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ITU NAVIGATES THE DIGITAL HORIZON: Standardization and Collaborative Industry Engagement

Seizo Ono, Director of the Telecommunication Standardization Bureau (TSB), the International Telecommunication Union (ITU)

**Indosat Ooredoo
Hutchison: A Leader
in the Asian Telco
Industry**

**Smart Axiata:
Investing in People
and Infrastructure**

**Accelerating Rural Economic
Growth and Inclusion: Huawei's
5G Technology Upgrades Digital
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Seizo Ono, Director of the Telecommunication Standardization Bureau (TSB), the International Telecommunication Union (ITU)

ITU Navigates the Digital Horizon: Standardization and Collaborative Industry Engagement

Standardization plays a pivotal role in shaping the telecommunications industry, offering a myriad of advantages that significantly boosts the sector's overall compatibility, interoperability, growth, and efficiency.



The seamless integration of systems and telecommunications equipment from diverse manufacturers is a direct outcome of standardization, facilitating smooth collaboration and interaction. Standardization also promotes global consistency in technologies and practices. This is especially important for international communication and roaming services, which allow users to connect across networks and countries. Above all, through providing a common framework, standards provide a stable foundation for innovation. Given that companies can build on established norms, this encourages the development of new technologies and services, fostering a dynamic and competitive industry.

In an exclusive interview with *Telecom Review*, the International Telecommunication Union (ITU) Director of the Telecommunication Standardization Bureau (TSB),

Seizo Onoe, discussed ITU's role in implementing standardization among different industries.

As you end your first year in office as TSB Director, could you share key insights into the global telecom landscape that involved ITU's standardization sector?

In almost a year with ITU, I have gained a deeper understanding of the diverse, wide, technological domains that ITU's standardization sector covers; ranging from transport and network infrastructure to security, multimedia, IoT (Internet of Things) and smart cities, as well as the operational domains such as numbering.

Among the many emerging developments, the metaverse stands out for me. Since the first meeting of our metaverse focus group in March 2023, our work on the metaverse has continued to garner substantial interest from significant global stakeholders, spanning ally industries and the telecommunications sector alike. Due to its significance, there is a need for us to advance our efforts in this domain.



Our global initiative will also promote collaborative mechanisms for AI solutions to reach underserved communities, and its scaling program will assist low and middle-income countries in adopting AI solutions for health





Our 'AI for Good' initiative, which has been active for several years, focuses on the technical aspects of AI helping the achievement of the UN Sustainable Development Goals. We are actively exploring the positive aspects of AI in a wide variety of areas, such as healthcare, agriculture, and disaster management. At the same time, we also dive into negative aspects and seek solutions to mitigate the adverse effects.

For instance, the Global Initiative, 'AI for Health,' driven by ITU, WHO and WIPO aims to ensure that AI fulfils its potential to support diagnosis and treatment, along with more efficient and inclusive healthcare services. The initiative builds on the momentum of the ITU-WHO focus group covering AI for Health.



We have developed a benchmarking framework for audits and clinical evaluations of new AI solutions. The open-code proof of concept for the benchmarking platform showcases the kinds of metrics that could help technology developers and health regulators to certify AI solutions, just as they do for other medical equipment.

We have also delivered practical guidance on AI in healthcare, addressing concerns around governance, ethics, regulation, and data quality. This guidance can help regulators and AI developers to navigate the challenge of certifying AI health solutions.



Our open-code programme—conceived as a digital public good—has enabled experts to collaborate on the development and benchmarking of innovative AI solutions for health, demonstrating how our guidance can be applied in practice. Our global initiative will also promote collaborative mechanisms for AI solutions to reach underserved communities, and its scaling programme will assist low and middle-income countries in adopting AI solutions for health.

Could you elaborate on the specific involvement of ITU's standardization

sector in the metaverse developments over the past year? What role does ITU play in shaping standards related to the metaverse within the global telecom landscape?

We aim to support the emergence of an open, inclusive metaverse. This will demand interoperability, and standards play a key part in enabling interoperability. Standards will be essential in helping virtual worlds to interact effectively.

ITU's metaverse focus group offers a venue to start laying the groundwork for technical standards that can help create an underlying technology and business ecosystem that encourages market entry, innovation, and cost efficiency.

This focus group enjoys strong participation from a great number and variety of experts. It looks well positioned to deliver great value to metaverse growth and innovation. It is leading pre-standardization studies that will deliver a standardization roadmap for the metaverse. Our focus groups are open to all interested experts. We are inviting everyone to influence this work to establish a basis for associated metaverse standards development in ITU study groups.

Our metaverse focus group has already completed 22 deliverables, including; a definition of the metaverse, and topics such as generative AI in the metaverse; metaverse crossplatform interoperability; cyber risks and threats; the protection of personal data; accessibility for persons with disabilities; sustainability; ethical issues for consideration in metaverse standardization work; and policy and regulatory considerations.

