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Global Smartphone Market Declined by 7% YoY Amidst Supply Constraints and Geopolitical Uncertainty in Q1 2022

The global smartphone market declined by 7%

share to 18%, up from 17% in Q1 2021. Its quar-



YoY, shipping 328 million units in Q1 2022, according to the latest research from Counterpoint's Market Monitor service. The decline was caused by ongoing component shortages, as well as COVID resurgence at the beginning of the quarter and the Russia-Ukraine war towards the end. The global smartphone market also, as expected, had a seasonal decline of 12% QoQ. Commenting on the overall market dynamics, Senior Analyst Harmeet Singh Walia said, "the global smartphone market presented a mixed bag in the first quarter of 2022. Samsung seems to have overcome component shortages that affected its supply last year, as evidenced by higher-than-expected growth in its shipments despite a late flagship launch. Major Chinese OEMs such as Xiaomi, OPPO* and vivo, meanwhile, faced a greater component supply crunch, resulting in their shipments falling by 20%, 19% and 19% YoY respectively."

- Samsung shipped 74 million units in Q1 2022, down just 3% YoY, and was one of only two top-five smartphone brands to come close to its pre-pandemic Q1 shipments. While its flagships were launched towards the end of February (a month later than last year) and at a price higher than the previous S21 series (despite lower BOM costs), customers responded well, driving a 7% QoQ shipment growth.
- Apple's global smartphone shipments remained flat compared to Q1 2021 at 59 million units in Q1 2022. This was driven by strong demand for iPhone 13 series and the early launch of its first 5G-enabled SE Series which, even in a contracting market, helped push Apple's market

terly shipment decline of 28% is primarily due to seasonality.

- Xiaomi's global smartphone shipments declined by 20% YoY to 39 million units in Q1 2022, with its market share falling to 12% from 14% in the same quarter last year. This was caused by the relatively weak performance of the Redmi 9A and 10S smartphones, along with chip shortages that are hurting Xiaomi more severely than other vendors. Xiaomi was also unable to benefit from the Chinese New Year shopping festival, with its share of the world's biggest smartphone market falling to under 15% (down from over 16% both in the last quarter and in the same quarter of last year).
- **OPPO's*** shipments declined by 19% YoY and 9% QoQ to 31 million units in Q1 2022 due to supply-side constraints resulting from the ongoing component shortages. Being offline focused and with few new major recent launches, OPPO's shipments were affected more acutely during the Omicron wave, especially in its key markets such as India. Consequently, its market share fell to 9% from 11% in Q1 2021.
- vivo also declined by 19% YoY and 3% QoQ with its market share falling to 9% in Q1 2022 down from 10% in the same quarter last year. vivo, like OPPO, has been facing component shortages more severely since the end of last year. There has also been greater competition in the mass market which is a key driver of vivo's shipment volumes. Therefore, despite performing well in China where it replaced Apple as the top smartphone brand, it saw a decline in global shipments.

Research Director Jan Stryjak noted, "while component shortages are expected to ease soon, the Russia-Ukraine war poses a new challenge to the recovery of the global smartphone



market. In Q1 2022, the war had little impact on global smartphone shipments. Although Samsung and Apple withdrew from the Russian market in early March, the consequences are, at the moment, relatively small on a global scale. The two vendors make up around half of Russian smartphone shipments, but their combined shipments in Russia account for less than 2% of total global smartphone

shipments. However, the impact of the war may develop wider ramifications if it leads to a drop in availability of raw materials, a rise in prices, further inflationary pressure and/or other vendors withdrawing from Russia."

Other Key Trends:

HONOR's shipments grew by 148% YoY to 16 million units in Q1 2022 as it continued rebuilding supplier relationships post its separation from Huawei. It also saw a 7% QoQ shipment growth despite a seasonal contraction of the global smartphone market. Consequently, its market share rose to 5% this quarter, up from 4% in the last quarter and 2% in the same quarter last year. It also did well in its home country of China where it is among the fastest-growing smartphone brands.

realme shipped 14.5 million units in Q1 2022, up 13% YoY. This was driven by realme's expansion in the overseas markets, especially in Europe where its shipments grew by 163% YoY. At the same time, its global shipments have declined by 30% QoQ after a record quarter while its European shipments have taken a smaller hit of 7% caused by the Russia-Ukraine war. In India, realme was the only brand among the top five players to experience YoY growth (40%) in Q1 2022. It captured the third spot during the quarter

Transsion Group, which includes Tecno, Infinix and itel, continued its strong performance with a 23% annual growth. This was driven primarily by Infinix, which grew by 76% YoY and 4% QoQ with its shipments increasing in India, the rest of Asia Pacific and Middle East and Africa. Tecno's shipments also grew by 28% YoY while itel fell by 3%.

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NATIONAL TECHNOLOGY DAY

In the fast-paced world, the revolutionary thing that makes us ahead of previous developments is 'technology'. Technology has played a wonderful role in developing things around us and also in the socio-economic development of our country. Therefore, every year National Technology day is celebrated on May 11 to mark its importance in our day-to-day life. It has been enhanced not only through scientists or engineers but also in all domains of life. On this day, India's first indigenous aircraft, 'Hansa-3' took its first flight. The day is observed to honour the hard work and achievements of Indian scientists and researchers.

The day marks the history of India's achievement in the year 1998 under Prime Minister Atal Bihari Vajpayee. On this particular day, India successfully carried out a series of nuclear tests in Pokhran.

National Technology Day plays a significant role as, on this day, the Technology Development Board (TDB) organises National awards for the commercialisation of technologies under the categories like National Awards, MSME awards, and Startup awards.

This kind of award takes place to honour various industries and their role in the successful commercialisation of innovative indigenous technology for India.

OUOTES ON NATIONAL TECHNOLOGY DAY

By Sudha KV, Vice President, Dell Technologies, India

"In todays' digital age, technology is driving human progress and the driving force behind



technological growth comes with introducing disruptive ideas. Dell Technologies continues to be one of the global leaders in producing server tech, and India has a key role to play in this. Our Bengaluru R&D centre has

been instrumental in bringing about cutting-edge technology in the server portfolio. Right from conceptualization of the servers, to product upgrade and then retiring the offerings, and thinking about the next product and technology trends, the Bengaluru R&D centre is the locus of innovation. Having filed over 100 patents in the last 3-4 years, the team at the Bengaluru centre has been dedicatedly helping Dell Technologies meet their goals of driving growth through technology.

To integrate software and hardware with specific capabilities, the R&D centre runs about 7 petabytes of networking traffic, 1600 virtual machines and 1400 test configurations to mimic all possible customer scenarios before making solutions available to global markets. With highly skilled engineers, distinguished technical staff and a dedicated team of designers and developers, the team is able to churn out adaptive and autonomous modern infrastructure solutions aligned with modern workloads which meet the customer interests in the areas of cloud computing, AI, analytics and edge computing. Our aim is to increase efficiency and boost performance of end-user computing with new developments and improvements to their PowerEdge portfolio, which allow customers to bring the computing power closer to their data, and our R&D centre is at the cornerstone of these innovations."

