking Unicorns and the launch of many IPOs. Talking about Kids Fintech, we will see more and more new-age fintechs targeting pre-teens and teens and developing innovative and intriguing products that make them money-wise and financially smart as digitally native children consume massive amounts of online content, and gradually progress into digital transactions.

Digital payment which was mostly online (given the pandemic) is also seeing significant traction in offline POS stores, given the easing of the pandemic restrictions. There is significant concern among parents that the new young generation has a limited understanding of money, and the real-world concepts of savings and interest, compounding, etc. Late teens are getting very interested in cryptocurrency and blockchain tech. Web3.0 is here. This is just the tip of the iceberg, there is a lot more brewing in this space that we will experience in 2022.

Consumers will start embracing payments via smart devices

Vishal Pratapwant, SVP & Head- Engineering & Transformation Group, Fiserv Global Services

Today, more than technology design, it is the user experience that is driving innovation in the payments and fintech landscape. The desire to make payments from anywhere at any time will lead to more adoption of new payment methods that put control in the hands of the consumer. Wearable technology for payments is emerging as a secure payment option that uses advanced technology integrated into operatable smartwatches, smart rings, and wristbands. Consumers will continue to embrace payments via smart devices, and venture into voice-driven commerce that enables them to make purchases via smart speakers.

With the rise in popularity of online shopping and new generations coming online, the adoption of new payment options such as Buy Now Pay Later (BNPL) is happening faster than ever before. It enables customers to break down payments for a purchase, and consumers can avoid concerns like hidden charges and limited interest free periods.

CORRIGENDUM

In the PCQuest January, 2022 edition, on Page 22, Kamal Singhani, Country Managing Partner, IBM Consulting, IBM India/South Asia's picture was incorrect.

On Page 53, there was an error in the spokesperson's designation. It should have read: Charles Yong Jien Foong, Chief Architect & Technology Officer, Affle

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35 YEARS
1987 - 2022

From 1G to 5G: 35 years of Mobile Phone Evolution

Ashok Pandey
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Motorola introduced the first portable cell phone in 1973 - DynaTAC. The prototype weighed 1.1 kg and measured 9.1 x 5.1 x 1.8 in. Motorola launched the first-ever handheld mobile phone in 1983 - DynaTAC 8000X. This bulky mobile had a huge battery taking around 10 hours to charge and offered a talk time of just 30 minutes.

But mobile devices became popular during the cellular revolution, which started in the 90s. During this time we have seen the famous 'brick' phones evolve to something much more impressive looking. The first Siemens mobile phone was Siemens Mobiltelefon C1, or you can say a suitcase phone.

1G

The first generation of wireless telephone technology was introduced in 1979 and the early to mid-1980s. In 1G systems, the audio was encoded as analog radio signals, though call set-up and other network communications were digital.

1987

Nokia introduced its first mobile phone, the Mobira Cityman 900. Weighing only 800g including the battery, it was small and light enough to carry along and was seen as a status symbol.

1989

Motorola Microtac 9800X was the first truly portable phone. With periodic updates of increasing frequency, the DynaTAC was replaced by the smaller Motorola MicroTAC

2G

The second-generation cellular network was commercially launched on the GSM standard in Finland by Radiolinja in 1991. With 2G for the first-time users were able to use data services for mobile, starting with SMS text messages.

1992

Motorola International 3200 was the first digital hand-size mobile telephone

Nokia 1011 was the first mass-produced GSM phone, produced until 1994. It was the first mobile phone that could be used anywhere in the world, all thanks to the GSM Network (2G) of wireless cellular technology

1994

IBM introduced the first touchscreen smart-phone featuring apps. Unfortunately, it was ahead of time and this early smartphone never took off. Cell phones gained popularity while becoming more compact and varied in design

35 YEARS
1987 - 2022

1996

A prototype solid state disk (SSD) module is made for evaluation by IBM. SanDisk, which at time was known as SunDisk, manufactured the module which used non-volatile memory chips to replace the spinning disks of a hard disk drive

Motorola StarTAC featured the first clamshell design, also one of the first display screens featured on a cell

Nokia 8110 or 'banana phone' was popularized in the first Matrix movie

1997

Siemens S10 was the first mobile phone with a full colour screen. It also came with several basic apps such as an alarm, a phone book and even a voice note recorder

Hagenuk GlobalHandy was the first phone without a visible external antenna

3G

The third generation network offered faster data transfer and better voice quality. The first pre-commercial 3G network was launched by NTT DoCoMo in Japan in 1998. The first commercial launch of 3G was also by NTT DoCoMo in Japan on 1 October 2001

1999

BlackBerry entered the professional mobile phone market with its first model – BlackBerry 850 (at this time the brand was called 'RIM')