With telecom players evolving dynamically, how is ITU planning to continue minimizing the risk of divergent and competitive approaches to standardization?

In addressing the risk of divergence, we remain committed to a consensus-based process. We recognize the constant challenge of responding quickly to the ever-changing landscape of technological advancements. To effectively navigate this terrain, our



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ITU standardization work is driven predominantly by industry players.

Our standardization process ensures that all participants' voices are heard, and that every step forward is determined by consensus decision-making. Our trusted process gives rise to trusted standards



organization has strategically formed collaborative partnerships with like-minded organizations. This collaborative approach not only improves our collective ability to adapt to rapid changes, but it also cultivates a strong network of expertise and shared resources.

Also, we need to have a common understanding and share views with industry players on a regular basis. Our CxO meeting is a good opportunity to exchange views with industry decision makers on areas of innovation where they see valuable opportunities for standardization work to build consensus on the way forward.

Why is the collaboration of industry players and regulatory authorities key to building a secure and resilient ICT environment?

These collaborative efforts are critical to the successful integration and adoption of standards within the larger technological landscape.

ITU standardization work is driven predominantly by industry players. Our

standardization process ensures that all participants' voices are heard, and that every step forward is determined by consensus decision-making. Our trusted process gives rise to trusted standards. That's why take every opportunity to highlight the value of our standardization platform—collaborations that develop standards at ITU yield remarkable benefits for the industry.

Let me make just a couple of examples. Every day we count on optical networks built to ITU standards. These networks have grown in capacity by an average of 40 per cent a year for the past 40 years. Such rapid growth, at viable costs, was enabled by ITU standards. Almost all videos, over any medium, rely on video-compression algorithms standardized jointly by ITU, ISO and IEC—resulting in work that has been honored with two Primetime Emmy Awards.

Technical standards have always been essential to the ICT industry. But ICTs are now driving innovation across every sector. This creates convergence in the

business of different industries. That's why ITU is so invested in bringing together experts from different sectors, including regulators who are navigating a convergence in their responsibilities.

Today, our standards need to meet the requirements of a diverse and expanding range of industries.

Our standards now support digital transformation in areas from energy and transportation to healthcare, financial services, and agriculture, as well as the drive towards smart cities. Our standards also encourage everyone to take advantage of advances in AI and machine learning.

This calls for broader industry engagement than ever before. Standardization work needs to be driven by everyone that will rely on the resulting standards.

How does ITU support Asia's digital development and ensure global inclusivity in its efforts to address digital development challenges, implement standards, and support digital transformation, considering the unique needs and challenges faced by different regions or countries?

Our organization is actively involved in regional developments, including Asia's changing landscape. Recognizing disparities in development and economic status, we are committed to closing the standardization gap that such challenges have created.

To effectively bridge this gap, our initiatives prioritize activities that encourage developing countries' active participation. We are committed to stepping up efforts in this critical area, emphasizing the importance of increased standards implementation in developing countries. We hope to foster tangible progress and ensure the successful integration of standardized practices by focusing on practical application and adherence to standards.

Countries in Asia and the Pacific are home to some of the world's most advanced ICT industries as well as some of the fastest-growing. Countries in the region work hard to bridge

standardization gaps within the region. They also offer strong support to ITU's efforts in bridging these gaps on an international scale. I am glad to highlight that my country, Japan, offers us particularly strong support.

ITU's work covering development provides technical assistance to developing countries in expanding their digital infrastructure, for example by assisting countries' development of relevant policy and regulatory frameworks.

But let me focus on the importance of ITU's standardization efforts in fostering development.

Technical standards are essential tools that can be used to drive infrastructure development as cost-effectively as possible. Standards play a crucial role in ensuring reliability and interoperability, instilling the confidence needed to sustain investments in our digital future.

But developing countries still have many more benefits to gain from standards and supporting standardization processes. ITU's 'bridging the standardization gap' programme supports developing countries in increasing their engagement with our work, optimizing the benefits derived from international standards. This initiative stands as a pivotal contribution to ITU's overarching efforts to enable everyone to leverage the latest advancements in ICTs.

Examples of our associated services include providing financial assistance to ITU delegates from certain developing countries to facilitate their participation in our work; and training for delegates, focusing on practical skills that have proven to help them draw maximum value from their participation in our work. Our regional groups within our standardization expert groups (ITU study groups) also play an important part in helping different regions of the world to ensure that ITU standards meet their priorities.

From a leadership perspective, how critical is telecom's role in today's

digital transformation? How will ITU continue to support this journey?

