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ASIA PACIFIC

THE TELECOM INDUSTRY'S MEDIA PLATFORM

Q4-2023



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UNLEASHING THE FUTURE: Endless Possibilities With 5G Advanced

Ultra-Broadband FWA
Essential for Next-
Generation Connectivity

6 Ways irix Is Establishing
Sarawak as SEA's Alternative
Regional Hub

Cyber Immunity for
Future-Proof Digital
Environments



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From iPhones to EVs: Foxconn's Bold Move Amid US-China Tensions

Foxconn Chairman and CEO Young Liu unveiled the company's ambitious blueprint to broaden its electric vehicle (EV) enterprise. This move could serve as a contingency plan for the iPhone manufacturer as escalating tensions between the US and China impact its main revenue stream.

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Grants to Be Awarded for AI Management Insights

OpenAI, the creator of the popular artificial intelligence chatbot ChatGPT, has said that it will distribute 10 equal grants from a \$1 million fund earmarked for studies in democratic processes to explore how AI software can best address biases and other concerns.

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iOS 17 Introduces New Features for a Better Visual Experience

The new Apple iOS 17 operating system for iPhones brings some aesthetic changes, including the ability to keep posters for calls, live voicemail, live stickers and more. It also adds some useful privacy and security features, such as NameDrop and Check In.

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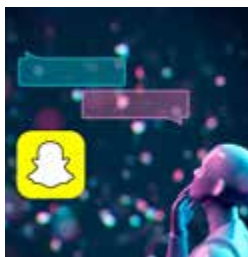

The Beginning of the End for Metaverse?

After seven years of hard work developing its latest jewel of a product, Silicon Valley superstar Apple has introduced its irresistibly sleek mixed-reality headset that could throw cold water on the "metaverse" dream propagated by rival Meta.

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Snapchat's New AI Chatbot Feature Is Facing Backlash From App Users

The notable new chatbot feature from Snapchat is powered by ChatGPT, but with some key differences: users can customize the chatbot's name, design a compatible custom Bitmoji avatar and feature it in conversations with friends, the latter of which is raising concerns among teens and parents alike.

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Unleashing the Future: Endless Possibilities With 5G Advanced

The GSMA's Mobile World Congress (MWC) Shanghai 2023 has concluded, leaving behind a spirit of innovation, collaboration and expectation. MWC Shanghai 2023 attracted a record-breaking 37,000 attendees from 115 countries and territories, serving as a platform for policymakers, industry leaders and members of the mobile ecosystem to converge and explore the newest innovations in the telco industry.

Huawei, a leading global provider of information and communications technology (ICT) solutions, made a significant appearance at this year's event. Huawei's participation was distinguished by its exciting outlook on the 5.5G era, emphasizing its important contributions to the future of mobile networks.

While 5G has already been commercially available in over 100 countries over the last four years, industry leaders believe the moment has come for 5.5G and 5G-Advanced to shine.

With the advent of 5G-Advanced (5G-A), the long-awaited promise of 5G to transform connected services is closer than ever. As 5G has continued to benefit organizations worldwide since its standardization in 2018, the industry is looking forward to Release 18 in 2024, which will be dedicated to 5G-A. As a midpoint in the standardization of this generation, 5G-A is positioned to achieve the concept of the "internet of everything," ushering in a new era of connectivity and innovation.

The capabilities and potentials of 5G-A are detailed in the latest industry report from the GSMA, titled "Advancing the 5G Era: Benefits and Opportunity of 5G-Advanced." This groundbreaking overview, the first of its kind, provides businesses with valuable insights on how to capitalize on 5G-A's commercial potential. It emphasizes how 5G-A will significantly improve 5G's performance, management and adaptation to specific use cases. As a result, 5G will be used for a broader range of applications, in more places and on a larger scale, revolutionizing everyday services and activities through a high-quality connection.

Huawei's vision of the "5.5G Era" showcases an end-to-end solution that incorporates modern technologies, including 5.5G, F5.5G and Net5.5G. This new era of telecommunications aims to meet a wide range of service



requirements while providing a stunning tenfold increase in network capacity, with peak downlink speeds of 10 gigabits and peak uplink speeds of 1 gigabit.

Improvements and Advantages

One of the primary advantages of 5G-A is its capacity to meet the changing needs of various industries. Autonomous driving, smart manufacturing, and virtual and augmented reality all necessitate a quicker and more dependable network connection. With 5G-A, these industries will be able to exploit the great power of real-time data transmission, enabling substantial breakthroughs and fueling a global digital revolution.

The expected improvement in uplink and downlink speeds of 5G-A will enable more immersive, interactive and haptic applications.

These applications are likely to be widely used in the entertainment, training and education sectors, allowing for new types of remote engagement as well as the formation of digital communities. According to



5G-Advanced provides the high data rates and low latency needed for the widespread adoption of virtual reality (VR), augmented reality (AR) and extended reality (XR)





“5G-Advanced is also foreseen to improve the compatibility of low-cost, low-power devices like industrial wireless sensors and wearables

the GSMA report, 5G-A provides the high data rates and low latency needed for the widespread adoption of virtual reality (VR), augmented reality (AR) and extended reality (XR). As 5G-A becomes the worldwide standard, XR solutions will adapt to the user's mobility and location, broadening the capabilities of these metaverse technologies. The report also delves into the idea of a “mobile metaverse,” exploring ways to support interactive XR media shared by several users in a single area and determining the best methods for recognizing individuals' digital representations.

5G-A is also foreseen to improve the compatibility of low-cost, low-power devices like industrial wireless sensors and wearables. This will make it easier to integrate advanced Internet of Things (IoT) services into business operations, resulting in more engaging and cost-effective products and services.

“The promise of the 5.5G era extends far beyond China's borders. As the world becomes more interconnected, 5.5G improvements will have a significant impact on global economies, cultures

and individuals. The ability to efficiently and securely send and analyze massive volumes of data will open up new opportunities for businesses, transform healthcare services and empower individuals with immersive digital experiences.

Preparations Are Underway

Industry collaboration has already begun in order to prepare for the commercialization of 5G-A. For example, in December 2022, China Mobile gathered 65 industry partners, including Huawei, Zhanrui, Vivo and the Sinobo Group, to establish an industry-wide 5G-A action plan. The goal of this collaboration has been to share technological advances, synchronize priorities and perform mutual testing.

Richard Cockle, global head of IoT, identity and big data, GSMA, said, “5G-Advanced, the next milestone in the 5G era, has demonstrated the innovativeness and future potential of the already-standing 5G ecosystem with improvements to speed, coverage and efficiency. Enhancing the XR capabilities and sustainability within AI & Machine Learning designs, 5G-A has

created several business opportunities for the global enterprise market.”

Last June, the China Academy of Information and Communications Technology (CAICT) and Huawei co-hosted the 5G-Advanced Core Industry Forum, which brought together telco industry thought leaders and specialists, marking a significant milestone in the advancement of 5G technology.

During the forum, Huawei introduced a 5G-Advanced Core Marketing Project with industry partners. The goal of this program is to encourage industry consensus and commercial implementation of a new 5G-Advanced core architecture and create an intelligent, convergent core network that connects everything and allows all services, allowing the vision of an intelligent world to be realized.

Leo Ma, president of Huawei’s cloud core network marketing department, emphasized the criticality of core network construction and development in the evolution of 5G-Advanced. Mr. Ma stated, “The evolution of 5G-Advanced has reached a critical juncture, at which the construction and development of the core network are absolutely essential. The 5G-Advanced Core will unlock more and more services and experiences, as well as [stimulate] innovation with enhanced capabilities and connectivity. Huawei is committed to creating new value for the industry, helping all industry players seize business opportunities and fully embrace the new intelligent world.”

Meanwhile, at the recently concluded MWC Shanghai 2023, Huawei announced that it intends to release a full set of commercial 5.5G network equipment by 2024, ushering in the 5.5G era for the ICT industry. The company has also been actively collaborating with numerous industry partners to advance 5.5G research and development, making significant advances in critical technologies such as vast antenna arrays (ELAA), flexible spectrum access for gigabit uplink and passive IoT for enabling massive IoT connections.



Looking Ahead

As we get closer to the commercialization of 5G-A, the industry is bursting with enthusiasm. 5G-A’s faster speeds, lower latency and greater capabilities will open up a world of possibilities, transforming how we live, work and interact. The implications will be felt throughout industries, paving the way for new applications, higher productivity and better user experiences. However, it is vital to emphasize that the effective deployment of 5G-A would necessitate considerable infrastructure expenditures, ongoing innovation and stakeholder collaboration. 5G-A has the ability to alter our digital world and usher in a new era of connectivity with concentrated efforts and a clear vision.

While 5G-Advanced has enormous potential, it is crucial to recognize that its fulfillment will take time and not be without some bumps in the road, especially if it seeks to bridge the industry as it shifts to the 6G network. Meanwhile, many industry professionals feel the industry is still in the early stages of developing a comprehensive vision for 6G. As a result, the 5.5G milestone is seen as a crucial step forward in overall network development. **TR**



5G-Advanced’s faster speeds, lower latency and greater capabilities will open up a world of possibilities, transforming how we live, work and interact





*Aaron Chan, Vice President,
Pan Asia Sales, DZS*

Transforming Networks With Revolutionized Edge

During Asia Tech x Singapore (ATxSG) 2023, Aaron Chan, vice president, Pan Asia Sales, DZS, shared valuable insights into the offerings and strategies of the company. In the interview with Telecom Review Asia, Chan highlighted the unique position of DZS in the market as well as its global partnerships with operators to transform the access, subscriber, optical and cloud edge to advance digital transformation.

Can you provide an overview of DZS and its key offerings?

DZS stands out from a market perspective due to our unique, innovative solutions and extensive reach. We operate in a multicultural environment globally, but especially in Asia where our customer base spans various countries in this region. Increasingly, we are seeing that governments are collaborating with telecommunication companies to accelerate their digital and fiber transformation.

From an infrastructure perspective, this holds immense significance for the countries we engage with. Across the APAC region, we play a pivotal role by delivering world-class network edge solutions and substantial value to address the challenges faced by operators. Our areas of specialization include the access edge, optical edge, cloud edge and subscriber edge where we offer significant benefits to our customers, enabling them to transform, grow, and thrive while delivering the ultimate broadband subscriber experience.

What are the main industries or sectors that DZS's solutions cater to? Are there any unique challenges or requirements within these industries that the company addresses?

We are service provider-centric, having established partnerships with many tier-one operators across the globe and throughout Asia. In addition to catering both to residential broadband and the enterprise market, which includes networking solutions for hospitality, retail, multi-dwelling units and education, we have positioned ourselves through software to strategically meet the myriad business needs of service providers serving these markets to provide optimal WiFi experiences, service assurance, and orchestration and automation to optimized service provider OPEX and CAPEX.

Catering to these different sectors presents unique opportunities for DZS as we help all of our customers gain a competitive edge in their respective markets through high performance, fast and agile deployments, and comprehensive solutions that address their needs across their network and existing network ecosystem.

Moreover, our focus extends beyond merely providing solutions. We actively engage with our customers, collaborating closely with them to tackle challenges and overcome pain points. This approach not only strengthens our strategic partnerships but also facilitates accelerated growth across the regions where we operate.

Can you highlight any partnerships or collaborations in the region and how they accelerate digital transformation?

We maintain two distinct sets of partners in our operations. Firstly, we have local partners who actively engage with us daily to efficiently manage our extensive base of service providers as well as enterprises operating across various industries.

These partners tend to be experts in very specific parts of the broadband industry. Our collaboration with these experienced local service providers has often spanned many years, fostering a strong and trusted relationship. This deep connection allows us to effectively

address the requirements of operators, and we have found this business model to be particularly successful.

Secondly, we actively engage with global partners who also possess a wealth of expertise in their respective fields, but are geared more toward major tier-one operators. For example, we work with multiple global OpenRAN technology leaders in the industry. DZS technology complements these global partners, many of whom focus on enabling large mobile operators, for example, to move to an open, multi-vendor RAN vendor ecosystem that provides a lower total cost of ownership and greater flexibility.

Across both our fiber-to-the-home or business and 5G customers, there is an accelerating need for improved bandwidth, lower latency networks, and data intelligence and insights that inspire machine learning, higher performance, better experiences, and automated services. Across all of our partnerships, we have instilled a common vision and cultivated a synergy that enables us to help our customers gain a competitive edge, and continue to maintain that edge as requirements and market conditions evolve.

How does the company ensure the scalability and flexibility of its solutions to meet the evolving needs of clients?

We have a very strong team located in the APAC region, with our regional headquarters based in Korea. We also have a very strong team in the US market (where DZS is globally headquartered), as well as the European and Middle East regions. This global footprint contributes to our comprehensive understanding of customer behavior, cultural nuances, and emerging technology needs in these markets. We value this global perspective and believe that it makes us sensitive to needs as they are emerging around the world and react by architecting solutions ready for the scalability and flexibility challenges of tomorrow.

We are also very focused on global standards bodies like the Broadband Forum, O-RAN Alliance, PURPL and a variety of others. As a major contributor to these bodies, we are ensuring that

our standards-based products meet interoperability requirements and align with operators' long-term strategies.