The first WAP browser cell phone introduced by Nokia – Nokia 7110, enabled users to browse the internet

Samsung revolutionized phones with– Samsung SPH-M100 Uproar, combining MP3 player feature

Nokia 5210 was the first cell phone to feature a splash-proof case

The first GPS-enabled cell phone – Benefon Esc! launched

The first commercial camera phone was the Kyocera Visual Phone VP-210, released in Japan. Sharp also introduced a camera phone – Sharp J-SH04

2000

This year Nokia launched – 3310 that become one of the most iconic phones of all time

2002

Sony Ericsson P800 featured a touchscreen and up to 128 MB of memory

2003

Nokia N-Gage was the first phone combining game systems

2004

The Razr V3 has been Motorola's most popular handset to date. It also claimed the title of the best-selling clamshell phone of all time

2005

Sony partnered with Ericsson to release the first mobile phone under the famous Walkman brand – Sony Ericsson Walkman W800. It was one of the very first phones to make music popular on phones

2007

Nokia launched its N95 model boasting 160MB of internal memory with the option to add up to 8GB on a microSD card as well as a set of dedicated media controls for watching films and listening to music

Apple revolutionized the smartphone industry with the launch of the first-generation iPhone

35 YEARS
1987 - 2022

2008

Just one year after the launch of its first-generation iPhone, Apple introduced iPhone 3G, support for 3G networks and a new and improved operating system

4G The fourth generation of broadband cellular network technology offers speeds of up to 100 Mbps, while 3G only promised a peak speed of 14 Mbps.

2009

BlackBerry launched its Curve 8520 model, further reinforcing its transformation from a business-focussed to a consumer-focussed manufacturer

2010

Samsung launched the very first Galaxy S with 16GB of storage, a 1 GHz ARM 'Hummingbird' processor and an AMOLED touchscreen. It was a very strong attempt at competing with Apple's popular iPhone series

Sony Ericsson announced a game console-like phone – Sony Ericsson Xperia Play, focused on the gaming experience

2012

Nokia announced the Lumia 920 (on now-forgotten Windows Phone OS) with a highly sensitive capacitive screen and wireless inductive charging. The phone was the first to feature optical image stabilization (OIS)

2015

One of the best-looking smartphones of its time, the Samsung Galaxy S6 Edge boasted a truly unique, curved edge-to-edge screen

Google's (Huawei) Nexus 6P was one of the most popular phones of 2015. With a solid 12.3 MP camera, boasting 4K video recording and 240fps slow-motion video

35 YEARS
1987 - 2022

2016

Google launched its flagship phones, the Pixel and Pixel XL with high-quality hardware and software

2017

Apple changed the game again with the launch of – the iPhone X – the first iPhone with a full-screen display

Motorola launched the Moto Z, a phone with magnetic accessories providing additional functionalities

Asus Zenfone AR launched as the first phone with 8GB of RAM

2018

The first triple camera smartphone, the Huawei P20 Pro, combines 40 + 20 + 8 MP lenses

5G

Cellular phone companies began deploying 5G which is predicted to have more than 1.7 billion subscribers worldwide by 2025

2019

The first 5G phone appeared, despite a slight delay – Samsung Galaxy S10 5G

Huawei introduced Mate X, a high-end foldable smartphone

Samsung launched Galaxy Fold, an Android-based foldable smartphone

2020

The Motorola Razr was reintroduced with Android OS and a foldable screen

35 YEARS
1987 - 2022

2021

The Galaxy S21 Ultra 5G which was arguably the year's top flagship got the most interest

2022

OnePlus announced its most awaited flagship phone - 9RT 5G

Xiaomi introduced India's fastest charging smartphone - 11i HyperCharge 5G

DID YOU KNOW ?

Mobile phones were not for everyone back in 1987, they were targeted to business people on the go. The Mobira Cityman 900 attracted eyeballs when Mikhail Gorbachev, President of the Soviet Union, was photographed making a call from Helsinki to Moscow- earning the phone the nickname 'Gorba'.

Much later, in 1995, the first mobile call in India was also made using Nokia handsets, allegedly Nokia rinGo. The phone call took place between erstwhile Chief Minister of West Bengal, Jyoti Basu and Union Telecom Minister, Sukh Ram.

See the unknown, think of the impossible, & shape your tomorrow with Augmented Analytics

Venkat Ramasubban
pcquest@cybermedia.co.in

Earlier, enterprises engaged exclusive skill sets to interpret data. However, augmented analytics is leveling the playing field for all users, and the smart recommendations can be absorbed across the enterprise to improve decision making

What you see is what you get. What you don't see, gets you!

This is exactly how the world of data is manifesting all around us with global data creation expected to grow beyond 180 zettabytes by 2025. If today's data-conscious enterprises can access the right data at the right time to drive the right decision then success stories will be written. Else, data hidden in obscurity is just a ticking time bomb.