The two main priorities of ITU's strategic goals are to promote universal connectivity and sustainable digital transformation. I also promise to actively contribute to the achievement of this objective by making consistent efforts in the field of standardization. My goal is to contribute significantly to the shaping and enabling of the sustainable evolution of digital landscapes in line with ITU's strategic objectives through my involvement in all these initiatives. **TR**



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Indosat Ooredoo Hutchison: A Leader in the Asian Telco Industry

Over the years, technology has evolved at a rapid scale, breaking barriers and overcoming boundaries. Through these innovations, the world has progressively become more connected and accessible. Digital transformation has acted as a catalyst for reshaping various industries, which subsequently improves consumers' experience.



which brought to light the company's unyielding dedication to performing at the highest possible level. The company announced significant year-on-year (YoY) revenue increase as well as EBITDA enhancements, all of which are testaments to the exceptional success they have enjoyed.

Throughout this period, Indosat achieved remarkable total revenue growth of 8.5%, reaching an impressive USD 2.4 billion. This growth was predominantly powered by the company's outstanding performance in cellular services, recording a 7.8% year-on-year growth, equivalent to USD 2.1 million, in 9M23. Additionally, the MIDI experienced a 10.8% year-on-year increase, while the fixed telecom business segment demonstrated a remarkable growth of 26.8% year-on-year.

Normalized EBITDA increased by a notable 21.7% YoY, due to the combination of strong top-line growth and an unwavering commitment to cost optimization. This led to a substantial USD 1.1 billion in the initial nine months of the year and an exceptional Normalized EBITDA margin of 46.7%. The proprietors of the parent entity reported a Normalized Net Profit of USD 143 million for the current period, representing a noteworthy achievement as Indosat celebrated its 11th consecutive net profit quarter.

Indosat has shown improved profitability and a strong YoY projection with EBITDA increasing faster than revenue. Meanwhile, ARPU experienced a 2.5% YoY growth, indicating an increase in customer spending.

The company is making tremendous progress toward hitting an extraordinary milestone, which will be the accumulation of USD 400 million in annualized synergies with big-ticket merger initiatives currently in completion, such as the phased site dismantling targeted to be completed by the end of the year, while network integration has been completed. Additionally, core consolidation is so

far on track and significant progress has been made on ICT and business process improvements.

A Socially Responsible Company with Remarkable Leadership

The phenomenal success of Indosat can be attributed to the visionary leadership of Vikram Sinha. Vikram's leadership goes beyond financial metrics, encompassing ethical and sustainable practices, as well as significant contributions to society. Indosat is a model of corporate social responsibility due to its efforts to promote gender equality, digital literacy, and environmental conservation.

Thousands of young people and women in Indonesia have benefited from programs like 'SheHacks' and 'IDCamp', which aim to increase digital empowerment and education. With programs like 'Digitalization of Mangrove Conservation' and 'Marine and Fisheries Conservation', the corporation has proven its commitment to protecting Indonesia's precious ecosystems.

Furthermore, Indosat has shifted its focus from being a traditional telco into a techco which progressed Indosat leadership in tech. The company is guided by Vikram's dedication to a higher purpose, which he calls 'Empowering Indonesia'. As a result of this change, Indosat is now among the top 10 global firms, with close to 100 million subscribers in a single market.

Under Vikram's direction, the spirit of Gotong Royong (Mutual Cooperation) flourished because of the emphasis placed on working together to achieve shared goals. Differentiating itself from more conventional telcos, Indosat has instead focused on developing a model that is centered around improving customer's experience.

A Leader in Digital Revolution

Indosat's rise to prominence started with a significant merger, demonstrating the foresight and determination of the company's leadership. The merger between

In Asia, a certain company has continuously emerged as a frontrunner, consistently exhibiting exceptional performance and propelling the boundaries of innovation to unprecedented levels. Indosat Ooredoo Hutchison (Indosat or IOH), one of the leading telcos in Indonesia has successfully positioned itself as a prominent player in the Asian market, attaining noteworthy achievements that distinguish it from its competitors.

Record-Breaking Financial Results

Recently, Indosat successfully concluded an impressive nine-month period, ending on September 30, 2023,

Indosat Ooredoo and Hutchison 3 Indonesia defied all forecasts in an industry frequently marked by unsuccessful mergers, but Indosat proved itself to be a successful merger under the perceptive direction of Vikram. The Organization initially projected a 24-month duration to integrate its network but was accomplished within half of that timeframe.

The successful merger drove Indosat to become the second-largest operator in Indonesia. In addition to uniting two telcos, it also united their aspirations and visions.

Indosat is motivated by a steadfast dedication to empowering Indonesia, which is effectively manifested through tangible initiatives. In the aftermath of the merger, a substantial network integration initiative was undertaken with the aim of enhancing customer service. This integration not only enhanced the network but also established a new benchmark in the industry by substantially improving the consumer experience. The Company aims to connect around 275 million Indonesians, 62 million SMEs and 5,000 enterprises, while staying committed to delivering a world-class digital experience to its customers.