By RK Shenoy, Senior VP, Mobility Engineering, Bosch Global Software Technologies

The world has witnessed tremendous technologi-

cal improvement in the last decade. The technology available today is powerful and increasingly



transformative with substantial impact in sectors such as Mobility, health-care, manufacturing, oil and gas, agriculture, etc. Majority of businesses are amid navigating their digital transformation journey and are investing

in Innovation and R&D to deliver effective products and services, keeping the User-Experience in mind. With emerging technologies like Artificial Intelligence, Digitization and Software defined products combined with Electronification, every domain is helping in improving the quality of life of people across the world, creating newer business models to generate recurring revenue and strive for better operational efficiencies.

Today, as India observes National Technology Day, it is important that we acknowledge how technology is aiding in providing innovative and sophisticated business offerings. At Bosch Global Software Technologies (BGSW), we expect an increased penetration of technologies such as Cloud computing, Big data, AloT, Robotics and Edge computing, in every domain we are working in. The success lies in applying these technologies using our core domain competence to create new products and services while providing high quality offerings at competitive pricing. We, at BGSW have also strengthened our innovation focus with targeted investments in Center of Excellences, and nurturing best-in-class talent, both in-house and at Academia, while enhancing capabilities to hone global technology leaders for the next techade.

By Kumar Vembu, CEO & Co-Founder, GOFRUGAL "The future is much larger and many times scarier than it has ever looked in the past. Smart companies are ones that would use technology as a smart platform for all stakeholders to seamlessly collaborate, paving the way for connected business. Omni-channel experiences will continue to evolve so far as to let consumers enjoy a seamless

EDITORIAL

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PRODUCTION & OPERATION: Ramayya

POSTAGE & PACKING: L.N.Rao ADVERTISING SALES: V.K.Gupta

DESIGN : Dikshit

CREATIVE DESIGNER: MKVS ACCOUNTS: Murthy

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shopping experience – both offline and online.



Gofrugal will continue to make technology easy, intuitive, and affordable to help businesses, agnostic of size and style, to stay competitive. Gofrugal has, is, and will continue to enable businesses to win by letting

them work with minimal staff, with least skills, yet make 100% reliable with accurate predictions and decision recommendations-based solutions "

By Ganesh Shankar, CEO & Co-Founder, RFPIO

"Request for proposal (RFP) technology was orig-



inally developed only for procurement, to help organizations issue, track, and monitor RFPs when they sourced a new product, service, or solution provider. RFP technology developers recognized an opportunity to

improve efficiency, encourage competition, and accelerate supply chains. However, these solutions neglected the needs of responders. In fact, as RFP technology made it easier for issuers to include demands for guaranteed service levels, risk mitigation, regulatory compliance, privacy assurances, and security protocols in their RFPs, questionnaires ballooned; while RFP issuing technology made it easier for organizations to ask for these requirements, responders were still stuck with manual or in-house solutions that offered unreliable results.

Companies such as RFPIO developed response management technology to support responders. Early versions of the technology-focused on automating response processes, in-app collaboration tools, and organizing content to respond to RFPs and security questionnaires faster. As the technology has advanced, sales teams have also realized the value of responding faster and more accurately from a library of response-ready content that can be accessed from almost everywhere, including web browsers, CRMs, Microsoft Office,



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Slack, and more. Now, with Al-enabled automated responses, intuitive proposal building tools that enable easier proactive responding, and ubiquitous knowledge management available to all responders—including sales, proposal, customer support, analyst relations, investor relations, and IT teams—having RFPIO in a sales tech stack is a game-changing competitive advantage."

By Sandeep Bhambure, Vice President, Veeam Software, India & SAARC

"Digital technologies have the potential to revolu-



tionize and reinvent how everyone does business in an increasingly connected world. In recent years, organizations have seen a rapid increase in the adoption of digital services as a result of hybrid work models,

growing data security concerns, and overall business disruptions. As per Veeam's Data Protection Trends Report 2022 "84 percent of Indian organizations experienced ransomware attacks, making cyber-attacks one of the leading causes of downtime for organizations, for the second year in a row." The growing importance of digital services, data proliferation, and the ever-changing threat landscape have resulted in an increase in cyber-attacks (ransomware), making it critical for businesses to ensure that their organization's data is always secure. As a result, organizations are now considering aligning with a data protection framework that provides a dependable strategy when normal operations are disrupted.

We at Veeam believe that secure backup is the last line of defense against ransomware. We strive to provide modern data protection to our customers by delivering secure and reliable backup solutions that eliminate downtime, minimize data loss and prevent organizations from paying a costly ransom, ensuring business continuity, and thus contributing to a sustainable future."

By Sanjai Gangadharan, Area Vice President, South ASEAN at A10 Networks

"Rapid technological advancements are fundamentally altering the way people communicate and conduct business, thereby underpinning economic progress. In the last few years, we've seen the pandemic wipe out years of resistance by late adopters, social institutions, and businesses that



hadn't previously bought into the "digital transformation" argument. Individuals and businesses have learned new skills, overcome technological limitations, and adopted new business models in order to remain relevant

in the industry. Now that the majority of India's population is connected to the internet in some way, it is critical to monitor hackers lurking online and protect one's network and data from being compromised.

According to A10 Networks International Communications Service Providers Insights 2021, 62% of Indian Enterprises have accelerated investments in security, as a result of the pandemic. Hence, A10 Networks' top priority is to innovate and empower customers and partners with advanced IT and security strategies, as well as secure and accessible digital experiences, to address the challenges of this ever-changing digital world. I also believe that enterprises need to become increasingly cognizant of the fact that the actualization of tech advancements requires individual, organizational and ecosystem efforts combined - personal plus collective and integrated action is an imperative for scalable and sustainable impact."

By Satish Pala, CTO, Indium Software

"Manufacturing Industry has been in constant



lookout for technology advancements that would eventually help increase operational efficiency, better quality control, lower production costs, lower maintenance costs, increase revenue, etc,. With adoption of Industry

4.0 principles, the industry has been addressing challenges like having to deal with complex processes, high costs due to legacy tools and technologies.

Some of the key assessments required to be done before the tech shift include 1) the equipment readiness to be connected to a central data system, 2) Software and Hardware required for addressing loads of data being generated 3) Capacity of the IT systems like storage, processing, etc, 3) Readiness for Smart Operations and 4) Change Resistance in People

One of the key technology shifts in the manufacturing space is deploying technology solutions driven by Artificial Intelligence. Some of these AI driven use cases include: 1) Detection of anomalies and perform predictive maintenance to save huge repair costs. IIOT devices help with collection of relevant data sets 2) Improve quality control by statistical process control 3) Inspection of products/components using AI based visual tech and thereby reduce human errors

Another key AI use case is Digital Twin technology where in a physical object, process or a whole factory for example is represented digitally. Some industry examples include engines, wind farms, buildings, cities, etc,. The digital twin technology can be used to collect data, create simulations that can predict how a product or process will perform."

By Kalpit Jain, Group CEO, Netcore Cloud

"COVID-19 has resulted in a surge digital adoption across industries and geographies, trans-



forming the way organizations function, and compelling them to adopt new technologies overnight. As digital adoption took a quantum leap, businesses tried to survive and stay relevant to customers and their evolving needs.

These technology-led changes transformed the way companies interact with their customers. Brands that adopted the 'adapt and respond' strategy to combat this change are today leading the way in customer engagement.

On National Technology Day, we at Netcore Cloud, would like to acknowledge the important role that technology plays in building customer experience and engagement. We are constantly striving to incorporate new technologies that provide CMOs and growth managers more intelligent and meaningful ways to engage, acquire and retain customers. We will continue in our efforts to bring innovative and advanced technology-led solutions to marketers across the globe as we scale."