Traditional Business Intelligence (BI), as we know, is the technology solution that generates insights leveraging data through dashboards and reports, but it served its purpose a decade ago and is not user persona centric. Often, users who adopt this technology solution are faced with underutilized reports and dashboards that are not quite actionable, thus creating disconnected BI and business outcomes. As a result, it ends up introducing business siloes, data discrepancies, and usage complexities for business decision-makers.

Augmented analytics responds to this challenge by embedding artificial intelligence (AI) and machine learning (ML) into traditional BI. This provides the ability to augment data exploration and find meaningful explanations to insights before consumption. Integrating augmented analytics into an existing stack of analytical tools is easier than you think. Earlier, enterprises engaged exclusive skill sets to interpret data. However, augmented analytics is leveling the playing field for all users through these key features:

- It automates data preparation (i.e. data quality, enrichment, cataloging, and profiling) and augments the process of data discovery. Analysts can now invest more time in extracting deeper insights
- Analytical insights can be seamlessly embedded as part of enterprise applications such as enterprise resource planning (ERP) systems, customer relationship management (CRM) solutions, and support and productivity tools. This improves the adoption of analytics without additional effort
- Users are empowered to make data-driven decisions through contextualized insights rendered while they are executing an operational process
- Conversational interaction with the help of natural language processing (NLP) enables users to access insights, hassle-free
- Business users can now quickly understand outlier data points without the need for data scientist-like capabilities

VENKAT RAMASUBBAN, SVP (Head- Data & Analytics), Enquero

▾ Contextualizing these capabilities to answer business functions' need

What makes augmented analytics revolutionizing is its capability to continuously learn and improve insights. Its smart recommendations can be absorbed across an enterprise to establish cross-functional alignment and accelerate decision making.

Customer Service: Every business treasures its relationship with its customers. Hence, it is no secret that delivering a superior customer experience is crucial for maintaining customer trust and loyalty. Augmented analytics is quickly gaining traction in helping customer service professionals proactively identify a customer's intent and predictively track maintenance issues. These steps go a long

way in improving a brand's perception. Support channel operations can be streamlined by analyzing call volumes, sorting incoming requests, and directing them to appropriate bots or personnel. This reduces the wait time for customers to access the right solution.

Sales: For a sales team, ML algorithms running in the background can sort through volumes of historical customer data to identify buying patterns and recommend ways to improve value delivery. Sales personnel can easily and quickly find answers to relevant questions like which micro factors are influencing a demand, how to analyze sales results for assigned territories, what are the key performance indicators (KPIs) to monitor for successful home runs, where lies the upsell and the cross-sell opportunities; this list could go on. Augmenting AI-led explainable answers to such questions will narrow down the key measures to be tracked by humans for continuous sales improvement.

Marketing: Navigating the world of consumers is complex. It is ridden with emotions and influenced by competitions. And this doesn't make the life of a marketer any easier. But with augmented analytics, a marketer can have better control over personalizing campaigns based on demographics and millennial preferences to create meaningful pockets of offerings for attracting and delighting a prospect. With faster access to granular insights on multichannel performance, marketers can focus on optimizing customer journeys. Further, they can work in tandem with sales teams to identify loopholes and target the right set of decision-makers.

Human Resources (HR): As one of the key supporting functions, an HR department is constantly up against the urgency to find the right talent for an enterprise. Augmented analytics can help in identifying HR challenges and suggest ways to address them. HR professionals can strategize on improving engagement, employee retentivity, and sieving through a large bunch of profiles to identify the right fit, without any requirement of in-depth analytics knowledge. Thus, injecting augmented analytics into decision-making can make time-consuming hiring processes nimble and improve candidate experience.

Finance: With ever-changing guidelines and regulations, locale-specific processes, and currencies, financial reporting can get painfully cumbersome and error-prone. Augmented analytics promises to improve financial processes by churning out insights on an internal financial environment while ensuring the accuracy of financial reports by considering non-financial data points and enabling continuous risk analysis. With automated customized reports, it is possible for users to perform deviation analysis to understand relationships between budgets and actuals. This will help businesses to stop revenue leakages.

Supply chain: Sudden changes in market conditions and consumer preferences directly impact supply chain management. Moreover, integrating the internal supply chains with supplier networks has always been an age-old problem. Augmented analytics can smoothen the process links to create a digital community of partners. It allows a business to operate confidently by forecasting trends, predicting weather conditions, and optimizing route allocation to maintain uninterrupted deliveries of products and services. With better inventory management, supply chain planners can respond better to fluctuating markets.