The strategic decisions made by Indosat demonstrate the company's dedication to technological advancement and digitalization. SD-WAN solutions provided by Indosat ensure uninterrupted connections in any cloud setting whilst also boosting company efficiency. A 2021 report by Brand Finance Indonesia 100 ranks Indosat as the second-fastest growing brand and one of the top 10 most valuable brands due to the company's dedication to technical innovation.

Additionally, IDE by Indosat Business has built numerous components of its digital ecosystem, including IDE Academy, which provides entrepreneurs with free education from professionals. Wawasan IDE provides MSMEs with data-driven insights. In the same ecosystem,

IDE also offers Toko IDE, a business solution platform. The company also works with significant partners including business operational software provider YOOV and digital cashier payment provider Majoo Indonesia to cater to customers' demands.

Empowering Indonesia

Indosat aims to help Indonesia develop and grow through its services. In the coming years, the company plans to connect tens of millions people in rural Indonesia, bringing them online for the first time and helping to close the digital divide by unlocking infinite possibilities.

This goal is progressively achieved by consistent upgrades and new deployments of its 4G network across the country. One example is Indosat's efforts in Nusa Tenggara in eastern Indonesia, where more than 80% of the population now have access to the internet because of investments in new and improved network transmitters during the past year. Indosat plans to add more sites in rural areas of Indonesia which could fuel the country's economic growth.

Indosat's groundbreaking work and unyielding dedication to transformation has revolutionized and accelerated digital transformation throughout Indonesia. This year, the company has garnered prestigious national and international awards for its contribution to the industry. Vikram was hailed as the best CEO by Global CSR and ESG Awards 2023. Additionally, TrenAsia ESG Award 2023 recognized Indosat as the Best Telecommunication Provider Company. In the whole ASEAN region, Indosat's IDCamp was awarded with the Best Communication Use of Digital Platform during the 4th ASEAN PR Excellence Awards. Finally, in SWA Indonesia's Most Reputable Companies ranking, Indosat secured the top position in the Telecommunications Category.

"With the Gotong Royong philosophy, what we want to do at Indosat is to work with likeminded partners. We have a clear principle of making

money with our partner, not from our partner. For that to happen, we want our partner also to treat us fairly, give back to Indonesia and unlock all the opportunities here in the country," noted Vikram.

The company has set an example for innovation and hard work not just in the country, but also in the Asian market with their stellar financial success, digital empowerment initiatives, strategic alliances, and corporate social responsibility projects. **TR**



Indosat's groundbreaking work and unyielding dedication to transformation has revolutionized and accelerated digital transformation throughout Indonesia





Masayuki Kayahara, NEC General Manager of Service Provider Solutions Department

NEC's Adventure in 5G and Beyond - An Exclusive Conversation with Kayahara Masayuki

In an exclusive interview with Telecom Review, Masayuki Kayahara, NEC General Manager of Service Provider Solutions Department, delved into NEC's innovative technological contributions, including 5G connectivity and automation across the globe.

With a rich history, NEC is renowned for its innovative and technological contributions. The company has developed several technologies and works with other businesses and institutions to promote research and development across a range of technological domains.

What is your current stand on providing 5G connectivity and

automation across the globe?

NEC has been providing solutions and services for the telecom industry for more than a hundred years. We are providing the solution using our own products or our partner's products. Especially in the 5G era, we need to provide the solutions for the telecom industry together with our partners. We embody the concept of being open and trusted. We have a lot of trusted partners across the globe that help us provide solutions. NEC is a global system integrator that plays a role in providing the right solution for the operator.

What is your view regarding the challenges in the 5G landscape? What actions are NEC taking to enable telecom companies to tackle these challenges?

The telecom industry is still facing challenges regarding 5G monetization. Telecom is already investing a lot of money in the 5G network. However, they still have not seen a good return on investment yet.

NEC is ready to support them to accelerate their monetization, especially regarding the three pillars.

The first pillar ensures that we are providing more advanced services. We can offer consultation services to analyze the business situation or even do a business analysis, and ROI (return on investment) analysis, together with the operator.

The second pillar addresses our global footprint. NEC covers more than a hundred countries; we have a lot of use cases around the globe. We can offer use cases that other operators have already deployed and giving results.

The third pillar addresses partnerships within our ecosystem. NEC has very strong partnerships with our key partners. With these key partners, we can provide further customized solutions to accelerate their monetization.

Could you outline your upcoming strategies and collaborations that align with your goal of delivering a variety of solutions within the telecommunications industry?

When we talk about 5G, or even beyond the 5G era, including 6G, despite the continual evolution of technology, incorporating advancements such as AI and LLM (large language models), we do believe technology should provide the proper solution for society. Due to these effective solutions, some people can experience the benefits associated with those technologies. There is a lot of fear and concern about AI or another technology taking over individual jobs, but it's not true. Technology should play a key role in supporting humans and society, contributing to a stable, safe, and stress-free society. **TR**



Global Impact, Regional Brilliance: Telecom Review's 17th Summit Soars to Success

Under its annual theme “Global. Regional. Digital,” the 17th edition of the Telecom Review Leaders' Summit successfully concluded its two-day gathering with the participation of a broad range of professionals, including telecom operators, telecom vendors, industry regulators, government officials, content providers, cybersecurity experts and consultants, among other attendees.