We are very confident that our access, optical, subscriber and cloud edge solutions offer industry-best flexibility and scalability. In addition to innovative architectures that are non-blocking, temperature hardened for ease of deployment, and modular to grow as fast or slow as a service provider wants to deploy, our software makes our customers extraordinarily agile and efficient, allowing our customers to not only get to market faster in their deployments and their launch of new services, but provide powerful service assurance and operational responsiveness. We help our customers to become the leading broadband service providers in their markets, and maintain their competitive edge through innovation, intelligence, and unprecedented agility. 



We play a pivotal role by delivering world-class network edge solutions and substantial value to address the challenges faced by operators



**Andreas Serras, Chief
Executive Officer, Intracom
Middle East**



Ultra-Broadband FWA Essential for Next- Generation Connectivity

Fixed wireless access (FWA) is revolutionizing connectivity by delivering fast, reliable and cost-effective connectivity to empower individuals and businesses in the digital age. At ATxSG 2023, Telecom Review connects with Andreas Serras, chief executive officer of Intracom Middle East, to learn about the company's innovative offerings in this area, focused on delivering mmWave, ultra-broadband FWA to benefit operators and communities.

Can you tell us about Intracom Middle East as well as the company's latest solution developments in 2023?

Intracom Middle East is a leading telecom solutions provider in the Middle East, Africa and Southeast Asia regions, operating for over two decades in the market with regional teams and a network of partners. We have a proven track record in deploying large-scale complex projects integrating in-house designed and developed products, as well as third-party systems for delivering state-of-the-art telecommunication solutions. We are promoting Intracom Telecom's solutions portfolio in the region, and this year we are introducing enhancements to Intracom Telecom's fixed wireless access (FWA) and E-Band offerings, with more capacities at longer ranges and with more configurations.

In terms of strategic focus, where is the company directing its efforts?

We focus on providing network infrastructures to our customers for the 5G era. We have solutions for connectivity between the last mile and the core of the 5G mobile network that require high-capacity, long-range mmWave and microwave radios acting as xHaul modules (backhaul and fronthaul). An example is our UltraLink-GX80®, an E-Band radio that delivers 10 Gbps capacity. Moreover, our offering also addresses the gigabit connectivity needed for fixed subscribers in mmWave ultra-fast broadband fixed wireless access networks at 26/28 GHz. The Asia Pacific and Southeast Asia regions are now at the global forefront of network developments, and


our company continues its activity that started a decade ago.

Can you elaborate on the significance of mmWave FWA in today's landscape?

The mmWave frequency band is the catalyst for the deployment of gigabit access networks. Our fifth generation FWA technology, WiBAS G5, operates at the 26/28 GHz frequency band, coexisting with 5G in adjacent channels. The WiBAS G5 technology can be used for networks with gigabit/s speeds of download and to long-range rural and semi-rural subscribers. While focusing on evolving the product line with new base stations and terminal devices, increasing density to 1,000 subscribers per site, range of connection, quality of service and spectrum reuse, we also work on maintaining leadership at the FWA networks operating at licensed microwave bands. The 10.5 GHz is a typical case in Southeast Asia and is being selected by many of our customers in the region. From Intracom Telecom's global footprint of more than 50 FWA networks, a significant portion is within the area of responsibility of Intracom Middle East.

Can you please highlight your top Asian deployments and the challenges you have successfully addressed?

Since 2014, we have been supplying Dialog, Axiata's subsidiary in Sri Lanka, with our 10.5 GHz solutions for the modernization and expansion of their network. Also, since 2014, we have been supplying Lintasarta in Indonesia with our WiBAS™ technology again for high-quality connectivity services. In all cases, the challenge remains the same: to secure for the operator the highest capacity in the industry and a competitive cost per Mbit. When it comes to ultra-broadband FWA, our

WiBAS™ brand stands out, and that is something that our customers worldwide refer to. With 16,000 hubs and more than 400,000 terminal devices delivered, we can claim a success story for our FWA solutions. Likewise, with 35,000 radios of E-band technology delivered to this day, we are part of large network deployments. 



We have a proven track record in deploying large-scale complex projects integrating in-house designed and developed products, as well as third-party systems for delivering state-of-the-art telecommunication solutions





**Yeo Siang Tiong, General Manager,
South East Asia, Kaspersky**

Cyber Immunity for Future-Proof Digital Environments

On the sidelines of Asia Tech x Singapore (ATxSG) 2023, Yeo Siang Tiong, general manager, South East Asia, Kaspersky, talked about how the company is leading the way to foster cyber immunity against a rising threatscape. In an interview with Telecom Review Asia, Yeo emphasized how Kaspersky has adopted a preventive approach rather than being reactive when dealing with cyber threats.

Can you provide an overview of the current global cyber threat landscape and the most significant trends or developments that you have observed recently?

In recent years, there has been a significant surge in cyber threats. In 2019, for instance, we observed approximately 300,000 unique malicious files being collected daily. By December last year, this figure had risen to a staggering 420,000 new and unique malicious files per day, which becomes a cause for concern.

To provide further context, during the short span of time in this interview, we

would have already collected 4,500 malicious files. This sheer volume highlights the gravity of the situation. The current threat landscape comprises a mix of amateur players to highly skilled professional hackers. The extent of damage incurred depends on the capabilities and intentions of these threat actors.

Artificial intelligence and machine learning are increasingly being utilized by both cybercriminals and cybersecurity professionals. How are these technologies shaping the future of cyber threats and cybersecurity?

Kaspersky operates in a dynamic landscape where the sheer magnitude of 420,000 new malicious attacks gathered daily presents a significant

challenge. To effectively address this, we employ a combination of AI-based algorithms and human-machine learning processes. In this case, these tools are essential to distilling the vast amount of data to benefit our customers.

But, of course, a tool is a tool. If these tools fall into different hands and are used differently, they have the potential to cause significant damage. While some are already leveraging AI to automatically generate malware, the most damaging and sophisticated attacks are still carried out by professional hackers.

As a cybersecurity company, we are vigilant in tracking the activities of

professional hacker groups worldwide. In just three years, our monitoring efforts have expanded from tracking over 200 groups to close to 900 professional hacker groups. These multinational entities are very well organized and well funded, and they inflict damages that pose substantial risks.

The key point is that AI can be used for malicious purposes. For instance, the generation of phishing emails presents a growing concern. Previously, the authenticity of such emails could be discerned through grammatical and spelling errors. However, with generative AI, these emails can now appear much more professional, making detection and prevention more challenging for us. As such, we need to stay ahead to address any loopholes.

We have been fronting cybersecurity for the last 26 years and continue to maintain our lead in this domain. We recognize that, in this ever-evolving landscape, staying ahead requires brushing up on knowledge. But we have also realized that a reactive approach is no longer sufficient from a technological standpoint. The focus has shifted towards prevention rather than mere reaction. As a result, we are actively advocating the concept of cybersecurity immunity.

We have recently developed an operating system (OS) that is compatible with different hardware, allowing it to be utilized in securing Internet of Things (IoT) devices, essentially ensuring robust security from the core.

We have observed that IoT device manufacturers often prioritize electronic product functionality over cybersecurity. Therefore, having a cyber-immune OS developed from scratch becomes paramount in safeguarding these devices. By pioneering the concept of immunity and introducing our cyber-immune OS, we aim to establish a new standard in IoT device security and advance the resilience of connected systems.

As the world becomes more interconnected and reliant on technology, how does Kaspersky help organizations enhance their

cybersecurity posture to better protect against evolving threats?

Kaspersky's cyber-immune OS is a long-term solution, as it needs to be incorporated into the OS of devices before they are manufactured at scale. In the interim, we leverage extensive telemetry based on the information we have gathered about malware over the years.

This data forms the foundation of our various product offerings, ranging from software embedded in devices like mobile phones, PCs, laptops, and servers, both on-premises and cloud-based, to network anomaly detection software. All this information is then correlated for us to enable automated detection and response mechanisms.

For customers already equipped with sophisticated software solutions, the strategic advantage lies in our threat intelligence capabilities. With our monitoring of over 900 professional hacker groups, we gain insights into their behavior and the software they employ. Leveraging this intelligence, we provide early warning signals to larger customers with dedicated security teams, allowing them to proactively protect their environment.

Our threat intelligence offerings include incident response services that help customers clean up the whole environment, close up backdoors and identify the source of breaches, thereby enabling them to enhance their resilience for future incidents.

Education is also a key aspect of our approach. We offer gamified cybersecurity courses to empower regular IT users with a better understanding of cybersecurity. Our researchers also train security teams to effectively safeguard their customers' security teams. As we monitor and have continued exposure to different threats around the world, we offer customized updates and ongoing training for customers whose exposure is specific to their unique environment.


Can you share with us some partnerships?

We have partnerships in different forms. In the consumer market, we offer

products tailored for home users and telco users. We partner with telcos so they can bundle our products with fiber-to-the-home products or their mobile phone plans. We also work with telcos as our customers, as telco infrastructure serves as the backbone for connectivity.

We also partner with governments. For instance, we work with many governments at the regulation and security agency layer to help them build nationwide security infrastructure. Hence, there are multiple fronts that we work on.

Looking ahead, what do you envision as the future of cybersecurity? Are there any emerging technologies or trends that you believe will significantly impact the industry in the coming years?

Cybersecurity will continue to be relevant in our evolving digital landscape. Through some of the initiatives that we are advocating, such as cyber immunity, we hope that with greater awareness, security becomes an integral part of the design process rather than an afterthought. This alone would be a significant milestone in the evolution of cybersecurity. 



We hope that with greater awareness, security becomes an integral part of the design process rather than an afterthought





6 Ways irix Is Establishing Sarawak as SEA's Alternative Regional Hub

Sarawak's focus is to become Southeast Asia's alternative connectivity hub to provide next-generation digital connectivity to people and businesses worldwide. The largest of the 13 states in Malaysia, Sarawak is well-positioned to achieve this status, boasting a strategic location in Borneo, near Singapore, Kuala Lumpur and Jakarta, as well as advanced infrastructure and a robust telecommunications network critical for powering connectivity in the 5G and Internet of Things (IoT) era. Additionally, Sarawak is ideally situated between the urban mega centre of China and Indonesia, offers plentiful supply of key natural resources including land and hydro power, and has a stable business friendly and stable political environment.

The state is also home to the Sarawak Corridor of Renewable Energy (SCORE), one of just five economic development corridors designated by the Malaysian government to stimulate investments

where clean, renewable energy and natural resources can be tapped to advance energy-intensive industries.

Supporting the government's vision to transform Sarawak into the next regional connectivity hub, irix, a 100% private, and fully Sarawakian-owned and operated telecommunications

infrastructure provider, has embarked on a multi-pronged approach to spark a digital evolution.

1. Constructing the Sarawak International Internet Gateway as a Communications Corridor

Digitalisation is key to transforming lives and businesses. Under

Sarawak's Digital Economy Strategy, the government plays an enabling role to establish the state as a modern and leading digital economy and society by 2030.

Aligned to the government's digital ambition, irix has constructed the Sarawak International Internet Gateway (SIIG), with core components comprising: multiple cable systems including two proprietary submarine cable systems together with additional resiliency and diversity offered through 3rd party network capacity purchased on long term basis, a Tier-IV Data Centre, an Internet Exchange (IX), and a Cross-Border Terrestrial Fibre Network, all of which provide high-speed and secure data transfer capabilities critical in the digital age.

2. Delivering Colocation Benefits with a Tier-IV Data Centre

irix's Tier-IV Data Centre serves as the backbone propelling Sarawak's internet connectivity. It is the first and only Tier IV-designed and certified data center in Malaysia and a carrier-neutral, green facility that utilises Sarawak's high level of hydroelectric power.

Strategically located with its own Cable Landing Station (CLS) and Internet Exchange (IX), the data center offers direct international connectivity to countries including Indonesia, China, Singapore, Thailand, and the Philippines via the Batam-Sarawak Internet Cable System (BaSICS) and the South East Asia Hainan – Hong Kong Express Cable System (SEA-H2X). Certified to meet the highest global standards, irix's Tier IV Data Centre offers organisations the highest level of reliability and uptime due to the facility's redundant systems and fault-tolerant 3N+1 design. This makes it an ideal choice for enterprise-level mission-critical infrastructure that cannot afford any downtime or service disruptions.

Essentially, the data center is fundamental to supporting the state's connectivity initiatives to grow its digital and fiscal economies.

3. Powering Enhanced Connectivity via BaSICS and SEA-H2X Subsea Cables

Subsea cables offer the lowest possible latency and are the preferred choice for applications that require real-time communication. By leveraging these cables, businesses can significantly reduce latency and enhance the performance of their applications, resulting in a superior user experience for their customers.