▾ Time to embrace the unknown

Humans are curious beings by nature. It is our innate necessity to discover spectacular solutions to new and existing problems. And augmented analytics adoption is a way to respond to such a need for exploration. Today's enterprises are living entities and augmented analytics is destined to make the human aspect of a business think, understand and act better. It is sculpting citizen data scientists out of business users. The future belongs to augmented consumers, augmented learnings, and augmented experiences. And the journey to visualize the unknown has already begun. ■

The author is SVP (Head- Data & Analytics), Enquero- A Genpact Company

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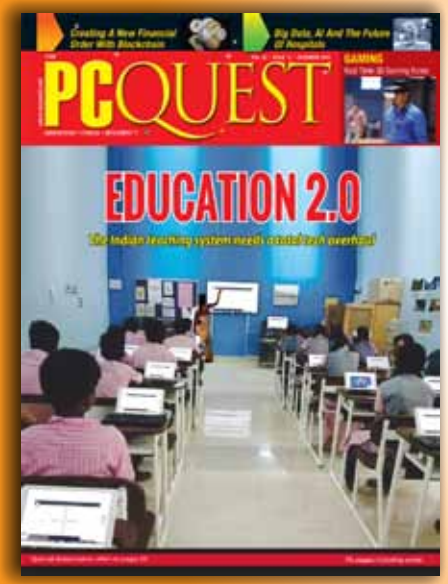

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https://VIDEO

We've entered the era of hyper digitalization

Sunil Rajguru caught up with **Dharmender Kapoor, CEO & MD, Birlasoft,** and discussed a wide range of issues, including the balance required in the Work From Anywhere (WFA) culture, the serious threat of cyber attacks, why cryptocurrencies have to be regulated and the three irreversibles. Excerpts from the video interview...

▾ The need to balance Work From "Home" and "Office"

I truly believe that the working model is changing. I have been looking at defining the new model because you cannot grow while sitting at home. If somebody is interested in growing in their career, they will have to step out and go and meet people. That will define how the personality of an individual is going to develop.

Freshers still need to understand what the work culture is, what personality development they would need when they are working in a services organization.

How do they interact with the client, how do they manage the escalation and what does it mean to be a dependable partner to our customers? We also give the flexibility that if we allow them to work from home or wherever due to the nature of the work, then we provide that flexibility also. We need to have a good balance between what can be done and being in the office and what can be done from faraway locations. This new model is going to stay forever.

▾ Client regrets during the pandemic

During the pandemic I asked a very simple question to my clients: What would you have done differently if you knew the pandemic was hitting the world one year down the line. They said: I wish I had moved to the cloud. I wish I had opened my online channel. I wish I was directly connected with my consumer so that I could really determine what they needed. I wish I could have taken care of cybersecurity.

▾ The era of hyper digitalization

The speed of change is significant and the amount of digitalization that has happened in

the last one year, it did not happen in the last 7-8 years. It is the time of hyper digitalization that we are seeing. How do I very quickly break barriers and connect with the outer world is what digitalization is all about? It is not about really using technology but it is about the real business value that we need to get out of digital.

The threat of cyber attacks

One thing that keeps me awake is cyberattacks, because you need to really ensure that you have covered all your gaps in the infrastructure, in the applications, in the cloud and everywhere so that you continue to protect yourself, your information and data. IT services companies are far more vulnerable because we provide services to many of our clients and sometimes we can be seen as a gateway to their environment. We need enough investment in ensuring that we have put our house in order from the cybersecurity point of view.

The danger of cryptocurrencies

There is a lot of discussion over cryptocurrencies and I have nothing against that. But the usage of that cryptocurrency sometimes to get ransomware, that is wrong. There must be some rules and guidelines and ways to govern that. Otherwise we are going to be vulnerable: Not just the company and industry, but the country too.

The 3 irreversibles

There are three irreversibles. The first is hyper digitalization. Everything is going to be digital. There is no looking back. The second irreversible is Artificial Intelligence and data will be king and they will be disruptive going forward. The third is this whole new working model. We can resist it, but I don't think we can avoid it. We need to start preparing our HR policies. We need to understand how to deal with people, how to manage talent better and how to upskill. The trends are going to emerge from these irreversibles.

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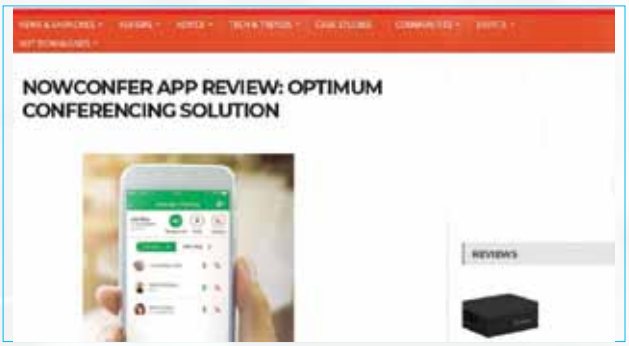

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https:// REVIEW

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MONITOR

VIEWSONIC

ELITE XG270Q GAMING MONITOR

Price: **₹ 61,600**

While choosing a monitor, often you look for a monitor with great visual quality, but when it comes to gaming you don't want to compromise on refresh rate and performance. ViewSonic recently announced a new Elite monitor that is perfect for both worlds.