Here's what IT Industry leaders view are on India's Techade and India becoming the \$5 trillion economy

Over the last year, technology has evolved at a rapid pace and is considered a key factor for economic development. For the economy to grow at a sustainable rate, adopting the latest technologies which augment the business performance is

As we observe National Technology Day, sharing with you thoughts from the industry leaders on how #gamechanging trends are shaping India's technology sector in 2022.

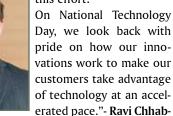
"At NetApp, innovation is at the heart of everything we do, and it all starts with our ability to harness the power of the data we have and use it to change people's lives. Management of storage, regardless of where it exists across clouds, infrastructure, and as a service, has become a vital competence for all enterprises as India experiences the age of cloud adoption and data explosion.

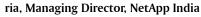
NetApp is many years ahead of its closest competitors in the fight to modernise and transform in the cloud. Because of its unique ability to function smoothly across hybrid clouds, NetApp's flagship data management software, ONTAP, is immensely popular with its customers throughout the world. Our secret sauce is ONTAP, which was co-developed by the company's Bengaluru R&D team.

Our industry-leading storage infrastructure capabilities may be expanded to any format – on premises and in the cloud – and even between cloud service providers using ONTAP. This is the cornerstone for hybrid multi-cloud, and it also

simplifies the management of both structured and unstructured data, reaping tremendous benefits in terms of manageability, storage efficiency, and interoperability. The team in India is respon-

sible for a large portion of this effort. On National Technology





"Within the logistics sector, traditional digitization efforts have lasted several decades, however



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NATIONAL TECHNOLOGY DAY

most of these technologies are now obsolete or based on on-premise solutions. Cloud computing has revolutionised numerous businesses, including logistics. Software as a Service, or SaaS, has emerged as a winning business model for new high-growth technology companies. Customers and technology suppliers both profit from this. Customers benefit from a product that is constantly upgraded, and it lowers the bar for technology providers to produce better products.

Working in the SaaS space, I have seen that this model significantly reduces software costs. In addition, once a piece of software is produced and deployed in the cloud, it requires very little upkeep. When software was installed on-premise, a specialised support team was necessary, and each deployment required many servers to manage. There is only one deployment using SaaS, and it is delivered over the cloud. This translates in gross margins of 85 percent on average, which is a fantastic standard.

According to the most recent Gartner forecast on Transportation Management Systems (TMS), the market will expand from \$1.32 billion to \$2.11 billion globally (from 2019 through 2024). That's a 60 percent increase in just five years. And SaaSbased automation solutions are responsible for

the majority of this. On National Technology Day, I am optimistic about the efforts put in by the technology workforce to build SaaS platforms that are true game changers in the logistics industry." –Dhru-

vil Sanghvi, Founder & CEO, LogiNext

"On National Technology Day, I'd like to honour and celebrate the contribution of Dr. APJ Abdul Kadam as a scientist, people's President, and exceptional teacher. His exemplary work in the fields of science, technology, and rural empowerment has always inspired me and the world. I also want to take this opportunity to appreciate and applaud our scientists, innovators, and technologists playing a pivotal role in transforming lives with deep tech solutions. Similarly, at Fulcrum Digital, we are on a relentless pursuit of making lives better with the power of our digital plat-



forms. We help customers bring technologically advanced and future-ready products faster to the market through our integrated suite of platform, digital engineering services, and technology consulting."

– Rajesh Sinha, Founder

and Chairman Fulcrum Digital

"Buckminster Fuller, an American architect once quoted 'You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete'. The quote clearly defines the need & capability of model improvisation to develop, change & implement the new technologies in everyday life for all firms & entities. Technological innovations will be key to the futuristic survival of all industry sec-

tors. We at Aurionpro Solutions are committed to innovate, adapt and succeed in leveraging emerging tech to build products of the future, and plac-



ing customer needs at the core of what we do. As we celebrate National Technology Day, I'd like to express my gratitude to all our tech leaders for doing their best to place India at the forefront of global tech innovations."

Paresh Zaveri, Chairman & Managing Director, Aurionpro Solutions

"Brands have been sharpening their expertise in cutting-edge technology as it has altered our lives, from the evolution of voice assistants to the introduction of smart products. The technological era has charged an exhilarating stage in the smart product market, delivering consumers with unique and improved smart home technologies which are leaning towards an interconnected, easy-to-control habitat. Lifestyle patterns are constantly shifting, not just as a result of external forces, but also because of shifting consumer patterns fuelled by the rapid growth and adoption of innovative technology. Hence, brands today are offering products basis evolving necessities and are prioritising around incorporating technology for a sustainable environment. At Syska, we focus on delivering technology-led products that conserve energy and are sustainable. Our LED products save energy up to 70% by application, and our wires are made basis Indo-European technology which saves up to 3% energy. In addition, our fans are built with BLDC technology which



saves up to 50% energy. As we celebrate National Technology Day on 11th May, we believe there is a need to celebrate the innovative technology that focuses on making conscious products for future living." – Rajesh

Uttamchandani, Director, Syska Group

"Our lives have become increasingly reliant on new and inventive technological developments. It has changed how we make purchases, communicate, plan our trips, and learn new things. The revolution of technology has been improving our standard of life, making it more comfortable, economical, and safe. With innovation and advanced technology, home automation systems have evolved significantly over the last few decades. Home automation technology has enabled appliances to sense, connect with, and analyse relevant data, enabling them to automate a variety of household operations. Smart home technology not only has a positive outlook from a consumer perspective but also presents significant opportunities for businesses and entrepreneurs to innovate and build next-gen solutions that can expand the market as a whole. We strive to offer technology-driven products to our customers at Goldmedal Electricals. We are betting big on the home automation business as it doesn't just influence lighting but also variety of other



electrical appliances. We at Goldmedal believe that technology is the future, and we will continue to make progress to deliver unique and advanced technology-led products as we mark National Technology Day." – Kishan

Jain, Director, Goldmedal Electricals

"Technology and tech-led innovations have been a game-changer for the environment and society. Recently we have observed massive progress in technological innovations across multiple businesses particularly, in the environmental health space. Technology is taking over the world, and we can safely say that it has the potential to provide solutions for most of the problems across sectors. Environmental issues are no different. Today with the help of evolved and advanced technologies, one can address and beat air pollution. Pollutant monitoring devices, retrofits, scrubbers and similar solutions are promising technologies that have contributed to the system. We have introduced the patented 'Filterless Carbon Cutter Technology', a revolutionary innovation rated as one of the best technologies globally to reduce air pollution. As we observe National Technology



Day on 11th May, we at Pi Green Innovations stand committed to continue developing the latest technologies and support bringing about a positive change through our efficient offerings." — Irfan

Pathan, Co-Founder & CEO, Pi Green Innovations "In the recent years, technology has played a huge role in the country's development and advancing its infrastructure. Today with the increase in urbanisation, cities are facing a crunch at every aspect, especially the rising congestion on roads disrupting the free flow of traffic. With the advancement in technology and smart parking solutions, this issue can be handled well. The integration of Information Communications Technology (ICT) solutions and the use of Internet of Things (IoT) and data have greatly improved the overall efficiency of the Indian parking industry. Today, we are able to eliminate the need to drive around in circles endlessly in search of a parking space ensuring that we, drivers save time while contributing to reducing emissions as



well. On the occasion of National Technology Day, we would like to extend our appreciation to the efforts of the Government in this endeavour while committing to creating better tech-enabled solutions for the future of this

country." – Rajesh Kabra, Managing Director, RR Parkon

Efforts to Diversify Semiconductor Supply Chain Gather Pace

The past two years have brought out the importance of semiconductors in driving economies like never before. Whether it is the demand shock created by COVID-19 or the US-China tech war, the need to diversify the semiconductor supply chain has dawned on governments the world over. The issue



is also being eagerly discussed at global forums, the recent meeting of the Quadrilateral Security Dialogue (or Quad) being the latest example. Quad members US, India, Japan and Australia have decided to work together to secure the semiconductor supply chain.