Spanning 750 kilometres, irix's privately owned BaSICS cable offers the lowest latency connection (9ms RTD) between Sarawak and the regional hub in Singapore. It consists of six fibre pairs, with a total system capacity of 48 Tbps, landing at the irix data centre where terrestrial networks can carry improved internet access. Additionally, the upcoming SEA-H2X cable, at 5,000 kilometres in length with a system design capacity of 160 Tbps, will be available at the end of 2024, and will radically transform the telecommunications landscape by offering direct connectivity from Sarawak to both Singapore and Hong Kong.

These cables provide national and international point-to-point connectivity and serve as conduits for businesses in the region to benefit from fast, reliable and secure connectivity to better compete on a global scale and drive economic growth.

4. Ensuring Secure and Reliable Internet Access with Anti-DDoS

In an increasingly digitalised environment where cyberthreats are widespread and commonplace, it is an absolute priority for organisations to demand reliable, secure, and scalable Internet Access. irix provides a range of Internet Access Services tailored to meet the needs of both enterprise organisations and service providers.

In addition, irix's state-of-the-art anti-DDoS protection ensures their clients' online operations remain secure and protected against any potential threats. Tapping on Nexusguard's anti-DDoS protection, irix can detect and mitigate any potential DDoS attacks.

5. Promoting High-Performance Internet with an Internet Exchange (IX)

irix's IX is an open-access peering platform powered by Amsterdam Internet Exchange (AMS-IX), the world's leading provider of carrier-neutral Internet exchange services. It serves as a carrier-neutral interconnectivity ecosystem for carriers to exchange traffic, making provision for direct peering at an Internet Exchange (IX) for efficient and cost-effective traffic routing. Peering can improve the speed and reliability of data transmission, resulting in better end-user experiences together with improved network performance, reduced latency, and lower costs.

6. Supporting Sarawak's Vision With Strategic Action Plans


irix capitalises on digital technologies to maximise digital value and consolidate Sarawak's position as Southeast Asia's alternative regional hub. As a certified Network Facilities Provider (NFP), Network Service Provider (NSP) and Application Service Provider (ASP) that is fully licensed by the Malaysian Communications and Multimedia Commission (MCMC), irix demonstrates a commitment to support the state's digital economic strategy.

The construction of the Sarawak International Internet Gateway (SIIG), for instance, signals irix's commitment and competence to grow this emerging connectivity hub.

By fully unleashing the potential of this digital infrastructure, Sarawak can further develop next-generation telecommunications and connectivity infrastructure to meet future demand, bridge the digital divide, become the regional telecommunications gateway for Borneo and elevate its digital workforce to support a growing digital ecosystem.

irix's key product portfolio includes:

1. Colocation
2. Connectivity
3. Internet Access
4. Internet Exchange

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Who Will Be the Provider of Malaysia's Second 5G Network?

Malaysia will be shifting from its existing single wholesale network model to embracing a dual 5G network to address industry concerns of unfair pricing and lack of transparency under the state-controlled Digital Nasional Berhad (DNB), a special purpose vehicle established by the government to deploy and manage the country's 5G network.

In May, Communications Minister Fahmi Fadzil said that a new entity will be established after the country reaches 80% coverage to deploy the country's second 5G network. A second network will increase overall capacity to support the country's digital ambitions and address concerns about single-point failures.

"We are ensuring interoperability so in case one network were to be affected, for whatever reason, there's a fallback network," he said. "The switch from a single to a dual wholesale network would be implemented in line with global practices."

Currently, DNB has reached 57.8% coverage, with coverage expected to reach 80% by the end of the year, when about another 2,000 transmitter sites are expected to be built.

More Than One Entity for 5G Networks

In July 2021, Ericsson won a \$2.5 billion tender to provide equipment for Malaysia's sole 5G network under DNB. With this new development, Fahmi confirmed that the contract with Ericsson remains binding. However, an open tender to award a provider for a second network will take place.

Amid reports that Huawei is interested in building Malaysia's 5G network, the US and the European Union have warned the Malaysian government against permitting Chinese telecom providers to participate in the tender, citing risks to national security.

It has been suggested that the use of Chinese telecommunications equipment could threaten the country's incoming investments from the EU and the US. On the other hand, there could be pressure from China to permit the use of Chinese equipment.

Responding to geopolitical tension between the East and West, Fahmi expressed that Malaysia will make its decision independently, based on a provider's ability to match the country's technology requirements, and will not succumb to foreign pressure.

DNB was established under former Prime Minister Muhyiddin Yassin. Under his administration, the state-owned vehicle owns Malaysia's single wholesale 5G network and all 5G spectrum. Last October, local telcos entered into respective 5G agreements with DNB. 35% is owned by the government, while the remaining 65% is divided between Digi Telecommunications, Celcom Axiata, Telekom Malaysia and YTL Communications. On the other hand, Maxis did not invest in DNB, while U Mobile signed an access agreement to provide 5G services to subscribers even though it does not have stakes in DNB.

After Prime Minister Anwar Ibrahim took office in November 2022, he called for a review of Malaysia's future 5G deployment and management.

Malaysia's 5G journey has not been smooth sailing. In 2021, local telcos did not see eye to eye with the former government's decision to set up DNB over auctioning 5G spectrum as a practice carried out by most countries. Eventually, all telcos finally agreed to buy stakes in DNB, only to have two telcos retract their decision.

Finally, all local telcos are agreeable with the government's decision to pursue a dual network and are on board with the government's 5G plan. In a press release, Maxis welcomes the government's decision to implement 5G under two networks and is committed to playing a more direct role in the country's 5G implementation, leveraging its expertise, resources and existing infrastructure.

U Mobile noted that "the upcoming shift in 5G network model would increase efficiencies and also encourage greater adoption for both consumers and enterprises."

In a statement released, CelcomDigi, the merged entity between Digi Telecommunications and Celcom Axiata, announced that it has terminated the respective agreements of its subsidiaries to subscribe for a 12.5% stake each in DNB. However, this does not affect their ability to support 5G services to subscribers.

"The termination of the respective SSA will clear the path for CelcomDigi to participate in any new process, including equity participation, together with the industry."

The telco expressed "the need for the efficient rollout of 5G based on the new enhanced model to provide wide and comprehensive coverage, encourage adoption and ensure affordability of 5G services for all Malaysians." The telco looks forward to leveraging its experience and resources to support the delivery of the next phase of Malaysia's 5G journey.

Meetings will be held with local telcos to discuss this further. Moving forward, Malaysia has to reconsider its future 5G trajectory, ensuring a well-thought-out plan that balances diplomacy within the East and West.¹¹



A second network will increase overall capacity to support the country's digital ambitions and address concerns about single-point failures





Embracing the Future: Asian Countries Progress Towards Digital Transformation

The Asia-Pacific region is home to some of the world's most dynamic and innovative economies. These economies have swiftly transformed into digital economies in recent years, owing to the use of new technologies such as artificial intelligence, big data and the Internet of Things.

This technological advancement is having a significant impact on many parts of life in Asia, from how people work and learn to how they shop, socialize and receive healthcare. It also opens up new options for businesses and governments, contributing to economic growth and prosperity.

Asian countries are approaching digital transformation in a variety of ways. Some countries, such as Singapore and South Korea, are pioneering the adoption of innovative technologies. While others are still in the early stages of digital transformation, as is the case in India.

Countries in Asia recognize that digital transformation necessitates collaboration between the public and private sectors. Governments

throughout the region have launched ambitious efforts to promote technology innovation and digitization. Singapore's "Smart Nation" plan, for example, intends to turn the country into a connected, data-driven society through the use of technologies such as artificial intelligence (AI), the Internet of Things (IoT) and big data analytics.

In the 2023 Smart City Index, published by the Swiss business school Institute

for Management Development (IMD), Singapore ranked first among all countries in Asia in terms of becoming the smartest city based on how they employ technology to address the difficulties they confront in order to attain a higher quality of life. Out of 141 countries, Singapore was considered the seventh smartest in the world, even being hailed as one of the "super champions" because of its continuously improved performance.

Meanwhile, in Korea, the Digital New Deal has aided economic recovery, improved industry foundations, and influenced people's lives. Under the Action Plan 2022, the Korean government planned to accelerate digital transformation, targeting to invest a record-breaking 9 trillion won in the program. These were allocated to promote the integration of Data, Network and Artificial Intelligence (D.N.A.) throughout the economy to advance non-contact infrastructure, develop hyper-connected industries, including metaverse and digitize social overhead capital (SOC).

To achieve greater D.N.A. integration, the government planned to make more data publicly available, apply 5G and AI to varied industries such as manufacturing, and manage smart public services such as granting mobile driver's licenses.

Investment in Research and Development

The significant investment in research and development (R&D) in Asian countries is one of the key components in driving digital transformation. China, Japan and South Korea have regularly given substantial funds to promote R&D programs and cultivate cutting-edge technologies. These expenditures have resulted in ground-breaking advancements in fields such as artificial intelligence, robotics and biotechnology.

With its extensive investment in research, China, for example, has been at the forefront of AI advancement. The country's artificial intelligence (AI) business is thriving, with companies such as Baidu, Alibaba and Tencent leading the way in AI-powered apps and technologies. China's advances

in facial recognition, natural language processing and self-driving cars have raised the bar for the global AI environment.

Digital Infrastructure Development

The government of India's "Digital India" project has allowed public-private collaborations to accelerate digital transformation. Through this program, the government has cooperated with technology companies and startups to deliver digital services to residents, enhance access to technology in rural areas and encourage digital literacy. The project has seen the birth of multiple successful companies in industries such as e-commerce, fintech and healthcare, all of which have contributed to India's digital transformation path.

A recent report by the International Data Corporation (IDC), "Digital Transformation Adoption — Industry Priorities and Focus Areas," shows that 69% of all organizations in India identify as "digital businesses," indicating that they either have a well-defined digital strategy supported by widespread implementation of digital technologies throughout their operations or they are actively undergoing a transformation process to enhance their digital capabilities. In contrast, 22% of enterprises do not perceive themselves as digital businesses, indicating a lack of focus on digitization. Finally, the remaining 9% are classified as "digital native businesses," which means they were designed and created with a significant emphasis on digital technologies from the start.

Despite the fact that Indian firms began their digital technology adoption journey later than their Asia-Pacific and worldwide competitors, they now have a greater percentage of digital strategy adoption. The considerably higher adoption rate can be attributed to a variety of causes, including government regulations encouraging the use of digital technologies, competitive pressures and lessons learned and experiences gained from other countries that have undergone digital transformation.

"In a world of constant disruption, the capability of an organization to not

only respond to the disruption but also flourish will determine its success in the market. Therefore, it is critical to analyze what went wrong and constantly improve. Keeping a close eye on the macroeconomic factors that impact businesses and staying technically updated can be practiced. This practice is relevant to tech suppliers and tech buyers," said Rithika Ponnala, senior research analyst at IDC India.

Asian countries have made significant progress in their digital transformation efforts. They have risen to the top of the global digital landscape thanks to strategic government initiatives, significant investment in research and development, strong public-private partnerships, a focus on digital infrastructure and skill development, and a culture of innovation and entrepreneurship. As they continue to negotiate the digital age's difficulties and opportunities, these countries are set to create the future and inspire others on their journey to digital transformation. **TR**



The significant investment in research and development (R&D) in Asian countries is one of the key components in driving digital transformation



Airtel IoT to Power Matter AERA Motorbikes



In a major collaboration aimed at revolutionizing the electric mobility sector in India, Matter Motor Works, a technology-led innovation start-up, has partnered with Bharti Airtel, one of India's leading telecommunications service providers. The partnership aims to deploy Airtel's IoT (Internet of Things) solution on Matter AERA, India's first and only geared electric motorbike.

Airtel will enable advanced automotive-grade E-Sims (Embedded SIMs) on all Matter AERA bikes as part of the agreement. Pre-orders for these cutting-edge electric motorcycles began on May 17th. In the beginning, 60,000 Matter AERA motorcycles will be outfitted with Airtel E-Sims, which include enhanced IoT capabilities, providing a smart and connected riding

experience on Airtel's superior pan-India network.

Over the next three years, Matter Motor Works plans to build over 300,000 AERA bikes. Real-time tracking of these cars will be feasible due to Airtel's powerful IoT technology, known as the "Airtel IoT Hub." Furthermore, the IoT platform will use advanced analytics to monitor the operation of the bikes while ensuring high dependability and telco-grade security.

Harish Laddha, CEO, Emerging Business, Airtel, commented on the partnership, saying, "Airtel is delighted to partner with Matter Motor Works and offer best-in-class connected mobility solutions to their consumers using our cutting-edge IoT solutions. As the country embarks on its ambitious goal to reduce its carbon footprint, green mobility will play a critical role in helping India achieve its net-zero goals. We look forward to this partnership, to setting new benchmarks and demonstrating how technology can enable efficient services and solutions for companies

that embrace technology. Airtel continues to strongly drive the IoT agenda and is currently working with a whole host of companies in the industry, including electric vehicles, automotive, utilities, logistics and fintech. We are confident that in the months to come, Airtel will be a critical player in India's IoT journey."

"The Internet-enabled motorbike has the power to curate and redesign connected experiences, making Matter's AERA the smart bike of the future. We are extremely delighted to partner with Airtel to start our journey of connectivity on the move, deploying the power of IoT for continuously enhancing experiences," added Matter founder and CEO, Mohal Lalbhai.