The Telecom Review Leaders' Summit once again made history as one of the most anticipated and largest ICT events in the industry, with the continued presence of thousands of distinguished guests across the

ICT industry, as well as the support of the Telecommunications and Digital Government Regulatory Authority (TDRA) and 2023's esteemed lineup of sponsors, namely e&, du, Huawei, Netcracker, PMP Strategy, AALTO HAPS, Amazon Web Services (AWS), Bayobab, Beyond ONE, PCCW Global | Console Connect, NEC, Nokia, Salam,

Verizon, Fortinet, Digital DEWA | InfraX, MYCOM OSI, Reailize, Related, SCIT Group | SkyFive Arabia, SES, Sofrecom, Vodafone Oman, Centrigent Consulting, Telcovas, Telecom Egypt, ZTE and EXA Infrastructure.

From December 6-7, 2023, the huge conference hall and demo exhibition



area were fully packed with attendees, fulfilling the event's goal of providing informative sessions and delivering an extensive platform for brand promotion and networking.

Commenting on the success of the event, Toni Eid, Founder of Telecom Review and CEO of Trace Media International, said, "A heartfelt thank you to all participants, distinguished speakers, and partners for their unwavering support for the huge success of the 17th Telecom Review Leaders' Summit. The two days have been filled of excitement, networking and knowledge sharing. We look ahead with anticipation to the continued evolution of industry discourse and

innovative advancements, and we will be ready to craft another chapter in ICT leadership excellence. Join us next year for another groundbreaking 18th edition!"

Telecom Review Leaders' Summit

This year's summit was bigger than ever, raising the bar higher with distinctive and top-notch speakers, all thanks to the participation of the most influential figures in the ICT industry from all over the world, representing the Middle East, Africa, North America and Asia Pacific regions, among other locations.

Opening the floor for the 17th edition of the Telecom Review Leaders' Summit,

Toni Eid addressed the audience with a welcome note.

During the first day, Eng. Saif Bin Ghelaita, Executive Director - Technology, Development Affairs Department at TDRA graced the attendees with his presence and delivered the official opening keynote. Three fireside chats took place to discuss the journey from being a telco to techco, how to compete in the future telco market, and tech's new horizon in a digital transformation journey.

Pioneered by the ICT Leaders' Panel, other exclusive panels were arranged on day one to cover the topics of generative AI,



sustainability, cybersecurity, and digital transformation.

As part of the 17th Telecom Review Leaders' Summit's closing agenda for the first day, Telecom Review Group expressed their appreciation to all sponsors through a special certificate ceremony.

During the second day, the official opening keynote was given by Eng. Mohammed Al Khamis, Director Development Department, TDRA, and three fireside chats took place to discuss du's role as a technology player, the future of wholesale business, and optimizing techco operations using AI. Exclusive panels conducted during day

two include the second session of the ICT Leaders' Panel, and topics on wholesale, infrastructure deployment, Women in ICT, and artificial intelligence. Celebrating the first year of 5G-Advanced in the Middle East, a special panel and initiation ceremony was also held, along with a signing ceremony between the African Telecommunications Union (ATU) and the International Amateur Radio Union (IARU).

Over the course of 2023's Telecom Review Leaders' Summit, impressive keynote speeches were also delivered by notable individuals across the ICT industry. Among the list were:

- Andrew Feinberg, Chairman and CEO, Netcracker Technology;

- Mikko Lavanti, SVP Mobile Networks MEA, Nokia;
- Tang Zhentian, President of Huawei MECA, Marketing & Solution Sales Department;
- Yasser Alsaied, VP IoT, AWS;
- Karim Benkirane, CCO, du;
- Samer Halawi, CEO, AALTO HAPS;
- Tomas Lamanauskas, Deputy Secretary-General, ITU;
- Kayahara Masayuki – General Manager, Service Provider Solutions Department, NEC;
- Marwan Bin Shakar, SVP, Access Network Development, etisalat by e&;
- Mohammed Aliyu, Chief FibreCo Officer, Bayobab; and
- Saleem Al Blooshi, Chief Technology Officer, du 





Telecom Review Excellence Awards



One of the highlights and most exciting part of the 17th Telecom Review Leaders' Summit was the annual Telecom Review Excellence Awards ceremony, which honored leading ICT brands and leaders for their achievements throughout the year and was followed by the annual gala dinner.