Another factor pushing such efforts is China's attempts to set global standards for emerging technologies like 5G internet, IoT and AI through its "China Standards 2035" plan, which seeks to build on the "Made in China 2025" plan. Clearly, the ongoing global chips shortage has only accentuated the concerns about over-dependence on a few markets for critical technologies.

Many economies are currently at work to achieve self-dependence in meeting their chip requirements. But it takes years to build semiconductor fabrication facilities and much expenditure to maintain and upgrade them. Therefore, the idea of becoming "self-sufficient" or "independent" is not a viable option. Still, many economies like the US, EU and East Asian countries are calibrating their measures to indigenize as well as diversify the semiconductor supply chain to have a more resilient supply network. We list below a few such efforts:

Taiwan

As the world's largest contract chip manufacturer, TSMC has hugely benefited from the global chip shortage. To maintain this leadership and diversify its production locations, it plans \$45 billion worth of capital investment in Taiwan and beyond.

LIS

A \$52-billion plan includes incentivizing the production of "mature node" semiconductors used by the automobile, medical device, agricultural machinery and defense equipment industries. The legislation to this effect, which is broadly supported by the chip industry, would also facilitate funding for new chip fab units. This would help the companies that build them and fabless companies such as AMD, Nvidia and Qualcomm, which rely on contractors to manufacture their products. US' share in chip manufacturing has dropped to around 11% from almost 40% in the last 30 years. With this move, the US can potentially restore its position in the global supply chain.

Europe

With the onset of the European CHIPS Act, Europe aims to double its current market share of semiconductor production to 20% by 2030 with an allocation of \$49 billion. The plan includes building a new framework to ensure the security of supply along with a dedicated 'Chips Fund' to focus on exports. The said plan will also have a provision to 'halt exports' as a last resort in case of emergencies and crises. The EU is also mobilizing more than €43 billion in public and private funding to support broader policy goals around digitalization, green transition and R&D.

China

Under the "Made in China 2025" plan, China aims to produce 70% of the semiconductors it uses by 2025. The government has also signed massive deals with SMIC in this regard. The said project will also have a minority holding of the government along with funding support from the respective local government. Most recently, the country also introduced many industrial policy measures to help boost its domestic semiconductor industry through tax relief to chip manufacturers. For example, a manufacturer that has been in operation for more than 15 years and makes 28 nm or more advanced chips will be exempted from corporate income tax for up to 10 years.

The most recent participant in the chip world,

India has established its presence by introducing a semiconductor policy under the Production Linked Incentive scheme. With an outlay of almost \$10 billion for six years, the scheme aims to incentivize all major stages of semiconductor production – Semi/Display Fabs, Semi ATMP units and Designing. This scheme is by far the most comprehensive package designed for the sector by the government. With a special provision on designing, the Indian government has worked well to leverage this advantage of the country compared to the rest of the world. One of the best parts has been the promise of nurturing (under DLI) some 100 domestic semiconductor design companies, offering hope to the many design-linked concerns of the ecosystem.

Geopolitics

The geopolitical dynamics will also shape the future of the semiconductor market, an angle that has come under much scrutiny during the last couple of years. Various 'alliances' and 'councils' are already at work preparing plans to diversify the supply chain and gain "self-sufficiency". On the one hand, we have the Quad alliance taking shape in the Indo-Pacific region, while on the other hand, we have the newly formed EU-US tech alliance called the Trade and Technology Council, where France is expected to pivot the semiconductor negotiations. Moreover, the European Alliance for Processors and Semiconductors is bringing many EU member states together for business, research and technology under the semiconductor ambit.

A key differentiator among all these efforts would be how well each economy utilizes the combination of money, time, innovation and know-how, using both international and homegrown talent. Besides, they will have to position themselves in a way that minimizes risks and reshoring impact when it comes to trade inflows and outflows. This is especially true with respect to the US, EU and Southeast Asia considering other changing factors like labor cost, economic tensions (Ukraine-Russia war) and even the not-so-gone COVID-19, which have the ability to impact the demand-supply harmony of this ecosystem

Global Semiconductor Sales Increase 23% in Q1 2022 Compared to Q1 2021

The Semiconductor Industry Association (SIA) announced worldwide sales



of semiconductors totaled \$151.7 billion during the first quarter of 2022,

an increase of 23.0% over the first quarter of 2021, but 0.5% less than the fourth quarter of 2021. Global sales for the month of March 2022 were \$50.6 billion, an increase of 1.1% compared to the previous month. Monthly sales are compiled by the World Semiconductor Trade Statistics (WSTS) organization and represent a three-month moving average. SIA represents 99% of the U.S. semiconductor industry by revenue and nearly two-thirds of non-U.S. chip firms.

"Global semiconductor sales remained strong during the first quarter of 2022, increasing across all major regional markets and product categories compared to the first quarter of last year" said John Neuffer, SIA president and CEO. "For the month of March, sales into the Americas continued to lead all regional markets, increasing by 40.1% year-to-year."

In addition to the year-to-year sales increase in the Americas, sales were up compared to March 2021 in Europe (25.7%), Japan (20.4%), Asia Pacific/All Other (17.9%), and China (17.3%). Month-to-month sales increased in Asia Pacific/All Other (2.9%), Europe (2.6%), Japan (1.4%), and China (1.0%), but fell slightly in the Americas (-1.5%).

Telangana Govt, CoinSwitch and Lumos Labs shortlist 14 Web3 startups for India Blockchain Accelerator

The India Blockchain Accelerator has shortlisted 14 early-stage Web3 startups for the final evaluation round for its first-ever mentorship and financing program. Launched in December 2021 as a joint initiative of the Government of Telangana, CoinSwitch, India's largest Crypto investing app, and Lumos Labs, an innovation management firm, the accelerator provides a \$700K grant pool, go-to-market support, and mentorship.

COINSWITCH

The India Blockchain Accelerator is one of the first state-sup-

ported programs aimed at supporting and equipping deep-tech blockchain startups in India, and received over 270 registrations from Indian and global startups. The 14 shortlisted startups will get an opportunity to fine-tune their business idea in the evaluation stage and engage with the Government of Telangana, CoinSwitch and the investment partners.

Five best-rated startups will present their solutions to the investors on the Demo Day to stand a chance at receiving accreditation by the Govt. of Telangana, incubation space, go-to-market support, expert mentorship, and grant from a prize pool of \$700K from investment partners Lightspeed and Woodstock Fund, contingent on due

diligence and investment thesis fit.