This collaboration between Matter Motor Works and Bharti Airtel marks a significant advancement in India's electric mobility environment. The firms hope to provide riders with a seamless and highly advanced riding experience while contributing to the country's sustainable development goals.

SpaceX Successfully Launches SATRIA Satellite



SpaceX, a company known for manufacturing and deploying spacecraft and providing satellite communications, has successfully launched a new Indonesian communications satellite as part of a project called SATRIA.

The project, which costs US\$550 million, aims to provide high-speed internet access to schools, medical centers and public and government facilities across Indonesia. The satellite is designed to improve broadband access across thousands of islands in the country's vast archipelago.

While approximately two-thirds of Indonesia's 280 million population already uses the internet, connectivity is limited in the country's underdeveloped eastern islands. The satellite launch took place on June 18.

Thales Alenia Space, a company that provides space-based systems such as satellites and ground segments for various telecommunications and exploration purposes, built a satellite. The satellite will use ion thrusters to circularize its orbit at an altitude of approximately 35,888 kilometers above the equator at 126 degrees east longitude.

According to the news, satellites at this geosynchronous altitude take 24 hours to complete one orbit, which allows them to rotate in sync with the Earth and appear stationary in the sky. This feature enables the use of

fixed antennas on the ground, which simplifies the infrastructure required to send and receive data. The satellite is expected to operate for at least 15 years.

The SATRIA project is a public-private partnership between the Indonesian government and a consortium led by satellite operator PT Pasifik Satelit Nusantara (PSN).

The launch of SATRIA has already received a lot of media attention, which is not surprising considering the impressive statistics. SATRIA has a throughput of 150 gigabytes per second and will connect almost 94,000 schools, nearly 50,000 village offices, various government facilities and thousands of hospitals and medical facilities across Indonesia, the fourth most populous country in the world.

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AIS Partners With FTI to Upgrade Thai Manufacturing Industry



The Federation of Thai Industries (FTI) has collaborated with AIS, the leading mobile phone network in Thailand, to deliver cost-effective solutions to Thailand's SMEs. FTI finds that SMEs need to be migrated to the Industry 4.0 Platform to improve manufacturing capabilities and increase productivity, but the current platforms used are somewhat expensive. Thus, partnering with AIS will offer more affordable solutions to improve factories.

AIS is an operator that is adapting the potential of intelligent 5G networks to update the industry and strengthen its position as a leader in digital services and solutions. These are the most recognized among industrial firms and SMEs, and they are available to connect every sector in order to produce mutual growth in the ecosystem economy. AIS has just signed a MoU with FTI with the primary goal of assisting operators of medium to small-

sized industries. The agreement will allow SMEs to have access to new capabilities that will allow them to reduce expenses and improve the efficiency of their manufacturing lines and machinery. This involves improving the precision of analysis, measurement, and monitoring systems using digital Internet of Things (IoT) tools and providing AIS 5G Manufacturing Platform solutions on the PARAGON Platform.

AIS Chief Executive Somchai Lertsutiwong noted, "It is because we are confident that 5G is the essential motor for industry and a growth engine for the digital economy, that we bid for the most possible 5G spectrum in recent auctions. We are also on track with our ongoing investments to build resilience into our digital infrastructure, a key foundation of the mutualistic ecosystem economy. Achieving this goal involves ongoing collaborations with every sector.

The AIS 5G Manufacturing Platform is built on the PARAGON Platform, a 5G platform that combines 5G management, edge computing, cloud and applications into a single platform. This may be self-adjusted to fit with the characteristics of

the business and the budgets available in each period, and it works in tandem with IoT technology driven by a 5G Private Network. This can handle manufacturing challenges and deal with production line concerns in real time for the industrial sector. It is also a one-stop shop since the AIS 5G Manufacturing Platform can assess efficiency and monitor machinery operation to decrease management costs, promote a competitive edge and enable operators to manage their operations in a sustainable manner.

Kriengkrai Thiennukul, president of the Federation of Thai Industries, commented, "The FTI is a key organization supporting the Thai industrial sector and SMEs operators. Our membership base covers 45 industrial sectors. FTI's mission is to enhance resilience for Thai industry, strengthen Thailand and power the sector to Industry 4.0. This collaboration with AIS will enable SMEs to deploy the AIS 5G Manufacturing Platform to manage factory systems and boost competitive capabilities. Manufacturing processes will be made more efficient, which will eventually level up Thai industry to Industry 4.0."

True Digital, UOB Thailand to Use AI to Improve Financial Inclusion



UOB Thailand has partnered with True Digital to transform its credit risk analysis and streamline the approval process for TMRW credit card applications using AI and analytics technology. The partnership intends to serve young professionals who have recently entered the workforce and may not have enough financial history to apply for regular credit cards.

True Digital's "Insight Analytics" service will be used by UOB Thailand's unique TMRW app, an all-in-one banking platform powered by cutting-edge

technology such as data analytics, Artificial Intelligence (AI) and machine learning models. This strong analytics capacity will provide alternative data insights to analyze applicants' financial stability and resilience, allowing UOB to evaluate credit risks other than traditional financial track records.

Yuttachai Teyarachakul, head of personal financial services, UOB Thailand, said, "Through the development of [the] AI-driven UOB TMRW digital banking app, UOB Thailand strives to provide the most relevant and personalised services for our digital banking customers. This partnership with True Digital complements our continued efforts in strengthening our digital capabilities and enables us to better serve the unique needs of each customer."

Meanwhile, Natwut Amornvivat, chairman of the board, True Digital Group Co., Ltd., commented, "The collaboration between True Digital and UOB is aligned with our business concept that emphasises the use of data analytics to create value for customers. True Analytics' 'Insight Analytics' service incorporates our expertise in data analytics and AI for smart analytical capabilities and are operating with strict compliance under [the] Personal Data Protection Act to collate lifestyle and payment insights through our True Analytics platform that can complement UOB's current capabilities to provide financial services that can best address their customers' needs. At the same time, this will help to bridge the gap and provide more opportunities for people who may not be able to access banking services."

ZTE Successfully Hosts 5G+AI Empowering Financial Technology Innovation Forum



ZTE Corporation has successfully hosted the "5G+AI Empowering Financial Technology Innovation Forum" in collaboration with the China Academy of Information and Communications Technology (CAICT), the China Association of Communications Enterprises and DAHAN TRICOM during MWC Shanghai 2023.

GSMA, in collaboration with the China Academy of Information and Communications Technology, the China Association of Communications Enterprises, China Telecom, China Mobile, China Unicom, and other prominent organizations and enterprises in the communication and financial sectors, brought together over 300 experts and representatives from domestic and international financial

institutions, technology enterprises and communication industry entities. Notable participants included the Asian Financial Cooperation Alliance, China UnionPay Data, China Pacific Insurance, ZENITERA and DAHAN TRICOM. The purpose of this gathering was to explore the profound integration of 5G applications and financial services, focusing on the utilization of 5G Messaging and 5G New Calling as exemplary applications. The ultimate goal was to facilitate the evolution of financial services from digitalization to intelligence, thereby better serving the development of the digital economy and enhancing people's well-being. This conference represents a premier event at the forefront of 5G Messaging and New Calling, with comprehensive coverage within the financial industry, establishing a highly influential platform that bridges the communications and financial sectors.

ZTE plays a crucial role in assisting operators in building advanced commercial 5G messaging and new calling networks. Ms. Cui Li, chief development officer of ZTE, stated, "The financial industry is at the forefront of

digital transformation, and the emergence of 5G technology has further fueled innovation in the digitalization of financial services. ZTE is committed to becoming a Driver of Digital Economy, focusing on strengthening core competencies, driving continuous technological innovation and empowering industries and ecosystem partners. We leverage 5G technology to better serve the digital transformation of the financial industry. In terms of 5G messaging, ZTE's 5G Messaging platform currently serves 55% of subscribers nationwide. Through ZTE's openlab, we have established partnerships with over 70 entities and conducted more than 400 5G messaging application verifications. Regarding 5G New Calling, ZTE is the only vendor offering end-to-end solutions encompassing terminals, networks and applications. We have launched the world's first commercial terminal, enabling operators to lead pre-commercial operations. Additionally, we have collaborated with China UnionPay Data, China Pacific Insurance and ZENITERA to develop three exemplary applications in the banking, insurance and securities industries."

PLDT Global Brings International Technology Solutions to the Philippines



PLDT Global Corporation (PLDT Global) strengthens its commitment to bringing international technology solutions to the Philippines as well as supporting the country's hope to become a hyperscaler hub in Asia.

As demand for data and Information and Communication Technology (ICT) services continues to foster growth for PLDT's enterprise business, PLDT Global contributes to this upward trend by registering a significant increase in revenues from Enterprise International Private Leased Circuit (IPLC), data centers

and cross-connects in Asia Pacific, and carrier businesses.

"PLDT Global remains committed to providing innovative platforms and channels to our global network of carriers and technology partners, connecting them to a huge market of potential clients not only overseas but also in the Philippines," according to PLDT Global's President and CEO, Albert V. Villa-Real.

Leveraging PLDT's most extensive fiber infrastructure, PLDT Global seeks to open more opportunities for the country to deliver the connectivity needs of hyperscalers and foreign investors who want to locate in the Philippines.

PLDT's total fiber footprint spreads over 1.1 million kilometers, with over

231,000 kilometers of international fiber and more than 874,000 kilometers of domestic fiber by the end of March 2023. This fiber infrastructure also supports Smart's mobile network, covering 97% of the population with 3G, 4G/LTE and 5G technology.

"We strive to power the nation's economic backbone by serving the connectivity and ICT needs of our customers with our unparalleled fiber optic network infrastructure. Through PLDT Global, we hope to tap the global market and encourage more foreign direct investments to the Philippines to strengthen our position as a Tiger Cub Economy in Asia," stated First Vice President and Head of PLDT and Smart Enterprise and International Business Groups, Mitch V. Locsin.



The Philippines Succeeds Against Text Scam Surge

The Philippines' actions to combat text scams have made enormous progress after complaints dropped to over 90% during the first quarter of 2023.

In 2022, Filipinos grew agitated at the receipt of copious text scams and unsolicited messages, as scammers seemed to take their nefarious actions to the next level. Victims of text scams and spam were alarmed; most were sharing on social media their worries while trying to reach

authorities for remedies. Some claimed to have received messages from unknown contact numbers displaying their full names.

Understanding the Risk of Text Scams

Scammers are known to send fake messages in order to deceive people into providing their personal

information, such as passwords and bank account or social security numbers, in order to gain full access to their emails, banking information and more.

They often employ dubious tactics like getting people to click on a link, which will then lead to a fake website. Through such links, cybercriminals



can steal data, money and other personal information from their unwitting victims.

Any mobile phone user is susceptible to receiving messages from unfamiliar sources offering promotions that are too good to be true.

According to reports, in 2022, such scammers were surprisingly able to include the names of phone users in their text templates for a more personalized approach. Several complaints showed victims being addressed by their real names, making the scam that much more credible.

Measures to Combat Scams and Spam Messages

To tackle this growing concern, Philippine President Ferdinand R. Marcos Jr. signed Republic Act No. 11934, known as the Subscriber Identity Module (SIM) Registration Act, on October 10, 2022, which requires Public Telecommunication

Entities (PTEs) or direct sellers to require end users of SIM cards to present valid identification documents certifying their identities.

PTEs are also obliged to submit a verified list of their authorized dealers and nationwide agents to the National Telecommunications Commission (NTC) on a quarterly basis.

In accordance with this law, SIM card owners were given an initial deadline of April 26, which has been extended to July 25, to register their SIM cards before they can utilize them. This registration requirement encompasses all SIMs — mobile phones and prepaid Wi-Fi kits — as well as those in electronic or card form.

A SIM will not be activated unless it is registered, preventing users from using its services. SIM card registration aims to curtail various forms of online and mobile fraud by allowing authorities to track the identities of scammers and their illegal activities.

Local telecommunications companies are also collaborating with the national government to further protect users' data and crack down on cybercriminals.

PLDT Inc. and its wireless unit, Smart Communications Inc., are intensifying their efforts against fraud. "There's no recent cybersecurity incident that may have allowed criminals to breach our infrastructure and steal customer data to be targeted in their fraudulent activities," said Angel Redoble, FVP and chief information security officer of PLDT and Smart. "We believe that the recent smishing attacks are being perpetrated by local operators. We continue to work with law enforcement agencies to track down the criminals."

Globe Telecom Inc.'s mobile wallet service, GCash, also continues its initiatives to address text scams. GCash has removed clickable links from all emails and text messages sent to customers, ensuring they no longer receive messages containing website links.

The Bangko Sentral ng Pilipinas has also called on its regulated financial institutions to implement strong actions in fighting against cyber fraud and other attacks on financial services.

"These changes are in line with our own #SafeWithGCash campaign that aims to ramp up investments, partnerships, as well as educational and awareness programs on keeping our services safe and secure for our 69 million users," stated Martha Sazon, president and chief executive officer of GCash. "The safety of our users is our utmost priority, and we continue to invest and implement world-class security measures to protect customer data."