ViewSonic Elite XG270Q gaming monitor comes with a plethora of features including 1ms (GtG) response time, vibrant IPS display, and more.

Overall: 9/10

SCORE
PRICE: **8/10**
PERFORMANCE: **10/10**
FEATURES: **9/10**

KEY SPECS
27-inch Display; QHD (2560x1440) Resolution; 165Hz Refresh Rate; 1ms (GtG) Response Time; HDMI 2.0 (with HDCP 2.2); Display Port; 3.5mm Audio Out

PROS:
Customisable ambient lights, exceptional visual results, 1ms response time from an IPS panel, fast refresh rate, low input lag, highly flexible stand

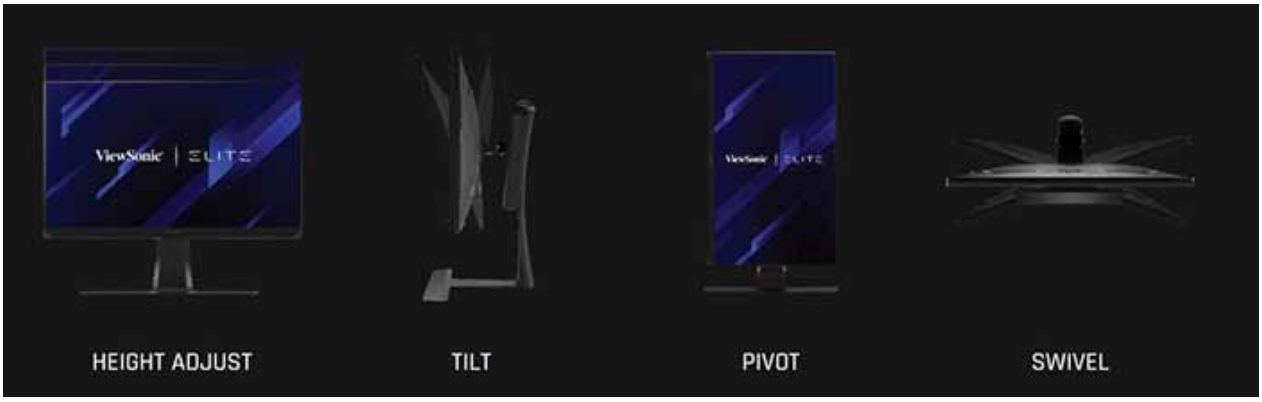
CONS:
A smidge pricey

▾ Build and design

With a new design ethic, the ViewSonic Elite monitor is dominated by all black with quite a bit of RGB highlighting in various parts of the housing. At the back of the screen, you can see a hexagonal RGB ring around the stand mounting bracket. One can customise these lights for static or pulsing rings in various colors. At the monitor bottom, you can see two more RGB strips that can be customised as well.

The 27-inch IPS panel has thin bezels, almost a borderless design. Just the bottom bezel is a little thick for the reason, housing Elite branding. The monitor base is all metal and holds an arm that allows the monitor to swivel up to 45 degrees left or right, tilt between – 5 and 20 degrees, or pivot 90 degrees into portrait mode. The gaming monitor also holds two built-in speakers, so no additional headphones or speakers are required while playing the game or enjoying videos.

Smartly, ViewSonic hid all the ports with an additional cover. When you open that can see all the ports that include two HDMI 2.0 (with HDCP 2.2), one



display port, one 3.5mm Audio Out, one USB type-B, three USB type-A ports and a power in port.

Features

The gaming monitor has a 165 Hz refresh rate making it perfect for both gaming from esports casuals, streamers and graphics professionals. The IPS display offers a 1ms (GtG) response time that delivers esports-level performance with seamless pixel transitions and reduced ghosting. With expanded 95% DCI-P3 color gamut coverage, this screen provides the perfect balance of color and speed.

NVIDIA G-Sync certified monitor delivers a seamless and immersive gaming experience. And if you want to use multiple displays for game or content creation, this 3-side borderless display maximizes your viewing experience while minimizing frame distractions.

The ELITE Display Controller is an OSD software application capable of controlling both monitor display options and RGB ambient lighting modes, without physically interacting with the monitor's OSD.

Performance

Setting up the monitor took a few minutes only. There is no complicated configuration to make. Just assemble the stand, then connect the monitor to power and use HDMI or DisplayPort to connect the PC to the monitor.