"In line with its vision to be a leader in emerg-



ing technologies, the Government of Telangana has taken up several initiatives to develop a conducive ecosystem for the industry in the State. Realizing the potential of Blockchain tech-

nology, the government, with industry leaders, hope to provide opportunities to the participating startups to pilot their solution in Telangana so that they can enhance their solution and further contribute to the accelerating Indian technology sector." Jayesh Ranjan, Principal Secretary, ITE&C and Industries, Govt of Telangana commented.

"We are pleased to announce the shortlist of The India Blockchain Accelerator. Blockchain has immense real-world utility and can solve many of India's problems, be it in healthcare, infrastructure, logistics or finance. We are honored to support the Government of Telangana's vision to become the Blockchain Capital of the World and play an active role in building a robust Web3 ecosystem of cutting-edge technologies and companies in India, for the world," said Ashish Singhal, Co-founder and CEO, CoinSwitch.

Fujitsu launches new research center in India

Fujitsu announced a key development in its global innovation strategy with the establishment of a new research center, "Fujitsu Research



of India Private Limited" (hereinafter FRIPL), on April 1, 2022. FRIPL represents the latest addition to Fujitsu's global R&D network and

will focus on research and development into Al and machine learning technologies, as well as quantum software.

As one of its first key initiatives, FRIPL will embark on joint research with the Indian Institute of Technology Hyderabad(1) and the Indian Institute of Science(2) to promote innovation in leading-edge AI technologies. The joint research activities will initially focus on improving the accuracy and resilience of AI and machine learning technology. R&D with the Indian Institute of Technology Hyderabad will focus on AI technology to discover causal relationships with higher accuracy, while collaboration with the Indian Institute of Science will center on technology to automatically generate AI through autonomous training in response to various environmental changes.

Vivek Mahajan, Chief Technology Officer (Corporate Executive Officer, SEVP) Fujitsu Limited, comments: "Innovation has a growing role to play in solving societal and environmental challenges. As

one of the world's leading technology companies, Fujitsu plays a key role in driving innovation, and we will harness technologies like AI and quantum to contribute to solutions to these issues. These efforts require access to top talent. Strengthening our presence in India will allow us to tap into the enormous potential offered by world class researchers with local institutions and universities that drive global software technology development. We look forward to conducting more agile and challenging joint research together to deliver a more sustainable future for humanity." A new research hub to drive innovation in strategically critical fields

Fujitsu has established FRIPL as a new research center focusing on AI and quantum software to enhance software technologies essential for R&D in key technology areas. Fujitsu will continue to hire exceptional talent in this field in India and aims to boost the number of its researchers to 50 by fiscal 2024. Moving forward, the Fujitsu Group will expand its research fields into security and other areas and will conduct world-leading software R&D in collaboration with Fujitsu's wider global network of research centers in areas including Japan, Europe, and the United States with the aim of creating software for global distribution.

Name of the research center: Fujitsu Research of India Private Limited

Location: Bangalore, India

Date of establishment: April 1, 2022

President: Hirotaka Hara (EVP, Fujitsu Limited) Fujitsu's joint research projects with local Indian universities at FRIPL

Mindtree And LTI Announce Merger To Create India's Next Large-Scale IT Services Player

The Boards of Directors of Mindtree and LTI at their respective meetings held today approved a composite scheme of amalgamation of both these

LT1 | Mindtree

independently listed IT services companies under the Larsen & Toubro Group. The proposed integration will see Mindtree and LTI join strengths to create an efficient and scaled up IT services provider exceeding \$3.5 Bn. The transaction is subject to shareholder and regulatory approvals. Both Mindtree and LTI have delivered market-leading financial performance and created value for shareholders. Given that recent industry shifts (e.g., prominence of large deals, preference for end-to-end offerings) are benefitting at-scale players, the two companies have decided that the time is appropriate to combine the strengths of both organizations to better serve the customers. Significant scale benefits are anticipated through Mindtree and LTI's complementary strengths resulting in a stronger portfolio of offerings across verticals. Enhanced customer engagement and delivery model through industrialization of delivery and streamlined value-enabling processes is expected to result in improvement in large deal capabilities. These opportunities will create a more distinctive employee value proposition and stronger partnerships with ecosystem

Quick Heal Launches First-ever Cyber Crime Awareness Campaign in Indore

Quick Heal Foundation (QHF), the CSR arm of Quick Heal Technologies, has taken an essential step toward increasing cybercrime awareness.



The foundation has collaborated with Indore City Police and the Cyber cell team to launch a

series of street plays under its signature initiative 'Cyber Shiksha for Cyber Suraksha,' across the city to raise awareness among the people about online safety.

It is a 12-day-long event where the Quick Heal team will be performing 112 street plays in various parts of Indore City. Quick Heal Foundation has chosen street play as the medium as it can present a severe issue in a very intriguing way. It helps in garnering the attention of the maximum number of people. Through these street plays, Quick Heal aims to spread awareness about online safety. The shows will also project how citizens can approach the cyber cell with their cybercrime concerns.

Through 'Cyber Shiksha for Cyber Suraksha,' Quick Heal will shed light on various fraudulent scams like phishing, cyber extortion, data breach, identity theft, and harassment.

L&T Technology Services lends technical & financial support to IIT Madras' Avishkar team for Hyperloop project

Indian Institute of Technology Madras Students' Team Avishkar Hyperloop has received invest-



ment from global pure-play engineering services provider L&T Technology Services Limited (LTTS) to develop innovations in the Hyperloop land-scape. LTTS is providing funding & techni-

cal support to Team Avishkar on their Hyperloop project.

LTTS will enable Team Avishkar to further gain traction on its breakthrough disruptions in the emerging domain of Hyperloop-based transportation solutions for futuristic commuting experience.

The Hyperloop model proposed by Team Avishkar

can achieve a top speed of over 1,200 kilometres per hour. It is completely autonomous, safe, and clean. The team is spearheading Hyperloop Tube research in India and has already patented a novel and cost-effective tube design. Hyperloop has been a buzzword in India for the last few years. Several companies have proposed routes including Mumbai-Pune and Chandigarh-Amritsar.

Speaking about this Project, Amit Chadha, CEO and Managing Director, L&T Technology Services Limited, said, "The future of everyday commuting will be determined by the innovations and disruptions that we as a human race pursue today. LTTS, with its focus on ER&D and digital engineering, is committed to pushing the boundaries of modern transportation. As an engineering organization, we always look forward to rendering support to academic institutions on R&D activities in upcoming technologies."

Airtel, Apollo Hospitals, and Cisco join forces to demonstrate the Future of Healthcare with 5G Connected Ambulance

Bharti Airtel ("Airtel"), India's premier communications solutions provider, partnered with Apollo



Hospitals and Cisco to create a 5G Connected Ambulance that transforms access to healthcare and save lives in emergency situations. The demonstration was conducted in Bengaluru over the 5G trial spectrum allotted to Airtel by the Department of Telecom.

The custom-designed state-of-the-art 5G Connected Ambulance is equipped with the latest medical equipment, patient monitoring applications, and telemetry devices that transmit the patient health data to the hospital in real-time. In addition, it is also equipped with onboard cameras, camera-based Headgear, and Bodycams for paramedic staff – all connected to the ultra-fast & low latency Airtel 5G network. It will be further enabled with technologies like AR/VR.