Current Results of Ongoing Fight Against Scammers

By the first quarter of 2023, the NTC had confirmed a substantial reduction in the number of complaints related to text scams. The implementation of the SIM Registration Act led to a significant drop from 1,500 complaints per day to just 100.

Additionally, Globe, in conjunction with the enforcement of the SIM Registration Act, actively carried out its campaign against online fraud, intercepting approximately 1.1 billion scam messages during the first three months of the year.

Through Globe's Stop Spam portal, they reportedly blacklisted a total of 22,455 SIMs from January to March of this year.

Meanwhile, in February, Smart blocked over 38,000 mobile numbers involved in illegal activities. PLDT also confirmed that its Cyber Security Operations Group (CSOG) prevented more than 1.4 billion attempts to open malicious sites in the same month, including 200,000 pieces of content related to the online sexual abuse and exploitation of minors.

Finally, as of June 5, 2023, the NTC had recorded over 98 million registered SIM cards in the country, with the highest number coming from Smart, followed by Globe and DITO, respectively. **TR**



Rapid Rise of Mobile Payments in Asia Pacific Signals Cashless Future

Mobile payments have revolutionized financial transactions by providing convenience, speed and security. In the rapidly evolving technology landscape of Asia Pacific, mobile payments are not just a passing trend but a powerful force driving financial inclusion and economic growth. Looking ahead, it is clear that mobile payments will play an increasingly crucial role in shaping the financial landscape of the Asia-Pacific region.



Asia Pacific has been a hub for mobile payment innovation, with countries like China and South Korea leading the way. Consumers in

these countries have rapidly adopted mobile wallets and payment apps, leading to a cashless society where even street vendors accept digital payments. This trend is expected to continue and expand throughout the region.

Pushing for Cashless Countries

Furthermore, China has become the leader in mobile payment usage over the last 20 years. In 2021, more than 87% of China's internet users were using mobile payment services. This success can be attributed to high

rates of internet usage, a supportive regulatory framework and the government's push for a cashless society. The COVID-19 pandemic has also played a role in the introduction of the digital yuan to replace physical bank notes.

The two leading mobile payment platforms in China are Alipay and WeChat Pay, each with over a billion users. Alipay is a mobile payment app and digital wallet that offers additional services such as ordering a taxi, applying for a credit card and buying insurance. WeChat Pay is integrated within the instant messaging app WeChat and allows users to leave their physical wallet at home and use only their smartphone or smartwatch.

These payment platforms allow users to make purchases in stores or online and even pay for things like transportation and utility bills. Due to their convenience and flexibility, mobile payments have become an essential part of everyday life for many Chinese consumers.

Meanwhile, South Korea is seeing a rise in digital payment transactions, indicating a growing trend towards cashless payments. With one of the highest rates of smartphone usage in the world, more South Koreans are turning to mobile payment methods. The Digital Payments segment is expected to reach a total transaction value of US\$205.40 billion by 2023, with Digital Commerce being the largest segment at US\$165.40 billion.

There are three payment apps in South Korea: KakaoPay, Naver Pay and Toss Payments. KakaoPay is a mobile payment and digital wallet service that offers a range of financial services, while Naver Pay provides QR-based payment solutions for businesses. Toss Payments is an app-based platform for banking, investment and insurance management that offers a simple remittance service. These apps are leading the way towards a wallet-less society where all economic activity can be pursued through a smartphone.

Mobile payment innovation has been observed in neighboring countries

to varying degrees. Countries like Singapore, Malaysia and Thailand have seen the rise of mobile payment solutions such as GrabPay, Boost and TrueMoney, which have become popular among users for their convenience in making payments and transferring money. These countries have also witnessed an increase in the use of QR code-based payments, making it easier for merchants to accept mobile payments.

Mobile Transactions Surpassing the Cash Transactions

In 2020, the Asia-Pacific region had a population of over 3.5 billion, which is about 48% of the world's total population. Boku predicts that the use of mobile wallets in the region will increase from 42.1% (1.8 billion users) in 2020 to 58.6% (2.6 billion users) in 2025. Additionally, the transaction volume is expected to increase from 377 billion in 2020 to 636 billion in 2025, and the transaction value is expected to increase from US\$4.1 trillion in 2020 to US\$7 trillion in 2025.

Additionally, Japan had a mobile wallet penetration rate of 70.6% in 2020, and it is expected to reach 98.6% in 2025. The Japanese market is projected to have over 123 million users by 2025, and this number is expected to continue growing. The Tokyo Olympics in 2021 encouraged more cashless payments to make Japan more tourist-friendly, resulting in the widespread deployment of contactless point-of-sale terminals and the promotion of mobile wallets. The increasing popularity of smartphones, high unbanked rates in emerging markets, the rise of e-commerce, security, flexibility and convenience are some of the reasons why people are turning to mobile wallets.

According to Wong Loke Hwee, Boku's vice president and general manager for the Asia-Pacific region, credit card usage is very low in many Asian countries, with less than 10% of the population using them. As a result, credit cards are not meeting the needs of consumers.

Mobile wallets, on the other hand, are already the most popular payment

method in Asia. In 2020, mobile wallets accounted for over 40% of point-of-sale transactions in the Asia-Pacific region, while cash made up only 19.2%. Mobile wallets offer consumers the convenience of online transactions, like credit cards, while also providing the flexibility and ease of use of cash.

Further, Jon Prideaux, CEO of Boku, believes that there has been a significant shift in consumer purchasing power from the West to the East, from established to emerging markets, and from credit cards to mobile payments. To take advantage of the massive potential of mobile-first consumers, merchants need to accept the payment methods that consumers prefer, which are increasingly mobile-based. With mobile payments now surpassing credit cards globally, accepting mobile payments has become a strategic imperative for merchants. **TR**



In 2020, mobile wallets accounted for over 40% of point-of-sale transactions in the Asia-Pacific region, while cash made up only 19.2%





Strategies for Telecom Companies to Thrive in the Dynamic Asia-Pacific Market

The telecom market in Asia Pacific is witnessing unprecedented growth, driven by increasing demand for data and internet services, advancements in digital technologies and rising disposable incomes. As a result, telecom companies are facing intense competition and are constantly seeking innovative strategies to expand their market share.

E **mbacing Digital Transformation**
In past years, the United States has been the global leader in the

telecommunications sector, with AT&T and Verizon dominating the market in terms of revenue. However, Asian businesses have also recently become significant players in the sector. The Asia-Pacific nations have been firmly established on

the globe because of the examples set by China and Japan. Major telecom providers are present in Australia, South Korea, Taiwan, India and Vietnam, enhancing the prominence of the Asia Pacific in the telecommunications industry.

While data services for both mobile and fixed-line were anticipated to continue growing, the income of voice services in Asia has been dropping recently, notably mobile voice. The adoption of 5G, which was expected to account for more than half of mobile connections in developed Asia-Pacific nations by 2025, is beginning to increase among telecom operators.

According to the report, the region has over 2.8 billion mobile subscribers, accounting for more than half of the global mobile subscriber base. The telecom industry in Asia Pacific is highly competitive and is characterized by a large number of players, both local and global. The industry is governed by stringent regulations, and companies have to comply with complex regulatory frameworks in each country.

Innovative Strategies to Expand Market Share

Diversification of products and services is essential for telecom companies to maintain a competitive edge. Companies can offer a range of services, including mobile, fixed-line, broadband internet and enterprise solutions. An example is Singtel, which has diversified its offerings by providing a range of services, including digital advertising, data analytics and cybersecurity.

Another example is the partnership between Singtel and Netflix in Singapore. Singtel offers exclusive Netflix packages to its subscribers, providing them with seamless access to popular streaming content. This collaboration has helped Singtel differentiate itself in the market and increase its customer base.

CEO of Consumer Singapore, Singtel, Mr. Yuen Kuan Moon, said in a statement, "Our focus is to deliver quality content that our customers can access on any connected device at any time using our high-speed fixed and mobile networks. This OTT partnership with Netflix is the first of more to come, and Singtel customers can expect even more interesting content in the months ahead."

Telecom companies can also invest in emerging technologies to expand their market share. Emerging technologies such as 5G, IoT and cloud computing offer significant growth opportunities for telecoms. For example, in the first half of 2022, China Mobile made a total investment of CNY58.7 billion (US\$8.7 billion) in the 5G market.

To elaborate, China Mobile has announced that they have utilized one million 5G base stations, with 300,000 of them being 700 MHz 5G base stations. These stations have served over 263 million 5G network customers and more than 4,400 5G-dedicated network projects. As they continue to expand their 5G coverage, they have adopted a scientific approach to coordinate their 700 MHz, 2.6 GHz, and 4.9 GHz frequency resources to maximize the benefits of each frequency.

Furthermore, China Mobile has been working on developing future 6G technologies and has made progress in this area. They have completed the verification of R16 technology and have played a significant role in the freezing of the R17 standards by leading 50 R17-related projects. They are also leading 24 projects related to 5G-Advanced R18 standards, with a focus on AI-based wireless network architecture, multimedia enhancement and other technologies.

China Mobile has also made advancements in network products, including their proprietary 5G small cells. Regarding 6G, China Mobile has been leading the way in envisioning the demand for this technology and has made breakthroughs in over 10 key technologies. They have also established a 6G collaborative innovation base to drive domestic industrial research.

Adapting to Changing Market Conditions

To succeed, telecom companies must be able to quickly adapt to changing market conditions. This will allow them to position themselves for long-term success in a constantly evolving market. The telecom market

in Asia Pacific offers great growth opportunities for companies that can navigate the competitive landscape and innovate their strategies.

Telecom companies can improve their infrastructure and provide faster, more reliable services by embracing digital transformation and utilizing advanced technologies. This can lead to increased customer satisfaction and opportunities in emerging markets like smart cities and IoT.

It is important for telecom companies to tailor their solutions to meet the unique needs of different markets. By conducting thorough market research and customer segmentation, they can create customized products and services that appeal to consumers. 



The telecom industry in Asia Pacific is highly competitive and is characterized by a large number of players, both local and global



TM to Tap Maxis' Infrastructure to Boost Nationwide Connectivity



To strengthen the nation's digital ecosystem through industry collaboration, TM will access Maxis' 4G Multi Operator Core Network (MOCN), as well as 4G and 2G Domestic Roaming Services, to enhance mobile connectivity nationwide.

MOCN is a radio access network (RAN) sharing mechanism that allows different core networks to share the same RAN. Through this, TM will extend its 4G coverage across the country by leveraging Maxis' RAN infrastructure

and improve Unifi Mobile's population coverage to above 95%.

Maxis will provide approximately 6,800 sites for 4G MOCN and domestic roaming (DR) services and 10,000 sites for 2G DR, greatly benefiting all subscribers in rural and urban areas nationwide.

In a ceremony today at TM headquarters in Cyberjaya, Maxis was represented by its , Goh Seow Eng, while Datuk Imri Mokhtar, Group represented TM.

Through this strategic partnership, TM and Maxis demonstrate a shared commitment to driving innovation, improving customer experiences, and contributing to the advancement of Malaysia's digital landscape.

"This is a significant milestone for Maxis, which represents our capabilities and track record in providing high-quality mobile networks. We look forward to progressing ahead with TM on this initiative. Industry collaboration is the right way forward, as it will ultimately benefit consumers with wider coverage through better cost efficiency and more efficient use of our resources," said Goh.

"We are witnessing an important step in the industry's collaborative efforts towards infrastructure sharing. Our partnership will elevate TM's 4G mobile proposition to deliver exceptional customer experience for home, SME, and enterprise customers. It will complement our 5G offering and pave the way for greater innovation and collaboration to deliver solutions and services for all Malaysians," expressed Datuk Imri.

Converge Embeds AI, Automation In Its Network Operations



Leading Philippine internet and technology solutions provider Converge ICT Solutions Inc. is ushering in a new era in network operations management as it builds a "zero-touch" network operations center. Its network is being outfitted to intuitively and automatically respond to data signals with as little human intervention as possible, which is a giant leap in network operations and maintenance.

"Now that we have the broadest fiber to the home network in the country, we want to install the best technology into the network that will make it an autonomous and self-healing network — capable of observing, monitoring and detecting faults automatically. This ensures that service interruptions to our customers are significantly

reduced and outages are quickly resolved, a 180-degree turnaround from our manual processes," said Converge Chief Network Transformation Officer Paulo Martin Santos.

This end-to-end automation for the entire operational life cycle was initiated through a platform Converge calls NIAP, or the Network Intelligence and Automation Platform, which effectively injects much-needed intelligence and automation into the company's network operations.

Santos also noted that NIAP is now ingrained in network operations, from monitoring to maintenance, trouble ticketing and resolution.

"Take, for example, the day-to-day network maintenance: when a trouble event occurs in the network — for example, a fiber link is down — a deluge of alarms in the thousands comes into the system. In the past, since the equipment used by Network Operations came from different vendors, there was no single view of

the alarms. With the new solution, there is a centralization of alarms in one dashboard, offering ease and convenience to engineers," he added.