Elite XG270Q stands out from other gaming monitors. Customisable ambient light gives it a completely different look. The hinge lets you adjust the height, tilt, pivot, swivel the monitor without any extra effort. At the bottom of the screen, right beneath the elite branding, a three functional button is placed to power on/off, choose modes, customize the brightness, and other settings.

For normal PC usage, the display is perfect with vibrant colours, excellent brightness levels and wide viewing angles. For video editing, graphics and other content creation as well, this works perfectly.

To test its gaming ability, we played different games including Halo Infinite, Assassin's Creed Valhalla, Ghostrunner, Call of Duty Modern Warfare, etc. The gaming experience was amazing on this display. I didn't witness any distortion in the video quality, thanks to Nvidia G-Sync the gaming output was fascinating. The screen was able to deliver an enjoyable experience. The colours were looking pretty good, dark scenes were also nice.

Having the IPS panel, the experience with the monitor was immersive. The screen was looking good most of the times, having a pretty good resolution. It was able to produce smooth images even in the most frantic of exchanges. It was able to do great with bright colours, but the dark shades and black colours were deep as well.

It holds two Stereo Speakers that produce rich sound, good for music, video, and gaming as well. Overall, it is a decent monitor that offers a decent balance of speed and picture quality. ■

Bottomline: One of the perfect gaming monitors with customisable ambient lights, amazing color reproduction and a high refresh rate. ViewSonic Elite XG270Q Gaming Monitor is available at a higher price point, but it's worth it.

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https:// REVIEW

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FASTRACK

REFLEX TUNES F02

HEADPHONE

Price: **₹ 5,995**

Fastrack brings a new pair of headphones with an attractive design. It looks nice and trendy, and portable enough to carry the headphones easily in your bags. The Fastrack Reflex Tunes F02 comes with 14 hours of playback time which is impressive, but would it translate the same in our testing, let's find out...

Built and Design

Fastrack Reflex Tunes F02 has minimalistic design ethics. Its earcups have an oval shape exterior. The headband is made of steel and allows you to adjust the size as per your comfort. The inner cushioning is perfectly fine to wear it for longer hours. The earcups are comfortable to wear and good for noise isolation, as well.

The control buttons are placed on the right earcup – volume rocker and track change, play/pause, and power on/off and LED control switch. And a USB port is located next to AUX port to charge the headphone.

Performance

Pairing the Fastrack headphone is quite easy as like other Bluetooth headphones, just power-on your phone's Bluetooth and the headphone. Reflex Tunes F02 is lightweight, only 260 grams, and equipped with Bluetooth version 4.2. The wireless range of the headphone is 10 meters. In the real world, the connectivity was perfectly fine within eight meters of range and then there was a little drop. The earcups hold 40mm driver with 32Ω Impedance and 20Hz – 20kHz frequency response. To test this headphone, we used test tracks: Angel of Mercy by Black Label Society, Stadium Arcadium, brutal bass drops, trance music and Bollywood romantic and dance songs.

The Fastrack Reflex Tunes F02 headphones deliver a balanced sound and its frequency distribution is also well managed. On tracks with intense sub-bass content like Titanium by David Guetta which features dance club style beats, the headphone performed well pushing the appreciable amount of bass. Sia's vocals were clearly audible in between the bass of this electric pop song.

The mids sound clear and warm and provide enough detailing to keep enjoy favorite music. At the highest volume, the headphone provides an ample amount of loudness and at the same level, we found some amount of noise leakage too.

Overall: 8/10

SCORE

PRICE: **8/10**
PERFORMANCE: **8/10**
FEATURES: **8/10**

KEY SPECS
Bluetooth; Micro USB connectivity; 40 mm driver; 580 mAh battery

PROS:
Ergonomic design; Comfortable to wear; Detailed and good sound; Wireless connectivity; Decent ANC

CONS:
Average battery

Battery life

Fastrack claims to offer up to 20 hours of battery life. We tested the battery life in our real-world loop test. We fully charged the headphone and then played different genres of music on full volume. It was able to deliver more than 8 hours of playback in one full charge. With moderate usage combining calls and music, it was able to deliver more than 12 hours. ■

Bottomline: Fastrack Reflex Tunes F02 has a durable body, ergonomic design that fits perfectly and comfortably. The headphone is easy to carry and offers a detailed audio output. Packed with average battery life, the headphone is the perfect choice at this price.

https:// REVIEW

Ashok Pandey
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AIR PURIFIER

SHARP-QNET

SMARTAIR AIR PURIFIER (FP-J50)

Price: **₹ 43,670**

Overall: 8/10

SCORE

PRICE: **7/10**
PERFORMANCE: **8/10**
FEATURES: **9/10**

KEY SPECS
Patented Plasmacluster Ion Technology; Efficacy certified by 33 Global Labs; IoT function; PM2.5, house dust, odour, temperature and humidity; HAZE mode

PROS:
Effective odour; Looks good; Various modes; HAZE mode; IoT enabled; Effective for airborne Novel Coronavirus

CONS:
Price could be a little lower

Due to the COVID-19, most of us are working from home, children are studying from home. The indoor life is safer, still, you are surrounded by various other exposures including smoking, cooking fumes, exposure to mould, dust, and other volatile organic compounds, and using strong chemicals to sanitise surfaces.