Matrix Joins Hands with Intellve Solutions Private Limited as a Technology Partner

Matrix, a leading OEM manufacturer in Telecom and Security Solutions joins hands with Intellve Solutions Private Limited as a technology partner. Intellve Solutions Private Limited is a technology company (OEM) and has developed state-of-the-art integrated, intuitive and intelligent operative Com-



mand and Control centre applications (Intellve ICCC) for smart cities, large enterprise operational security, and e-surveillance for BFSI and for safety & security of the critical infrastructure. Speaking on the same topic, Kaushal Kadakia,

Marketing Manager, Matrix says, "This interoperability will provide a point of control to the end customers for managing the crowd flow in their premises without any technical glitches. Furthermore, system integrators can suggest both solutions to end customers without worrying about

the integration part for a seamless operation."



Likewise, Aayush Agarwal, Co-founder at Intellve speaks, "Access control systems play a very crucial role in critical infrastructures such as an LPG import terminal and bottling plant. It detects and delays any unauthorised

door breach into premises that could disrupt business operations and be life-threatening. At Intellve, we have integrated Matrix ACS onto our Integrated Command & Control (ICCC) platform for this specific purpose of access annunciation. With an integrated approach, the user is now able to visualise this breach in real-time and mitigate the risk. Unauthorised Access (in time domain) and unauthorised credentials (card) are the 2 critical parameters being monitored at the Indian Oil Petronas Pvt Ltd (IPPL) plant in Haldia."

Cisco's Duo sets up Data Center in India for enhanced compliance

The launch of the data center in Mumbai is a part of Duo's global expansion strategy. The data center will enable all functionality from Duo's zerotrust platform, including multi-factor authentication (MFA), single sign-on (SSO), VPN-less remote access, device trust, passwordless (in public preview), and adaptive risk-based policies. The local data center will allow businesses to enhance their performance by improving connection stability. This move assumes significance as Indian companies - large and small - are accelerating their digital transformation. However, this brings about the challenge of keeping pace with an increasingly complex threat landscape. Recent Cisco survey found that 37% of cybersecurity technologies used by firms in India are considered outdated by their security leaders. Recognizing that the need to improve preparedness has never been greater, nearly nine in 10 Indian companies surveyed are investing in a zero-trust strategy – including passwordless security - to permit better agility, visibility, and control.



Daisy Chittilapilly, President, Cisco India & SAARC, said, "As Indian organizations ramp up their security, they must focus on building a robust cloud-based, automated architecture to facilitate remote management of

highly distributed users, applications, and networks. At Cisco, as we catalyze our transition to delivering a majority of our portfolio as a service, we are bringing Duo to more customers to help them not only prevent and respond to breaches but also be certain that their data is held securely within the region."

Lupin goes live with SAP S/4 HANA on HPE GreenLake to drive digital transformation

Hewlett Packard Enterprise announced that Lupin Limited (Lupin) has selected the HPE GreenLake



e d g e - t o - c l o u d platform to run its advanced SAP S/4HANA® mission-critical environment to accelerate digitization, transform critical

business processes and improve performance. Lupin is a leading global pharmaceutical company headquartered in Mumbai, India. It has 15 manufacturing sites, seven research centres, and more than 20,000 professionals working globally. Lupin recognized the need to digitize more applications, improve scalability, decrease risk of security breaches and eliminate critical data loss. To successfully transition Lupin's existing SAP ERP Central Component to S/4 HANA, a pay-per-use model with minimal upfront investment was deployed. "At Lupin, our priority was to transition to a highly scalable and flexible IT infrastructure to manage the variable demands from the business and to

support new projects and initiatives without compromising data security," said Sreeji Gopinathan,

Chief Information Officer at Lupin.

Narayana Nethralaya and Acer India Team up to build India's first PC & tablet-based software therapy for children suffering from Cortical Visual Impairment

Narayana Nethralaya in collaboration with Acer India today launched the PC + tablet based soft-



ware, "VisioNova" designed for children suffering from Cortical Visual Impairment (CVI). This initiative by Narayana Nethralaya and Acer India aims at breaking down barriers and providing the patients with better access to treatment.

Cortical Visual Impairment is a condition of bilateral visual loss caused due to injury of visual areas in the brain without significant eye or anterior visual pathway impairment. CVI is currently an emerging cause amongst children across India. With 161 children in every 100,000 born with CVI, India has declared it to be a high priority issue and classified it as one of 30 conditions that

all babies must receive mandatory screenings. These children with CVI have great difficulty in performing visually guided activities and these therapies rely on machines that are bulky, expensive and require the child to be in the hospital for the entire duration of six-to-nine-month therapeutic process. In order to address this, Acer provided PC and 100+ tablets under CSR to kick-off this noble cause. Acer has also further intent to supply around 2000 tablets for patients where patients can pay the hospital a small, refundable deposit and receive the tablet for use from the comforts of their home and still continue treatments even with COVID disruptions.

The tablet will offer CVI patients exercises that can benefit and help them develop and improve their deficient skills and visual abilities that significantly improve the quality of life. Also, since a number of specialised therapies that are deployed require expensive equipments that need the child to be present at the center for the entire duration of the treatment, this tablet will allow remote therapy under the mentorship of Narayana Nethralaya' CVI experts, making this treatment accessible to the outreach.

Flipkart launches Flipkart Labs

Flipkart, India's homegrown e-commerce marketplace, announced the launch of Flipkart Labs to build and create technology-based solutions that can redefine e-commerce and enhance the shopping experience for millions of customers. Based out of its headquarters in Bengaluru, India, Flipkart Labs will fast-track an in-house innovation capability with a vision to propel and shape the future of customer-centric e-commerce in India. This new arm will leverage emerging technologies, incubate cutting-edge ideas, and deliver breakthrough solutions to the ecosystem.

The Innovation Lab will enable Flipkart and its group companies to test exciting new Web3 and Metaverse use-cases with real-world applications, including NFT-related use-cases, Virtual Immersive Storefronts, Play to Earn, and other Blockchain related use-cases. The Innovation Lab will also serve as a vehicle for innovative research across areas including redefining customer experience, logistics / supply chain, and accelerating digital commerce in the future.

Flipkart Camera, formed after the acquisition of AR/VR startup Scapic in November 2020, has

since deployed multiple 3D and Augmented Reality-based immersive shopping experiences and will continue to mature under the newly formed Flipkart Labs umbrella.

Jeyandran Venugopal, Chief Product and Technology Officer, Flipkart, said, "Flipkart has pioneered innovation in e-commerce in India and



made it an integral part of our lives. This has been possible with many innovative initiatives over the last decade such as Cash On Delivery (CoD), Easy Returns, No Cost EMI, and more. As we continue to grow and experiment, we

will operate at the intersection of business and technology to make innovation real and relevant for customers. With Flipkart Labs, we are looking at strengthening our in-house innovation capabilities by carving out a dedicated, entrepreneurial team and look forward to bright and curious minds joining us to transform the way India shops."

ATEN Appoints C-Link Connect as its Exclusive RD for South of India

ATEN Advance, the leading provider of AV/IT connectivity and management solutions, has appointed C-Link Connect as its exclusive regional distributor for parts of South India. C-Link will be responsible for driving the distribution and sales network in the regions of Tamil Nadu, Puducherry, and Kerala. C-Link will create opportunities for IT (KVM) product line of ATEN in these regions. From this partnership, ATEN targets to reach out and provide customized solutions to existing clients and new prospects with the best response time.