Aside from this, the analysis of such trouble events includes an AI-powered correlation and compression of alarms, which lessens the thousands of alarms to a manageable number for an engineer to analyze.

From this stage, the AI powers through the process: once the source of the alarm is identified, a trouble ticket is automatically created. If there is any update to the incident, there is automatic updating to the ticket, and an advisory is made.

These efficiencies also extend to field operations: work orders are applied through the platform, allowing trouble tickets to be assigned to the available engineers, and through an accompanying mobile app, their location and the status of the issue are updated in real-time. Resolutions of tickets are done quicker and more intuitively.

HKT, Check Point to Deliver Managed Cloud Security Services in Hong Kong



Hong Kong Telecom (HKT) has partnered with Check Point® Software Technologies Ltd. to provide managed cloud security services to Hong Kong enterprises. Companies that embrace digital transformation and cloud strategies to stay competitive confront security difficulties such as limited experienced security resources, restricted security expenditures and a requirement for extended protection coverage. Check Point's comprehensive cybersecurity solutions will be incorporated into HKT's Managed Security Services (MSS) offerings to address these concerns.

HKT's MSS portfolio includes an array of managed services such as Managed Cloud Security Services,

Threat Management Service (TMS), DDoS Protection, Managed Firewall and Web Application Firewall, Managed Endpoint Detection and Response (EDR), Managed SASE, Secure SD-WAN and Incident Response. HKT intends to expand its skills in cloud-based workload management and public cloud security by adding Check Point's technology to its cloud security services.

Check Point's CloudGuard technology offers unified security for multi-cloud deployments with improved visibility, intelligence and threat prevention on a single platform. It enables enterprises to avoid risks, accomplish high-fidelity posture management and automate DevSecOps processes, resulting in increased efficiency with multi-cloud security across the development and production stages. CloudGuard's features include cloud network security, cloud security posture monitoring, cloud workload protection, cloud web application and API protection, cloud intelligence and threat hunting.

Furthermore, HKT's ISO 27001-accredited Next Generation

Security Operations Centre (NG SOC) runs around the clock and provides full support to businesses. HKT NG SOC automates alert processing and effectively detects, comprehends and prevents future security incidents by leveraging advanced technologies and best practices such as: Security Information and Event Management (SIEM); Cyber Threat Intelligence (CTI); IT Service Management (ITSM); and Security Orchestration, Automation and Response (SOAR).

Dennis Chung, senior vice president, product marketing and solutions consulting, Commercial Group, HKT, said, "Digital transformation and cloud adoption widen the cyberattack frontline while IT resource constraints are commonly found in most enterprises. HKT is delighted to be the first Managed Cloud Security Service Partner in Hong Kong for Check Point Software. HKT Managed Security Services provide a three-level strategic operational approach that offers security alerts, analysis, forensics and threat hunting, all strictly implemented."

BHPetrol Chooses Maxis to Revolutionize Retail Stations



Boustead Petroleum Marketing Sdn Bhd (BHPetrol) has chosen Maxis to help with their digitalization efforts in order to improve the customer experience at their retail stations. Maxis will be providing their managed SD-WAN technology to power BHPetrol's outdoor payment terminals and Point-of-Sale systems at all their retail stations in Peninsular Malaysia.

SD-WAN is a networking technology that offers adaptable, scalable and affordable connectivity solutions while also providing built-in security measures to protect communication. Maxis has already implemented its SD-WAN technology at over 240 locations and plans to complete implementation at other stations by the end of the year.

Maxis' CEO, Goh Seow Eng, expressed excitement about the partnership with BHPetrol, stating that it allows Maxis to utilize their unique skills and experience in providing advanced networking technologies.

Meanwhile, BHPetrol's CEO, Ir. Azizul Azily Ahmad, believes that the partnership aligns with their

commitment to digitalization and will lead to greater innovation, improved operations, and an enhanced customer experience.

BHPetrol and Maxis are working together to create a futuristic retail experience that requires a fast and reliable network. Maxis SD-WAN can provide this network, and the two companies are also exploring the use of Smart Retail technologies such as shopping behavior analysis, proximity payments, mobile wallet and biometric authentication solutions.

As part of this collaboration, Maxis and BHPetrol are offering exclusive cash rebates to Maxis and Hotlink users until June 30, 2023.

China Mobile Awards Huawei Majority of Contracts



China Mobile has awarded contracts for two 5G networks worth a total of CNY7.8 billion (US\$1.1 billion) to three vendors, with Huawei receiving the majority of the contracts.

The first network will consist of approximately 63,800 base stations operating within the 2.6GHz to 4.9GHz

bands, while the second network will deploy 23,141 sites using the 700MHz band in collaboration with China Broadnet.

In March 2023, China Mobile announced its plans to launch 260,000 5G base stations this year, bringing its total to 1.6 million.

According to the news, Huawei has been awarded contracts worth approximately CNY4.1 billion to install over 45,000 base stations, which is more than half of the total number of stations to be deployed between 2023 and 2024.

The remaining contracts will be divided among ZTE, Ericsson, Datang Mobile and Nokia, with estimated values of CNY2.1 billion (27%), CNY630 million (8.2%), CNY550 million (7.1%) and CNY400 million (5.2%), respectively.

This news is a relief for Huawei, as the company has been facing sanctions from the U.S. and has been excluded from many developed markets' 5G networks due to concerns about security.

TRAI Instructs Telecom Operators to Establish Digital Consent Acquisition Process



The Telecom Regulatory Authority of India (TRAI) has requested telecom operators to create a digital consent acquisition (DCA) for maintaining and revoking customers' access to promotional texts and calls.

"Considering [the] volume of work involved, TRAI has allocated two months time to develop such facilities by all access providers and thereafter implement it in a phased manner," TRAI said in a statement. TRAI issued this directive under its Telecom Commercial

Communication Customer Preference Regulations, 2018 (TCCCPR-2018).

This marks the withdrawal from the existing system where consent is obtained, managed and maintained by several entities such as banks, other financial institutions, insurance companies, trading companies, business entities and real state companies, which are referred to as principal entities (PEs) in the TCCCPR, 2018 Regulations.

"Therefore, it is not possible for the access providers to check veracity of consents. Further, there is no unified system for customers to provide or revoke the consent," TRAI added.

To further address these challenges, TRAI highlighted that the DCA process should include features to seek, maintain and revoke customer consent in line with the procedures outlined in the TCCCPR-2018 Regulations. The gathered consent data will be shared on a digital ledger platform (DLT) for verification by all access providers.

The telcos have also been instructed to use a common short code, 127xxx, for sending consent-seeking messages.

"These messages should clearly indicate the purpose, scope of consent and the name of the principal entity/ brand. Only whitelisted URLs, APKs, OTT links and callback numbers should be used in these messages."

Aside from that, telcos have been asked to establish an online SMS/IVR facility where customers can register their unwillingness to receive any consent-seeking messages made by principal entities (PEs).

"In the first phase, only subscriber-initiated consent acquisition has been permitted by TRAI. Subsequently, PE-initiated consent acquisition shall be permitted. Initially, Principal Entities belonging to the Banking, Insurance, Finance and Trading related sectors shall be on-boarded to initiate Consent Acquisition process and the remaining sectors shall be onboarded subsequently," the telecom regulator said.



Shared Difference: The Variety of Telecom Regulations in Asia

The telecommunications sector is critical to driving economic growth and facilitating social connectivity in today's interconnected world. Consequently, each Asian country takes a different approach to telecom regulation, reflecting its distinct political, economic and social contexts.

China: Finding a Balance Between Control and Innovation
The government actively regulates China's

telecommunications sector through the Ministry of Industry and Information Technology (MIIT). The government has considerable influence over infrastructure deployment, network access and spectrum allotment. State-owned firms include major telecom

operators such as China Mobile, China Unicom and China Telecom. China's regulatory framework strives to strike a balance between implementing regulation and promoting innovation, as indicated by the country's quick adoption of 5G technology. However,

in this highly controlled environment, concerns about data privacy and constraints on freedom of expression continue.

Japan: Weighing Regulation and Innovation

The Japanese telecoms industry operates within a regulatory framework that also seeks to achieve a fine balance, in this case between regulation and innovation. The sector is overseen by the Ministry of Internal Affairs and Communications (MIC), which implements policies to stimulate competition, invest in infrastructure and defend consumer interests. The regulatory framework in Japan has resulted in a highly developed telecommunications infrastructure, cutting-edge technologies and competitive services.

The objectives of the Telecommunications Business Act are to ensure proper and reasonable operations, promote fair competition, ensure that telecommunications services are provided smoothly and protect the interests of such users. They further ensure the sound development of telecommunications and convenience for citizens and advance the overall public good. However, consumer concerns about market dominance and restricted options continue.

India: Promoting Competition and Consumer Rights

With its enormous and diversified population, India has chosen a regulatory strategy that emphasizes fostering competition, consumer rights and accessibility. The industry here is governed by the Telecom Regulatory Authority of India (TRAI), which also sets rules and policies to promote fair competition, avoid monopolies and protect the interests of consumers. The National Digital Communications Policy 2018, which aims to give all citizens access to broadband, is just one of the efforts that the government of India has put into place to increase access and affordability. But problems still exist, such as those with spectrum allocation, infrastructure development and service quality.

In May, TRAI published new regulations to address the growing problem of unwanted spam calls and messages, which are expected to change how telecom businesses operate. As a result of the new legislation, all telecom companies must take precautions to prevent their customers from receiving unsolicited commercial communication (UCC). These filters allow the system to recognize and prevent promotional and fraudulent communications, which are routinely used by deceptive predators to deceive clients.

South Korea: Leading the Way in Technological Advancements

South Korea is well-known for its technology-focused accomplishments and has one of Asia's most advanced telecommunications sectors. In 2019, South Korea placed second out of 34 countries, with a score of 93 on the Asian Telecoms Maturity Index. This rating measures and ranks the relative maturity of the telecoms industry in all 34 Asian countries. South Korea's notable placement is due to its very high mobile and mobile broadband penetration, as well as its very high fixed broadband penetration.

The Korea Communications Commission (KCC) supervises the industry with the goal of encouraging competition, consumer protection and innovation. The government actively pushes 5G infrastructure investment and has set lofty aspirations to become a worldwide leader in the digital economy. However, concerns have been raised concerning major companies' dominance and the potential exclusion of smaller market players.

Singapore: Fostering an Enabling Environment

Singapore has established itself as a regional communications and information technology powerhouse. The Infocomm Media Development Authority (IMDA) governs the industry by creating an environment conducive to innovation, competition and consumer protection (IMDA, 2022). Singapore's regulatory environment fosters infrastructure investment, market competitiveness and the adoption of innovative technology. The proactive stance of the government has

resulted in widespread internet access and the effective implementation of many initiatives, including a nationwide fiber broadband network.

Asian telecom regulations show the many approaches governments have sought to balance control, innovation, competition and consumer protection. Understanding these legislative frameworks is important for both businesses and consumers since they influence the availability, quality and accessibility of telecommunications services in each country.

As the telecom industry evolves, regulatory agencies must modify their frameworks to handle evolving trends and concerns. Collaboration among governments, industry stakeholders and consumer advocacy groups can help create a dynamic regulatory framework that promotes innovation, safeguards consumer rights and promotes a competitive and inclusive telecommunications sector. **TR**



As the telecom industry evolves, regulatory agencies must modify their frameworks to handle evolving trends and concerns





Transformation Today: Improved Connectivity in India With 5G

Despite several roadblocks at the outset of its implementation in 2022, India's 5G rollout has so far been notable and smooth. Government efforts such as Digital India, together with the initiative of telcos such as Airtel, Reliance Jio and Vodafone Idea, have contributed to the deployment of 5G in the country. Because of these factors, data consumption and connectivity have exponentially increased across the country.

India's mobile-first internet has seen enormous development, fueled by low pricing and the simple availability of low-cost 4G devices, and it continues to do so in the 5G era.

According to reports by Counterpoint Research, the Indian government's initial recommendation was to deploy at least 10,000 5G BTSS (base transceiver stations) every week. By December 2022, the cumulative number of 5G BTSS deployed was around 22,000, with

a weekly average of 2,500 5G BTSS. As of March 2023, Jio and Airtel had successfully deployed 116,204 5G BTSS across the country.

A strong infrastructure is also required for the successful introduction of 5G

technologies. Telecom businesses must invest in the modernization of their existing networks, which include towers, fiber-optic cables and data centers. India has made great progress in this regard.

India's telcos have been aggressively striving to extend their infrastructure to handle 5G. They have been using Massive MIMO (Multiple-Input Multiple-Output) technology, increasing the density of their tower networks and investing in fiber-optic connectivity. These initiatives are critical to ensuring that the underlying infrastructure can support 5G networks' enhanced speed, capacity and latency needs.

In April 2023, Airtel announced that its ultra-fast 5G service is now available to customers in over 3,500 cities and towns in the country. From Katra in Jammu to Kannur in Kerala, Patna in Bihar to Kanyakumari in Tamil Nadu, Itanagar in Arunachal Pradesh to the Union territory of Daman and Diu, all the key urban and rural parts of the country have unlimited access to Airtel 5G Plus service.