Managing indoor air quality is an important aspect and to do so, you need high-quality air filtration. Recently SHARP in partnership with QNET introduced SHARP-QNET SmartAir air purifier. Let's have a look, how it can purify your indoor air quality.

Design and setup

TThe aesthetically designed smart air purifier features a distinct control panel. Its unique 20-degree air flow ensures to reach every corner of the room, with comprehensive coverage of 450 sq. ft. The outer shell is made of solid plastic with a glossy finish. You can set up it in a few minutes, simply plug it into power and choose the mode, it will start killing the indoor airborne pollution.

Download 'SHARP AIR app' from Google Play or App Store, and connect to your Wi-Fi. Using the app, you can operate the device from anywhere in the world. The smart air purifier comes with patented Plasmacluster Ion technology that reduces airborne Novel Coronavirus by 91.3%. The air purifier features PCI technology, certified by 33 Global Labs for its effectiveness in killing deadly viruses, neutralising gases, chemicals, VOCs; destroying several infection-causing pathogens, reducing static charge, and improving skin health.

Features

The IoT enabled smart air purifier comes with patented Plasmacluster Ion technology that reduces airborne Novel Coronavirus by 91.3%. The air purifier features PCI technology, certified by 33 Global Labs for its effectiveness in killing deadly viruses, neutralising gases, chemicals, VOCs; destroying several infection-causing pathogens, reducing static charge, and improving skin health.

Performance

SHARP-QNET SmartAir is equipped with Plasmacluster technology, which exposed an airborne novel coronavirus (SARS-CoV-2) to Plasmacluster ions for approximately 30 seconds. This technology reduces over 90 per cent of the virus infectious titer.

It comes with different modes including Auto, Night and ion. With auto mode, the SmartAir works silently and clean your indoor air, to kill airborne viruses, go for ion mode. After turning on the device and keeping it running for around an hour on auto mode. The first observation was – It's a silent air purifier, we were hardly able to notice the sound of the purifier. We can feel the freshness in the air, we also noticed a reduction in bad odour. With ion mode, its efficiency was much better, quickly I felt changes in the air and bad odour reduction. It also has HAZE mode, in case of smog and high impurities, choose the HAZE mode for superior and efficient cleaning.■

Bottomline: SHARP-QNET SmartAir is a smart air purifier with easy to set up. The silent air purifier works on Patented Plasmacluster Ion Technology which is effective for viruses including COVID-19. It is a great choice to keep your family safe and remove odour and other air impurities.

https:// REVIEW

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WEBCAM

ZINQ ZQ-1080RL WEBCAM

Price: **₹ 1,874 on Amazon**

Usually, laptops come with a VGA webcam, only high-end devices are equipped with high-res. Having a VGA webcam leads to a poor quality video calling experience. Zinq Technologies announced a new webcam with ring LED light. Let's have a look at what this ZQ-1080RL Full HD 1080 Pixels 30 FPS Webcam can do for you –

Build and design

The small round shaped webcam looks cute. It has a ring around the sensor with 16 LED lights that can be controlled via a rocker button. You can increase or decrease the light capacity depending on your requirements. Zinq ZQ-1080RL Webcam also has a Noise Cancelling Built-in Mic. The outer shell is made of solid plastic and has a horizontal V clip to attach the cam with your monitor or laptop screens. The cam can also be rotated 360 degrees.

The FHD 1080 Webcam captures video with up to 30, FPS and CMOS Sensor enables enhanced sensitivity, reduces noise, adds high fidelity, adds more pixel depth and provides a higher dynamic range. It can capture panoramic wide viewing angle with Auto and Manual focus

Overall: 9/10

SCORE

PRICE: **8/10**
PERFORMANCE: **9/10**
FEATURES: **9/10**

KEY SPECS
1920X1080 FHD resolution; 30 FPS; Panoramic wide viewing angle with Auto and Manual focus; CMOS Sensor; Automatic Light and Colour correction

PROS:
Solid build; Small footprint; CMOS sensor; Ring LED light and controller; Easy to mount

CONS:
Mic captures echo

ADJUSTABLE ERGONOMIC DESIGN

Performance

The webcams the clip is easy to install on any screen, it can be a little tricky to fix properly. Depending upon the display notch, it won't capture the screen tightly. While using the webcam during the video calls, it was good enough to stream videos in FHD. The LED lights help to enhance face brightness if direct light isn't available. Thanks to the light controller, I was able to adjust the lighting as per the requirement, turning my face looks perfect in each call.