Jeff Seal, Chief of the Awards Committee, Managing Partner and Editor-in-Chief, Telecom Review

North America, said, "In 2023, the Telecom Review Excellence Awards set a new benchmark, attracting significant industry interest with a record-breaking global nomination. To accommodate this, we introduced more distinct awards on a global and regional scale. These awards remain the industry standard for peer recognition, thanks to the thorough deliberation by our esteemed panel of global experts. Congratulations to

all winners, and we look forward to another celebration of excellence next year!"

On December 5, prior to the 17th Telecom Review Leaders' Summit, the International Telecommunication Union (ITU) CxO meeting was also hosted by Telecom Review, with the Telecommunications and Digital Government Regulatory Authority (TDRA), du and TELUS as co-hosts. **TR**



Andrey Kuzin, CTO, Smart Axiata

Smart Axiata: Investing in People and Infrastructure

Cambodia's telco market has been experiencing a series of significant transformations. Addressing the changing demands of consumers is a significant part of this whole process. During the FutureNet Asia 2023 in Marina Bay Sands, Singapore, Telecom Review Asia got the chance to talk to Andrey Kuzin, CTO, Smart Axiata, to discuss the significant contribution of Smart Axiata in the telco industry within Cambodia and how they address the challenges and embrace opportunities presented by the rapidly evolving environment.

Cambodia is a rapidly developing market with evolving consumer needs. Can you elaborate on the challenges and opportunities in this dynamic environment?

In Cambodia, we currently find ourselves in a unique situation. It's a market characterized by lower-tier, entirely prepaid services, with remarkably high usage within this segment. Therefore, there exists a notable demand for smartphone users in Cambodia to consume a higher amount of data per month when compared to the global average. However, there are many other expenses competing with telecom spending that make them reluctant to increase spending.

When it comes to the enterprise market, it hasn't fully materialized yet, it's almost non-existent. The current opportunities lie in a couple of different directions. Mobile connectivity seems to have been largely addressed, but there are two major areas where I see future potential.

The first is in the direction of enterprise solutions. It's a field that holds great promise, and there's room for significant growth and development. The second is in fixed broadband services. These two avenues appear to be where the future opportunities in Cambodia's telecommunications landscape are most likely to emerge.

What strategies and initiatives are Smart Axiata implementing to address the growing demands in an increasingly complex digital environment?

If we take a look at this from a futuristic growth perspective, it's clear that we're facing a bit of a challenge, especially in the fixed broadband segment. In the Cambodian market, the infrastructure license and the operational license are two separate licenses. Smart Axiata currently lacks a fiber license. We're actively working to secure one because we see a significant opportunity in the field of fixed broadband, both for home and business use.

To address the absence of this license, we've been engaging with partners who possess the necessary licenses for building fiber infrastructure. We've established several agreements, and we're already in commercial operation, connecting users to this network. In a way, we're pioneering this approach because the other two operators either have the required licenses directly or they have their ISP within the same group of companies. That essentially makes us the only telco in the market working to collaborate with infrastructure companies and transform these relationships into profitable business ventures.

How is Smart Axiata investing in technological advancements and network capabilities to ensure its sustained competitiveness and relevance?

Smart Axiata's network has reached an impressive level of advancement. We've dedicated a significant amount of time and resources to elevate our core network, radio and transport networks. Over the past three years, we've invested approximately 60 to 70 million USD annually in capital expenditures. This ongoing commitment has allowed us to build a future-proof, highly capable network.

Our network operates within an on-premise cloud infrastructure, which provides us with remarkable scalability and control over our network's capabilities.

Furthermore, we invest a lot in the development of our people because we believe that skills and expertise are of equal importance. In my division, I'm running a training program tailored to individual engineers. We've been running this program for the past three or four years. It all began with rigorous testing, followed by the development of personalized training plans. We've been dedicated to this effort for several years because we genuinely want to build our people up and develop their skills.

Digital transformation is the engine for stronger economic growth. How is Smart Axiata positioned to facilitate and empower enterprise digital

transformation initiatives that are essential for Cambodia's continuous economic development?

Looking from an enterprise solution point of view, I see that there is a demand for enterprise-grade cloud solutions. This includes computing, storage, backup, cable-based or wireless transportation solutions, and even M2M services. We have made a commitment to invest in these areas. We're not just investing in systems, but also in people. As a result, we are in the process of hiring a substantial number of individuals. We've identified these directions as our primary focus, and we're actively bringing in new talent and providing them with training. That's essentially what we're doing – investing in both our team and our infrastructure. **TR**



Smart Axiata's network has reached an impressive level of advancement. We've dedicated a significant amount of time and resources to elevate our core network, radio and transport networks





Accelerating Rural Economic Growth and Inclusion: Huawei's 5G Technology Upgrades Digital Connectivity and Sustainability

China is building out the digital infrastructure of its countryside. Yunnan Province in particular shows how, and why, it's getting results.