Both ATEN and C-Link have struck and sustained excellence in trading, supplying, and after-sales support for a wide range of IT (KVM) Products.

"Post the disruption of 2020, the digital communication landscape in India has massively expanded across the country. With new market clusters emerging, ATEN must reach out to its customers through a strong channel partner. At ATEN Advance, we provide innovative AV and IT solutions for facilitating better connectivity and efficiency in communication.

Bosch Global Software Technologies names Naved Narayan as Vice President and Center Head for Coimbatore, India

Bosch Global Software Technologies (BGSW), formerly known as Robert Bosch Engineering and Business Solutions (RBEI), announced the appointment of Naved Narayan as their Vice President and Center Head in Coimbatore. The announcement marks another milestone in BGSW's continued commitment to innovation and growth in the Indian market.

Bosch's Coimbatore center was established in 2006 and has since emerged as a powerhouse of technology and innovation, playing a significant role in the company's global R & D network. Naved's appointment is instrumental in leading the Center forward and advancing Bosch's strategy, vision, and employee-first culture in the market.

Naved joined Bosch in 1997 as a fresh graduate with a B-Tech degree from Cochin University of Science & Technology. He has since held several leadership positions at the company spanning across mobility engineering, project management and business development. He has also lived and worked in Germany and Japan. Naved is also an alumnus from IIM- Bangalore, an avid reader and leadership coach.



Naved Narayan, Vice President and Center Head,
Bosch Global Software
Technologies (BGSW),
Coimbatore said, "As a
technology company,
Bosch Global Software
Technologies has consistently demonstrated inno-

vation prowess and excellence in engineering and software.

InMobi Gears Up For Growth In Asia Pacific With Expansion Of Regional Leadership Team

InMobi, a leading provider of content, marketing, and monetization technologies that help businesses fuel growth, today announced the expansion of its regional leadership team in Asia Pacific to double down on the growth of its advertising business in the region. The move is aimed at spearheading ad-based monetization of its owned-and-operated and third-party properties through the InMobi Advertising Platform.

Over the past few years, InMobi has built uniquely immersive content and commerce experiences through its owned and operated consumer properties including the world's leading lock screen platform - Glance, which is changing the way people consume, shop, and game. Glance currently boasts of over 200 million daily active users across its lock screen and other properties including Roposo and Gambit in India and Southeast Asia. Brands like UpGrad, Intel, Swiggy, and Skoda have been early adopters in driving home the advantage through Glance's pathbreaking, unique experiences to create clutter-breaking content and drive real connections with their customers.

Samsung Electronics Introduces Industry's First 512GB CXL Memory Module

Samsung Electronics, the world leader in advanced memory technology, announced its



development of the industry's first 512-gigabyte (GB) Compute Express Link (CXL) DRAM. tak-

ing an important step toward the commercialization of CXL which will enable extremely high memory capacity with low latency in IT systems. Since introducing the industry's first CXL DRAM prototype with a field-programmable gate array (FPGA) controller in May 2021, Samsung has been working closely with data center, enterprise server and chipset companies to develop an improved, customizable CXL device.

The new CXL DRAM is built with an application-specific integrated circuit (ASIC) CXL controller and is the first to pack 512GB of DDR5 DRAM, featuring four times the memory capacity and one-fifth the system latency over the previous Samsung CXL offering.

"CXL DRAM will become a critical turning point for future computing structures by substantially advancing artificial intelligence (AI) and big data services, as we aggressively expand its usage in next-generation memory architectures including software-defined memory (SDM)," said Cheolmin Park, Vice President of Memory Global Sales & Marketing at Samsung Electronics, and Director of the CXL Consortium. "Samsung will continue to collaborate across the industry to develop and standardize CXL memory solutions, while fostering an increasingly solid ecosystem."

AMD Announces Three New Radeon RX 6000 Series Graphics Cards

AMD announced new additions to the AMD Radeon™ RX 6000 Series product line: the AMD Radeon RX 6950 XT — the most powerful graph-



ics card in the Radeon RX 6000 Series family — the Radeon RX 6750 XT and the Radeon RX 6650 XT g r a p h i c s

cards.

With a 2.1GHz Game Clock1 coupled with 16GB of high-speed GDDR6 memory, the AMD Radeon RX 6950 XT graphics card delivers incredible performance and breathtaking visuals for the most demanding AAA and esports titles at 4K resolution with max settings. The AMD Radeon RX 6750 XT graphics card offers a cutting-edge, high-per-

formance gaming experience at 1440p resolution with max settings, while the AMD Radeon RX 6650 XT graphics card offers ultra-smooth, high-refresh rate 1080p gaming with max settings in the latest titles.

All of the new AMD Radeon graphics cards are built on the breakthrough AMD RDNA 2 gaming architecture, include process optimizations plus firmware and software enhancements, and are equipped with high-bandwidth, low-latency AMD Infinity Cache™ technology and ultra-fast GDDR6 memory at up to 18Gbps. They also support Microsoft Windows 11 and Microsoft DirectX® 12 Ultimate, AMD FidelityFX™ Super Resolution (FSR) 1.0, the forthcoming AMD FSR 2.02 and AMD Radeon Super Resolution upscaling technologies, as well as other advanced features that provide visually stunning, high-refresh rate gaming experiences.

12th Gen Intel Core HX Processors Launch as World's Best Mobile Workstation Platform

At Intel Vision 2022, Intel announced seven new mobile processors to the 12th Gen Intel® Core™



mobile family. The
12th Gen Intel®
Core™ HX processors utilize desktop-caliber silicon
in a mobile package
– to deliver high levels of performance

for professional workflows like CAD, animation and visual effects. The HX processors are unlocked out of the box and available in Core i5, Core i7 and Core i9 models.

"With the new core architecture and higher power limits of 12th Gen Intel Core HX processors, we're enabling content creators to tackle the most demanding work flows like never before – for example, executing 3D renders in the background while continuing to iterate on other 3D assets in the scene. No more waiting around for processor-intensive workloads to finish, you can stay in the flow. Gamers and content creators will also have access to high bandwidth platform technologies like PCle Gen 5 with RAID support, and support for ECC memory to ensure high levels of system data integrity and reliability."

Professionals and creators need more processing power and greater platform bandwidth to iterate content faster. This enables businesses and production agencies to better meet milestones and budgets of fast-paced working environments. The 12th Gen Intel Core HX processors enable the best mobile workstation platforms by providing 65 percent more performance in multi-threaded workloads1 with more cores, more memory and more I/O while utilizing Intel® Thread Director technology to leverage high-power Performance-cores and Efficient-cores so pros can create, program, render and work with maximum efficiency in the office, at home or on the go. In addition to being a commercial workhorse, 12th Gen Intel Core HX processors provide a gaming powerhouse platform that will give enthusiast gamers higher frame rates for the games they know and love. -----

Monitors from Acer for creators and gamers

The ideal monitor for gamers and creators comes



in all shapes and sizes basis one's requirement. The number of options on monitors for creators and professional gamers is endless these days and the quality of monitors has improved significantly. Having the right monitor can transform the user experience making the setup more immersive and experiential. With requirements like super-fast refresh rates and HDR, Acer has **got your back with the very best in the market**.