The built-in noise cancellation mic is good, it captures your voice and reduces the noise. However, the voice gets an echo when kept at a little distance, especially when I used it with my PC. While using this with a laptop, it was quite near to me reducing the echo. ■

Bottomline: At a decent price, you get an FHD webcam with a built-in mic and ring light. The camera does its job perfectly, ring light helps to enhance the video quality. The mic is also good but try to keep the webcam as near as possible to reduce the echo. Overall, this is a good device to get for a better video calling experience.

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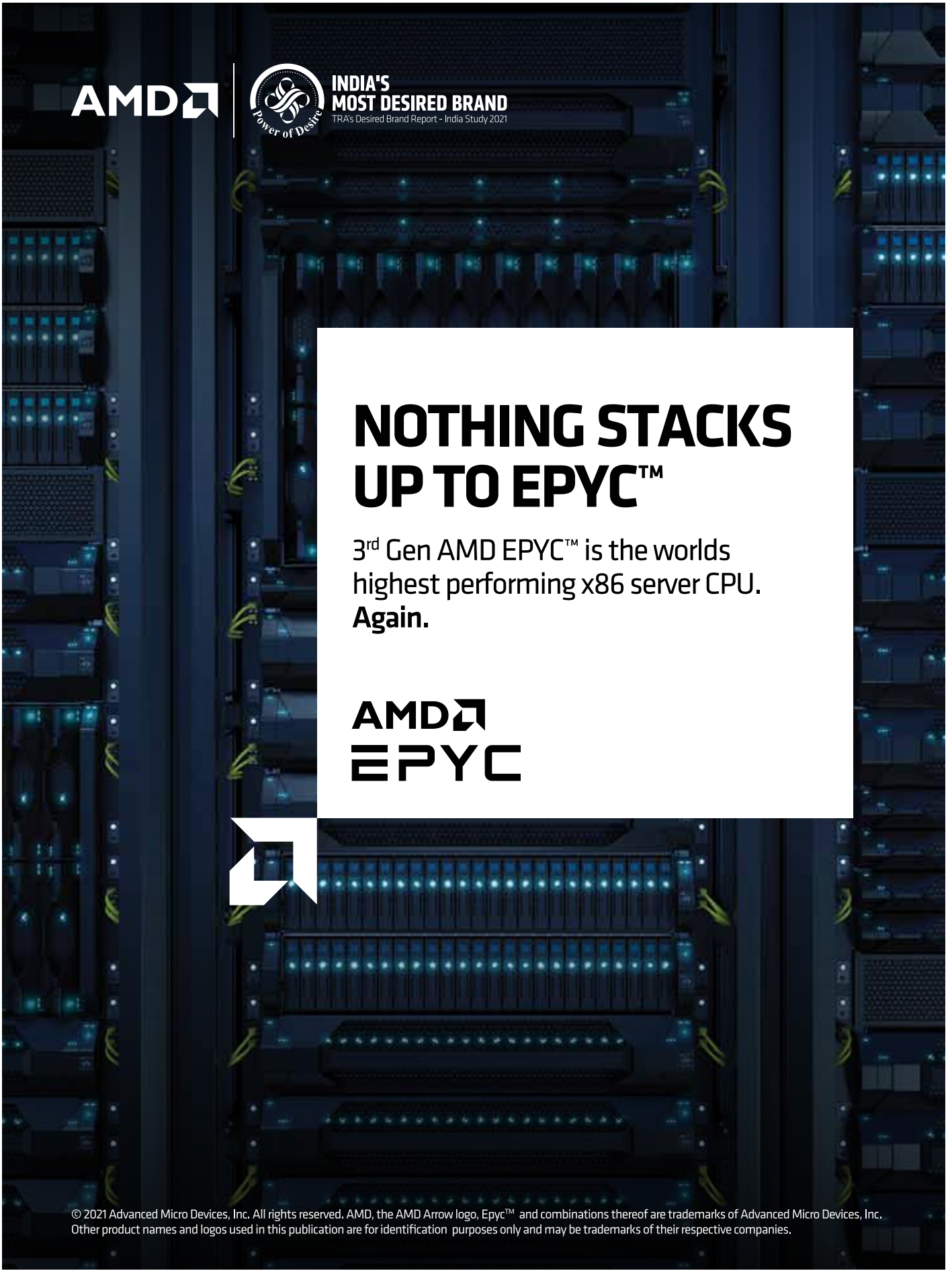

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