Huawei held its third Sustainable Development Forum on November 21st, 2023, at Dongguan Xiliu Beipo Village. The forum, centered around the theme 'Thrive Together with Tech: Realizing Sustainable Development,' bridges the gap across different locations by connecting live sessions taking place in Yunnan, Italy, Pakistan and Ghana. Its primary focus is to

discover the transformative potential of digital technology, notably through Huawei's innovative solutions, in order to drive sustainability and economic development in rural and underserved places.

Digital Technologies Fuel the Rural Economy

The emergence of digital technologies has been credited with catalyzing the economic revitalization, marking a pivotal moment that has unveiled opportunities in connectivity,

communication, and e-commerce. In this period of fast technological advancement, Huawei has emerged as a prominent player, advocating for the integration of new technologies, such as 5G, to drive economic growth, foster sustainable business models and create local job possibilities. Huawei's mission is to 'bring digital to every person, home and organization for a fully connected, intelligent world.'

As part of its 'Digital China' campaign, the country has embarked on a mission



to transform its rural areas into thriving digital villages in order to achieve its goals of developing a modern economic system to ensure rural revival. This effort is designed to harness internet, information, and digital technologies to improve agricultural growth, stimulate rural, socioeconomic development and raise the IT abilities of farmers.

Meanwhile, smart villages have become popular worldwide, particularly in Asia and Africa. Innovative solutions using easy-to-deploy rural wireless solutions and renewable energy sources improve resilience and living conditions in these communities. Chinese agricultural and rural areas are modernized by the Rural Revitalization Strategy, which emphasizes the need for digital villages.

By the end of this year, China plans to have made significant progress in the establishment of digital villages. The use of digital technology to assist national food security and the alleviation of poverty is one of the primary goals, along with increasing the number of broadband users in rural regions, which is expected to reach 190 million. Additionally, 5G is planned to cover almost all towns where conditions permit. The country also plans to automate 26.5% of agricultural production, improve digital literacy and support digital rural governance.

Huawei Helps Villages Bridge the Digital Divide

Huawei, in collaboration with operators, has played a significant role in bringing information and communication technologies (ICT) to rural villages in areas like Yunnan, the most southwestern province in China. Huawei's combined solutions, which integrate 5G, cloud computing and artificial intelligence, draw inspiration from exceptional ICT use cases and contribute to the development of digital infrastructure in remote locations. This effort seeks to empower citizens in rural areas and close the digital divide that exists between urban and rural settings.

Smart Tourism Revitalizes Heshun's Economy

In 2020, Heshun Town, which is in southwestern Yunnan, launched its plan for the Smart Tourism Project and it was officially implemented in November 2021. Since then, the village has experienced a significant transformation through the integration of 5G technology, which is a crucial component of the Smart Tourism Project. With improvements to digital infrastructure formerly isolated regions have been integrated into the modern world in a seamless manner. Not only has the implementation of 5G technology provided economic vitality but it has also produced immersive cultural experiences.

Additionally, 5G has emerged as a driver of economic expansion in Heshun, resulting in the creation of new employment opportunities and attracting new capital investments. The village was previously remote, but it has since been transformed into a bustling center that honors its unique cultural heritage, while also welcoming the opportunities presented by the digital age. The fusion of traditional practices and innovative ideas, facilitated by digital tech, showcases the potential for sustainable development in sparsely populated regions.

Other innovations in the village include the integration of water and air quality monitoring systems, high-altitude HD cameras, one-click alarm systems, and fire monitoring systems, which has been achieved through extraordinary speed, low latency and large capacity. This not only promotes intelligent administration of picturesque locations but also strengthens the capacity of the provincial government to protect environmental integrity, cultural artifacts and tourist well-being.

Furthermore, the implementation of 5G, VR and AR, IoT and big data has produced significant change in Heshun. A selection of intelligent amenities that augment the tourist experience include self-service photo printers, self-service water dispensers, leisure benches with charging capabilities and self-service ticket vending devices. These technological advancements enable tourists to experience Heshun in a more streamlined and interconnected manner, thereby elevating its position in smart tourism.

The positive impact that smart tourism has had on Heshun's economy can clearly be seen in the city's recent growth. Currently, the village has around 6,500 beds, 110 restaurants and over 1,000 stores. In addition, there are more than 500 hotels in the area. All of which has improved the quality of life for more than 4,000 residents in the area.

The rippling effect of the economy can also be seen in Tengchong City. The city's overall revenue from tourism skyrocketed to CNY 17.1 billion, which is a phenomenal 38% YoY increase, driven

by a 22% YoY increase in the number of tourists. The tourism revenue represents 69% of the city's total GDP.

Brewing Success in Xinzhai Village

Known as the 'first village of Chinese coffee,' Xinzhai Village in Baoshan City, Yunnan Province, has undergone a revolutionary shift directly attributable to the introduction of 5G technology. Xinzhai Village, which was struggling to maintain its distinguished standing in the face of challenges posed by a conventional coffee industry, shifted its focus toward innovation. The rollout of 5G service in Xinzhai was propelled by a collaborative effort between Huawei and China Mobile, ushering in a phase of swift technological advancement.