Acer Predator XB253Q GX

The Acer Predator XB253Q checks all the boxes for gamers and creators. This monitor from the

Predator series is a 24.5-inch full HD display with a 240Hz refresh rate which is also compatible with NVIDIA G-SYNC. The product also comes with stereo speakers embedded in them. This eye-safe certified monitor includes a Bluelight shield, flicker less, low dimming, comfy view features which makes it ideal for users who demand high productivity and spend long hours on their computers

Matrix 2MP Pan-Tilt-Zoom Camera with 33x Optical Zoom

Not just organizations but also public author-



ities are in need for surveillance devices to control public spaces that are heavily crowded. To solve these surveillance backdrops, Matrix offers its Pan-Tilt- and Zoom camera that has been designed for 360° surveil-

lance.

The cameras are a blend of performance and sturdy design. Powered using back-illuminated Sony STARVIS series sensors, the cameras offer superior image quality in low-light conditions. Apart from this, image enhancing technologies make sure the image clarity is constant in varying light conditions. Also, the cameras offer infrared sensors that provide night vision up to 200

netres.

Next, the 360° Pan Range make sure that you can monitor large areas easily without the need for additional cameras. Again, offering optical zoom up to 33 times you can zoom into details with a single click. Finally, offering a sturdy built, the cameras can withstand external impacts (IK10 Certified). Likewise, they can withstand harsh weather conditions (IP67 – Ingress Protection)

This Al-enabled robotic boat cleans up harbors and rivers to keep plastic trash out of the ocean

Millions of tons of plastic trash float down polluted urban rivers and industrial waterways and



into the world's oceans every year. Now a Hong Kongbased startup has come up with a solution to help stem these devas-

tating flows of waste.

Open Ocean Engineering has developed Clearbot Neo – a sleek Al-enabled robotic boat that autonomously collects tons of floating garbage that otherwise would wash into the Pacific from the territory's busy harbor.

After a long developmental phase, its creators are planning to scale up and have fleets of Clearbot Neos cleaning up and protecting waters around

The United Nations estimates that as much as 95% of plastic pollution in the world's seas gets there via 10 major rivers, eight of which are in Asia.

And there are fears that the volume of plastic trash flowing into marine environments could nearly triple by 2040, adding 23 to 37 million metric tons into the oceans per year. That would be equivalent to about 50 kgs of plastic garbage per meter of coastline worldwide.

"If we clean up our rivers and harbors, we are helping to clean up our oceans," says Clearbot Neo's co-creator Sidhant Gupta.

At just three meters long and pushed along by a solar battery-powered electric motor, the Clearbot Neo systematically moves up and down designated sections of water - much like how a household robot cleaner moves across a living room floor.

Unlike other and much larger marine trash collection solutions that are tackling pollution on the high seas, the compact nature of the Clearbot Neo makes it ideal for harbor, canal and river use. It skims the surface and scoops up floating trash onto an on-board conveyer belt fitted near its bow between its dual hulls and into a holding bin near its stern.

Clearbot Neo uses AI to recognize and log the types of trash it collects and were.

It can bring in as much as a metric ton of refuse per day for recycling or disposal. And when fitted with a bespoke boom, it can tackle localized oil and fuel spills by collecting up to 15 liters of pol-

But this is more than just a simple clean-up machine. It also collects masses of data in the cloud using a two-camera detection system.

One camera surveys the water's surface so the bot can identify rubbish and avoid marine life, navigational hazards and other vessels - making it safe and versatile for river and harbor work.

The second camera photographs each piece of trash that lands on the conveyor belt and transmits its image and GPS location to the company's data compliance system, which is hosted on Microsoft's Azure platform.

When this data is put together with variables, like sea current and tide information, environmentalists and marine authorities have a head start on



identifying sources of trash. Water quality data is also fed into the cloud.

Computer neers Gupta and

Utkarsh Goel founded their startup and began working on their Clearbot solution shortly after graduating from Hong Kong University in 2019.

Their inspiration came during a trip to the Indonesian vacation island of Bali where they witnessed how local workers would take to the water every day in small boats and even on surfboards to manually fish trash out of the sea to keep the shoreline and beaches safe and clean for tourists. That got the two partners thinking: How could this slow and cumbersome process be automated?

Gupta and Goel developed a basic aluminum prototype in Bali and upon their return to Hong Kong, upgraded to a fiberglass version. A series of prototypes followed with the sleek Clearbot Neo being the latest model.

Clearbot's creators Sidhant Gupta (left) and

Utkarsh Goel (right). Photo: Clearbot. The most challenging part of the project was



developing an AI model that could detect and identify waste in the water.

'We simply didn't have the computing power avail-

able to train, run and test the models," Gupta says. "This is exactly where Azure comes in. We ended up getting an AI for Earth grant from Microsoft in Spring 2020, and over the next year developed the AI model entirely on the Azure platform.

"It took a while because initially we didn't have enough data to reasonably train it, but very quickly we ended up building out a model. We then put it on the robot and started training it for path planning, collecting waste and generat-

With the aid of GPS, Clearbot Neo can simultaneously clear the trash and produce a data point for each and every item collected — information that includes location, size, type, material and weight. After every mission, Azure's AI capabilities have already classified the Clearbot Neo's haul and added it to a growing database.

We're finding out how the trash ends up in the water in the first place.

"We use Azure Functions, Azure Container Registry and Container Instances to help us deploy our Al models as well as run our back-end systems," Gupta savs.

The hard data is actually more valuable than the physical material that is being collected. Only 20% to 40% of marine plastic waste in Hong Kong's waters can actually be recycled. Most of it is too contaminated or broken down to be usable.

But with Clearbot Neo and Azure, "We're finding out how the trash ends up in the water in the first place," Gupta says. "It adds a lot of transparency to the process of marine clean-up. We generate data about what's actually in the water, what's the make-up of the stuff that's there, how much of it is recyclable and what materials we should be focusing on."

With a wealth of information, Clearbot Neo and its target customers — companies, governments, non-government organizations and individualsdon't need to extrapolate about the scope of the problem in their waters. They can track the origins of marine waste, then tackle pollution at the

Recently Sino Group, a Hong Kong property company, acquired a model and will work with the Clearbot team on helping keep a yacht marina



clean and testing technology further.

"Sino Group committed to promoting sustainable living and green operation

in the communities it operates and is keen to explore green and sustainable solutions for the property industry," says Andrew Young, who is associate director of the company's innovation department.

"We find the electric-powered Clearbot is a viable solution for the marina at Gold Coast Yacht and Country Club to automate waste collection from the water's surface with its AI and self-navi-



gate function. It is a green solution with no noise or air pollution. So, we are pleased to collaborate with Clearbot by providing the marina

as a testbed for the solution.

The Clearbot team makes final adjustments to their latest model. Photo: John Curran.

So far, the Clearbot Neo has been operating only in Hong Kong waters. Several potential customers in other countries have contacted Gupta and Goel, however, expansion has been temporarily hampered by pandemic travel restrictions.

Confident that they have a global solution on their hands, Gupta and Goel see a future where coordinated fleets of Clearbot Neos are constantly patrolling waterways anywhere.

"The entire challenge," Gupta says, "is there are not enough resources to tackle the pollution problem— why is this so? Because there's no economic value there. At the moment you can add that, it's a different story.

"So that's where we're coming from. What I'm really happy about is we're able to do this work and do it profitably. We're able to take a broad vision and create something that's working very specifically."



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