Randeep Sekhon, TO, Bharti Airtel, said, "We're excited to cover large parts of the country with the power of 5G. Bridging every town and key rural areas in India by September 2023 remains our commitment, as we continue to add 30-40 cities/towns every single day. We are witnessing a rapid adoption of 5G amongst customers both in urban and rural India. Airtel 5G Plus will act as the propeller that will power ahead the next generation of digital connectivity, creating new business models and revolutionizes industries such as education, healthcare, manufacturing, etc. all along the way."

Last May, Airtel celebrated other milestones, with their subscribers from Mumbai, Tamil Nadu, Andhra Pradesh and Telangana surpassing the 2 million mark.

Commenting on the milestone, Tarun Virmani, CEO Tamil Nadu, Bharti Airtel, said, "We are witnessing a rapid adoption of Airtel 5G Plus in Tamil Nadu. I am thrilled to share that we have surpassed 2 million customers

on our ultrafast Airtel 5G network. We will continue to advance our network, bridging every town and key rural area across the state, allowing many more customers to enjoy superfast access to high-definition video streaming, gaming, multiple chatting, instant uploading of photos and more."

Regarding its coverage, Jio announced in March 2023 that its True 5G services are available in 34 new cities, making the service available in a total of 365 cities across the nation. People and businesses in these cities will have access to the technological benefits of high-speed, low-latency, stand-alone True 5G services, opening new growth opportunities in tourism, manufacturing, SMEs, e-governance, education, healthcare, agriculture, automation, artificial intelligence, gaming and IT.

Benefits of 5G in India

The broad adoption of 5G in India has enormous potential to change numerous areas of the economy. Here are several significant advantages:

Enhanced Connectivity and Speed

5G networks enable smooth video streaming, ultra-high-definition content consumption and immersive virtual reality experiences due to much quicker data transmission speeds. Individuals and businesses benefit from this level of connectedness, which allows for increased productivity and creativity.

Internet of Things (IoT) and Smart Cities

5G networks can assist the concept of smart cities by facilitating the spread of IoT devices. The low latency and large capacity of the technology allow for real-time communication between devices, paving the way for smart grids, intelligent transportation systems and efficient public services.

Industry 4.0 and Manufacturing

5G technology is critical in the era of Industry 4.0, allowing for the seamless integration of automation, robotics and artificial intelligence in industrial processes. 5G enables companies to accomplish real-time monitoring and control, predictive maintenance and effective supply chain management,

resulting in greater production, less downtime and improved operational efficiency.

While India is currently in the process of statewide deployment of 5G technology, significant progress has been made in terms of infrastructure construction, among other advances. The deployment of 5G in India has the potential to transform a variety of industries, including healthcare, manufacturing, education and smart cities. It will improve connection and thus enable the Internet of Things, opening new avenues for economic growth and creativity. India is ready to embrace the revolutionary power of 5G and further improve its position in the technology industry. **TR**



A strong infrastructure
is also required for the
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of 5G technologies



Julian Gorman,
Head of Asia Pacific, GSMA



Collaboration and Innovation Are Key to Regional Digital Transformation

Telcos play the role of digital enablers as the world accelerates digital transformation. As societies in the Asia-Pacific region progress their digital ambitions, more is required from telcos to advance the integration of digital technologies and services. Telecom Review Asia connects with Julian Gorman, head of Asia Pacific, GSMA, to learn about the challenges countries face and how telcos can help overcome them and grow alongside the economies they support.

Digital transformation is a leading focus for most countries. What are some of the biggest challenges that telcos in Asia Pacific face in driving digital transformation, and how can they address these challenges?

To address the challenges facing digital transformation across Asia Pacific, we must strive for greater collaboration between telcos, industry and government. In particular, we urge governments to help transition ICT from being a vertically regulated consumer service to being an enabler of the digital economy. This will require

investment and government curation to encourage companies to compete for said investment, with innovation dollars used to create digital assets that will help build more inclusive and sustainable digital nations.

For many countries across the region, a whole-of-government approach (WGA) is the best way to accelerate progress by bringing together multiple stakeholders and diverse resources to provide a common solution to issues. Our Digital Societies report for Asia Pacific shows that the speed by which countries will progress on the path to fully-fledged digital societies will depend on the level of collaboration across government, the private sector

and other non-state institutions to accelerate progress.

Some of the biggest challenges to delivering digital transformation include network infrastructure deployment delays, conflicting funding objectives between government departments, outdated regulations, workforce skills, threats that undermine trust in mobile networks and sometimes poor implementation and delivery of projects. Using a WGA approach to these challenges, we can see opportunities emerge, driven by solutions that include:

- A clear top-down strategy
- Cross-ministry coordination
- Improved economics of

- infrastructure deployment
- Regulatory review and sandboxes
- Upskilling initiatives
- Targeted R&D
- Collaboration between the public and private sectors
- Strong and deliberate efforts that bolster trust in mobile networks

The GSMA is helping to address many of these challenges and convene the key stakeholders across the region through initiatives such as the APAC Digital Transformation Acceleration Forum (DXAF).

Countries in the region are developing 5G at different paces, with some even embarking on 6G. How can countries adopt positive policymaking and spectrum management to fully unleash the benefits of 5G and future 6G?

To build truly digital nations and fully unleash the benefits of 5G, policymakers need to start making positive decisions that will help drive spectrum availability in prime 5G bands.

Part of this will be ensuring necessary spectrum resources are available at the right time, at the right price and under the right conditions. If they can do this, then they are sure to expedite network deployments, increase coverage, and boost the quality and affordability of services. Furthermore, countries across the region should be taking effective steps to:

1. Establish forward-looking regulation that supports the financial sustainability of the industry and provides non-discriminatory conditions.
2. Adopt policies that enable the building and deployment of infrastructure to ensure that future networks are accessible to all.
3. Create and maintain a safe and trustworthy online environment to protect users from threats.
4. Ensure that available spectrum serves the future demand for connectivity.

It is important that countries that want to be leaders in 5G support 6 GHz as an IMT band at WRC 23. The 6 GHz range is the primary mid-band spectrum to

meet the needs for 5G expansion, and its timely availability will drive cost-efficient network deployment, help lower the broadband usage gap and support digital inclusion.

How do you see the role of telcos evolving in the future, and what should they focus on to leverage new technologies and successfully monetize?

By the end of March 2023, 56 operators in 19 markets across Asia Pacific had launched commercial 5G services, including 19 operators in nine countries that also offer 5G fixed wireless access (FWA) services. 5G has become mainstream in pioneer markets, notably South Korea, where 5G now accounts for around two in five mobile connections. Momentum has been boosted by a number of factors, including economic recovery from the pandemic, rising 5G handset sales, network coverage expansions and overall marketing efforts.

And 5G will continue to reign supreme across APAC. It's expected that, before the end of 2025, mobile operators across the region will invest an incredible US\$227 billion in 5G deployments. These new networks will enable exciting new services for consumers, while also helping to transform industry and manufacturing, and drive economic growth.

As the region looks to bounce back from the pandemic, connectivity will be crucial to rebuilding Asia-Pacific's economies and making them more resilient to future shocks. Digital transformation of telcos and their networks will enable a new era of innovation over the network and the potential for telcos to participate actively in joint ventures to solve enterprise and consumer challenges. Collaboration will be key, especially when relative to host market industry strengths — for example, in the field of healthcare in Thailand or mining in Australia.

How can telcos in the region better position themselves to stay ahead of the curve in an increasingly competitive and fast-moving industry?

While the consumer market has been

the focus of early 5G deployments, the enterprise segment is the largest incremental opportunity in the 5G era, which is why so many digital transformation projects are already underway across different industries.

Telcos need to keep delivering products which will support ongoing innovation and ensure it continues to develop. For instance, 5G Advance will be commercially available in the next couple of years. It will bring substantial improvements in mMIMO, uplink coverage, dynamic spectrum sharing, and integrated access backhaul, all of which point to exciting use cases and new business opportunities in the enterprise; new features will include below-centimeter accuracy for location, amongst others.

But governments also need to support initiatives which drive 5G network coverage intensity and which make private networks easily accessible. It will also be on country leaders to enable regulatory frameworks for MNOs to roll out the networks to deliver 5G to residents.

On the enterprise side, collaboration will be key to competitive success. We're already seeing great use cases across vertical markets in areas as varied as drones, smart manufacturing, broadcast, transportation and fintech, to name but a few. You can see many great case studies on the GSMA 5G Transformation Hub that illustrate just how the technology is positively impacting industry and society around the world.

In addition, we're seeing great momentum behind the GSMA Open Gateway initiative, which is making a framework of common APIs available to operators, cloud providers and developers to deliver richer services to mobile users and enterprises. For instance, as the world moves towards areas such as 5G standalone, it presents the opportunity to have APIs and new business models in areas like Quality on Demand and lower latency network slicing. The potential for value creation in this area is significant and should be a real focus for the industry. **TR**

Supercharging B2B Tech Innovation for Sustainable Digitalization

Networks are critical to unleashing the full potential of Industry 4.0 digitalization. To reflect Nokia's focus on advancing network infrastructure and industrial digitalization, the company unveiled a new brand image earlier this year. Telecom Review connects with John Harrington, Head of Nokia Asia Pacific & Japan, to learn about Nokia's new brand strategy and how the company is accelerating transformation in the region.



John Harrington, Head of Nokia Asia Pacific & Japan

Can you give us a brief overview of Nokia's new brand strategy? What inspired this change?

At Nokia, we create the technology

that helps the world act together.

Even though many still reminisce nostalgically about their first Nokia mobile phone, Nokia has since evolved from manufacturing mobile phones and is accelerating the next phase of our strategy.

With one of the broadest portfolios in the industry, Nokia is launching a new brand identity for the first time in 60 years, to signal the company's commitment as a B2B technology innovator and pioneer of digital transformation.

Since Pekka Lundmark assumed the role of Nokia CEO about three years ago, Nokia has been focused on asserting tech leadership and growing market competitiveness. Our goal now is solidifying our position as a leading B2B tech innovator, pioneering networks leveraging our portfolio across mobile, fixed and cloud.

The new Nokia signals who we are today – a B2B tech innovator that unleashes

the exponential potential of networks and their power to transform industries. At the forefront of harnessing the exponential potential of networks, our role is that of improving efficiency, modernizing network architecture and driving impact at scale through digital.

The colors of Nokia's new logo represent a dynamic, energized, modern, vibrant and inclusive company. The gradation of colors symbolizes a multitude of people, aptly showcasing Nokia as a diverse, inclusive, modern, vibrant and collaborative company. So the new brand truly encapsulates our values and purpose.

How does the new brand strategy align with Nokia's overall business goals?

Nokia's enterprise business has experienced robust growth, with a remarkable year-on-year increase of 62% in constant currency for its net sales. As the world increasingly relies on connectivity, be it for private networks, campus networks or 4G or 5G enterprise use cases, network performance must be integrated with cloud consumability.

As industries transform, we believe that digitalization should be carried

out in a sustainable and productive way to yield reduced energy costs, increased throughput and reduced carbon footprint. In the words of Pekka Lundmark, "There is no green without digital". We need digital technologies to help us achieve sustainability goals. To realize the full potential of digital for enterprise use cases, Nokia fosters collaboration with a partner ecosystem to drive innovation and create value through digital services and applications. In an industrial setting, for instance, it is not only about bringing connectivity to a factory but also delivering capabilities.

How will the new brand strategy impact Nokia's product development?

One of our aims is to make high-performing connectivity and consumability more sustainable. For instance, Nokia's new AirScale baseband portfolio is one such offering designed to reduce footprint in terms of power consumption and reusability. With the new energy solutions, operators can benefit from a reduced overall site energy consumption by up to 30% and cooling power consumption between 60% and 99%.

In addition, our silicon chipsets for IP and optical not only deliver higher performances, but also a lower carbon footprint. Essentially, we enable technology that positively impacts the planet. Our products are designed such that they are at the forefront — in terms of performance and also in terms of reducing carbon footprint and enhancing the digital transformation journeys of the clients we want to serve.

How does the new brand strategy help differentiate Nokia from its competitors?

Nokia's new brand strategy shines a spotlight on our emphasis on B2B technology leadership to differentiate ourselves. Even though we have a strong history of innovation, many in the enterprise industry may not fully understand Nokia.

This is an opportunity to reintroduce Nokia to these companies and establish ourselves as an open and collaborative entity. While our approach typically involves direct sales to service providers, our new strategy enables us to expand our reach by engaging and working closely with partners.

Through a corporate partner program, our new strategy allows us to sell through partners and work with partners. This approach reflects Nokia's openness as a company and readiness to partner with the industry while recognizing ESG and security as strategic pillars. It also reiterates our capacity to be a trusted provider.

We believe that we can offer secured networks as well as the flexibility required in cloud services to yield seamless management of cloud bandwidth.

What do you see as the next big step in the evolution of networks, and how do you see the new brand strategy helping achieve this?

Nokia holds a significant role in shaping the future of technology and transforming industries and societies. Our vision encompasses a digitally empowered planet where technology drives positive change, fostering a better world for all. This vision

extends to diverse sectors, including healthcare, education, transportation and energy, where our technology plays a vital role.

Our solutions go beyond connecting devices or networks to deliver capabilities. When we work on projects such as seaports or airports, we do not just provide a private network; we create an ecosystem of partners.

Our work with the Hamburg Port Authority in Germany or the Port of Southampton in the UK involves collaborating with esteemed partners like Maersk and KoneCranes. For instance, Nokia Scene Analytics is used to capture and process thousands of video and IoT streams in real-time, leveraging analytics to identify an anomaly or threat to address safety concerns. Essentially, our solutions amplify capabilities and increase the overall efficiency of ports. This is just one of many use cases.

Our focus is not solely on connectivity, but on the services, solutions and applications we can deliver with partners. Rather than expecting our partners to configure the network independently, we collaborate closely with specialized partners to provide added capabilities.

Networks will also play a pivotal role in unlocking the potential of the metaverse. We identify three types of metaverses — namely, industrial, enterprise and consumer metaverses — of which we believe that the industrial and enterprise metaverses hold greater potential for substantial and scalable impacts. These metaverses require fully immersive augmented reality, digital twins, biosensors and other technologies that enhance productivity and hence require a different level of connectivity.

Currently, we serve about 595 private wireless clients. In the first quarter of 2023, we added 73 new enterprise customers, bringing our total to over 2,600 global enterprise clients across verticals including transportation, energy, manufacturing and public safety. Our involvement in projects like Australia mining with Rio Tinto

since 2012 is a testament to our evolution from manufacturing mobile phones to becoming a technology leader today. Going forward, we are deeply committed to witnessing the transformative power of technology in more industries.

What are your key focus areas for Nokia APJ for 2023?

The Asia Pacific region holds significant importance for us as we witness the ongoing adoption of 5G technology. Within this region, we operate in advanced markets like South Korea, where we have been involved since the inception of 5G. We are also prominent suppliers in countries such as Japan, Singapore and Australia.

However, countries like Indonesia and Vietnam are still in the process of adopting 5G technology. In these markets, our approach involves collaborating with traditional service providers to assist them in modernizing their networks and architectures. We also strive to help them deploy future 5G services for industries.

The objective is tapping into 5G spectrum and networks to offer consumers faster services or newer devices, as well as helping enterprises find new revenue streams. This is aligned with our new brand strategy of fostering deeper partnerships with service providers to deliver enterprise applications and services. Through numerous proofs of concept and joint collaborations with service provider partners, Nokia looks to help operators monetize 5G.

What keeps you up at night?

The launch of our new brand has captured the attention of many. Now, what keeps me up at night is how I can effectively articulate our position as a leading tech innovator to the regional operators we work with. I am preoccupied with introducing or reintroducing Nokia as a prominent player in the enterprise market. Essentially, we want the industry to grasp that Nokia is a B2B technology innovator offering sustainable and future-proof solutions. **TR**



Harnessing IoT for a Sustainable Asia Pacific

The Asia-Pacific region is experiencing rapid urbanization and industrial growth, leading to increased concerns about environmental sustainability. In this era of technological advancements, the Internet of Things (IoT) has emerged as a powerful tool for monitoring and managing environmental parameters in real time. By leveraging IoT-based environmental monitoring systems, countries in the Asia-Pacific region are making significant strides towards creating a greener and more sustainable future.

IoT-Based Environment Monitoring in Asia Pacific

Singapore's Smart Nation initiative is a comprehensive and transformative national strategy aimed at leveraging technology and innovation to create a connected, efficient and sustainable society. It encompasses various sectors, including governance, economy, environment and society, with the goal of improving the quality of life for its citizens and fostering economic growth.

The core goal of the Smart Nation initiative is to use connectivity, data analytics and digital technologies to improve government services, spur innovation and enhance Singaporeans' general quality of life. Building a smart and connected ecosystem involves integrating cutting-edge technologies like cybersecurity, big data analytics, artificial intelligence (AI) and IoT.

As an example, the city-state can improve recycling efforts, streamline waste collection and reduce inefficiencies by monitoring and managing waste through IoT-based systems. This strategy promotes sustainable practices while minimizing the environmental impact of waste management.

Through its comprehensive and holistic approach, Singapore continues to pioneer smart city strategies and remains at the forefront of the global digital transformation movement.

Meanwhile, the Air4Thai project is an environmental monitoring initiative in Thailand initiated by the Ministry of Natural Resources and Environment. It aims to address the country's air pollution challenges by utilizing IoT-based technologies to collect and disseminate real-time air quality data to the public.

The project focuses on deploying a network of IoT sensors across various locations in Thailand to continuously monitor air quality parameters such as particulate matter (PM2.5 and PM10), nitrogen dioxide (NO2), sulfur dioxide (SO2) and ozone (O3). These sensors collect data at regular intervals and

transmit it to a centralized database for analysis and visualization.

The Air4Thai project emphasizes transparency and civic participation by making the collected data available to the public. This approach promotes accountability and encourages citizens to actively engage in addressing air pollution issues.

By leveraging IoT-based environmental monitoring, the Air4Thai project contributes to improving air quality management, raising public awareness and enabling evidence-based decision-making for pollution control and mitigation efforts in Thailand.

Additionally, the Bangkok Air Quality and Noise Management Division initiative is a dedicated online platform developed by the Bangkok Metropolitan Administration (BMA) to provide comprehensive information about air quality and noise levels in the city. The initiative aims to raise public awareness, enable informed decision-making and promote proactive measures to address air and noise pollution issues in Bangkok.

The website serves as a user-friendly interface for accessing and visualizing the data collected by the IoT sensors. It provides real-time updates on air quality and noise levels, allowing users to monitor pollution levels in different areas of Bangkok. This information is crucial for individuals to make informed decisions about their activities, take necessary precautions and protect their health.

The IoT-based environmental monitoring system enables the Bangkok Air Quality and Noise Management Division to have a comprehensive understanding of the city's environmental conditions. By utilizing IoT sensors, the division can collect data from multiple monitoring stations simultaneously, covering a wider geographical area. This allows for a more accurate assessment of air quality and noise pollution throughout the city.

Furthermore, the Central Pollution Control Board (CPCB) in India plays

a crucial role in environmental monitoring and pollution control. It was established in 1974 under the Ministry of Environment, Forest and Climate Change. In recent years, the CPCB has started incorporating IoT-based environmental monitoring systems to enhance its capabilities in collecting and analyzing data related to air quality, water quality and noise pollution.

By leveraging IoT technology, the CPCB is able to deploy a network of sensors across various locations in the country to monitor pollution levels in real time. These sensors collect data on parameters such as particulate matter, gases and noise levels, which are then transmitted to a centralized database for analysis and reporting.

Additionally, IoT-based environmental monitoring systems enable data visualization and dissemination through online platforms. The CPCB aims to protect and improve the environmental quality of the country for the well being of its citizens as well.

Collaborative Efforts and Investments

While the applications of IoT-based environment monitoring are promising, several hurdles need to be addressed for effective implementation. These challenges include data security and privacy concerns, the interoperability of diverse sensor networks and the need for skilled personnel for data analysis and interpretation. To overcome these challenges, collaboration between governments, industries and research institutions is crucial. Additionally, the development of standardized protocols and frameworks can ensure interoperability, while robust data encryption and privacy measures can safeguard sensitive information.

Through real-time data collection, analysis and dissemination, these systems empower policymakers, authorities and citizens to make informed decisions for a sustainable future. As countries in the Asia Pacific continue to embrace IoT technologies, collaborative efforts and investments in research and development will pave the way for greener, cleaner and more resilient communities across the Asia-Pacific region. **TR**

Indonesia Internet Expo & Summit 2023

Indonesia Internet Expo & Summit is a premier event uniting industry experts, entrepreneurs, and tech enthusiasts to explore the latest digital trends, innovations, and business opportunities in Indonesia's thriving internet ecosystem.

Place: Jakarta International Expo, Kemayoran, Indonesia



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AUGUST

Submarine Networks 2023

Submarine Networks features the world's leading annual submarine communications gathering to exchange knowledge, explore the latest projects, develop strategies and form lucrative new partnerships to drive the industry forward.

Place: Suntec Convention Centre, Singapore



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Cloud Expo Asia 2023

Cloud Expo Asia is the leading cloud technology event in the region that connects technologists and business leaders to explore the latest cloud innovations, solutions, and trends.

Place: Marina Bay Sands, Singapore



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Latest updates on:
www.telecomreviewasia.com

FutureNet Asia 2023

FutureNet Asia is a conference bringing together industry pioneers, thought leaders, and innovators to discuss and shape the future of networking technologies and digital transformation in the Asia-Pacific region.

Place: Westin Hotel, Singapore



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OCTOBER

GITEX GLOBAL 2023

Gitex is an annual technology exhibition and conference showcasing the latest innovations and trends in the tech industry.

Place: Dubai World Trade Center, Dubai, UAE



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Telecom Review Leaders' Summit 2023

The 17th edition of the leading ICT gathering will convene industry leaders and partners, held in a hybrid format to tackle the latest industry trends.

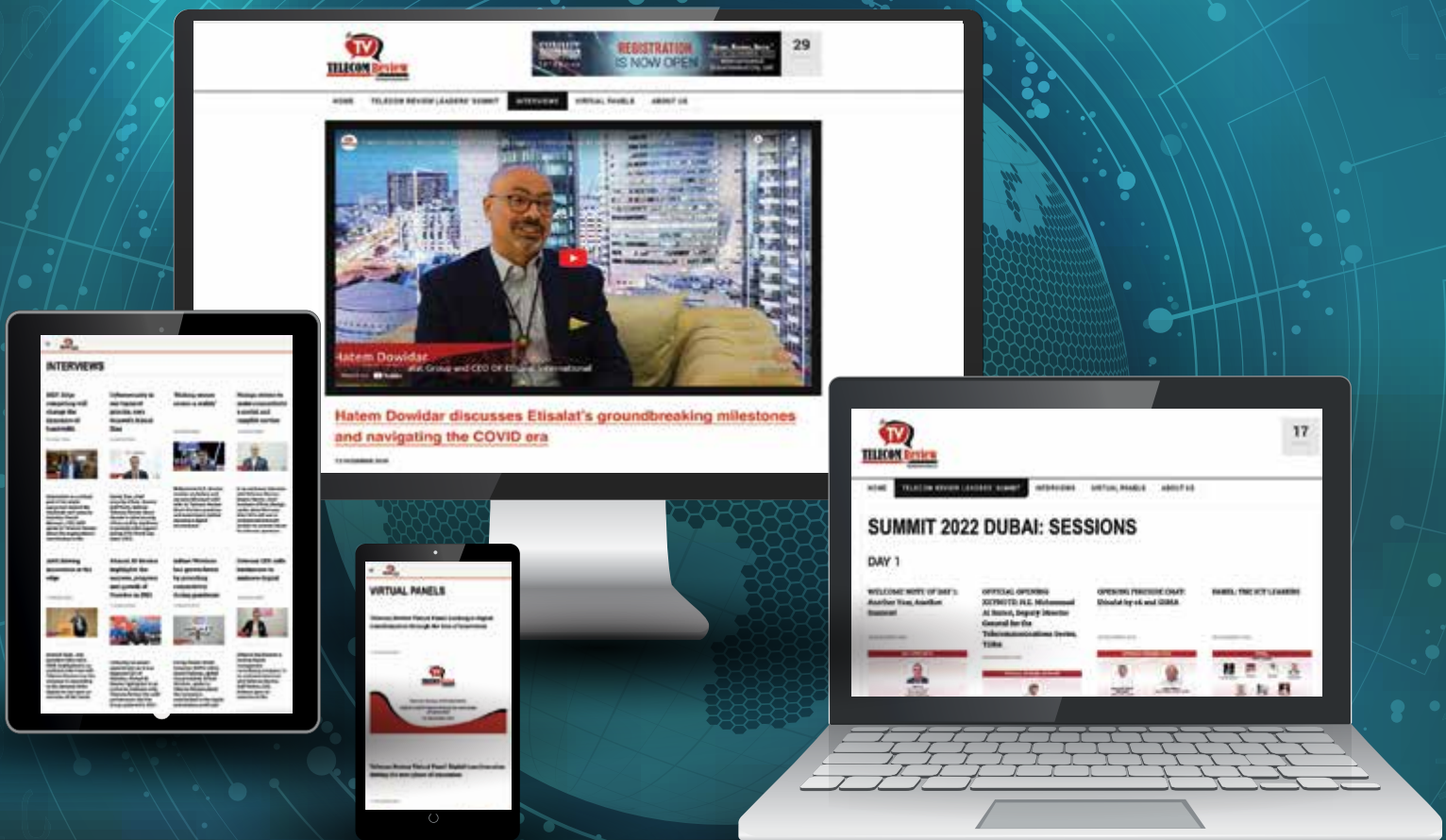
Place: Great Ballroom at Le Meridien Dubai Hotel & Conference Centre, Dubai, UAE



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