The coffee industry in Xinzhai Village was struggling not too long ago, and farmers were only able to make small profits, of less than CNY 15,000 per hectare from their coffee crops. As a result of the deteriorating outlook, several farmers seriously considered giving up coffee farming completely. However, Xinzhai Village has recently surged to the forefront of the global coffee industry due to a change in the government's management philosophy.

Xinzhai Village adopted a comprehensive strategy and implemented an integrated, high-quality coffee development plan across the full industry value chain. This was accomplished by focusing on the coffee's origins. The town established new benchmarks for excellence in every aspect of the production process, from careful selection and cultivation to harvesting and processing. This dedication to quality control not only won the market and businesses' respect, but it also drove up the price of green coffee beans from CNY 15 per kilogram to CNY 60 per kilogram.

The village is now fully covered with 5G network deployed by China Mobile Yunnan to digitize its coffee industry. China Mobile Yunnan built 5G infrastructure over the Gaoligong Mountains after investing heavily in network building and optimization. Locals get premium network services, and tourists and farmers get a better experience. Five 700 MHz base stations are spread across Xinzhai, allowing



residents to communicate, shop online and offline, broadcast coffee farms and monitor agricultural environments with the help of IoT.

Today, Xinzhai Village's coffee fields sprawl over 906 hectares, covering 95% of its total cultivated land. Moreover, the community produces over 4,000 tons of coffee worth CNY 120 million, yielding over CNY 70 million in revenue.

Xinzhai Village now has access to worldwide markets thanks to modernization efforts. This has resulted in the establishment of online commerce, live broadcasting of coffee plantations and IoT-based crop monitoring. The widespread availability of 5G service has improved villagers' ability to communicate and work together. Thus, introducing new opportunities in e-commerce and providing coffee producers with increased leverage in pricing negotiations.

As the third Sustainable Development Forum begins, Huawei's innovations and initiatives as the leader in technology becomes more evident. Huawei is not only connecting regions in the Yunnan province of China, but it is also crafting a narrative of growth, sustainability, and a common vision for a better, digitally-empowered future. **TR**



Huawei's combined solutions, which integrate 5G, cloud computing and artificial intelligence, draw inspiration from exceptional ICT use cases and contribute to the development of digital infrastructure in remote locations



Transforming the Telco Industry: Emerging Trends with GenAI

Generative AI (Gen AI) is gradually becoming a trend in most industries in Asia and around the world. This innovation is also slowly being implemented in the telecommunications industry, which could potentially result in waves of transformation throughout the region.

In an exclusive interview with Telecom Review Asia, Alan Flower, Global Head for Cloud Native and AI Labs, HCLTech, spoke about the emerging trends of deploying GenAI in various industries, including the telecommunications sector and how this technology will impact the industry in the coming years.

What is the current status of Gen AI applications within the telecommunications industry in Singapore and Asia?

In terms of the impact of GenAI on telcos, one would expect the benefits to be evident in various regions. The observed trend is that companies across different industries are actively exploring Gen AI with intent. At this point, it is clear that clients in the telecommunications sector are already recognizing the potential advantages of deploying GenAI.

Clients engaged in exploration seem to possess a clear understanding of the expected outcome of their journey into GenAI. This ongoing exploration serves as a means for clients to reassure themselves that their anticipated outcomes align with the actual results.

During this early stage of the journey, most telcos are focusing on experimenting with what is known

as horizontal use cases, including broad applications of AI across their entire business, encompassing network operations and customer-facing aspects. Several areas of experimentation within operators are notable at this moment.

Primarily, there is a considerable deployment of Generative AI in the realm of software engineering. This is viewed as a low-hanging fruit, with operators experiencing significant productivity gains. The adoption of AI-augmented software engineering is enhancing operators' capacity, quality, and velocity in delivering software-defined services to the market.

The second notable area of impact involves customer-facing use cases, particularly in the context of contact centers. GenAI, despite its intricate technical underpinnings, proves relatively easy to implement. Operators are experimenting with conversational AI, creating chatbots to alleviate the traditional contact center workload. This experimentation aims to enhance the consumer experience, providing better responses and efficiency.

Moving beyond contact centers, operators are exploring the sales and marketing domain. Early evidence indicates improvements in generating



Alan Flower, Global Head for Cloud Native and AI Labs, HCLTech

marketing materials using AI. Intelligent search and summarization, especially for complex contracts, has emerged as another area of interest, making sense of large and intricate documents. In addition to these horizontal use cases, operators are considering GenAI-augmented automation, exploring the possibility of using AI to create and fine-tune automation processes. In the network domain, where complexity is high and reconfigurations are frequent, there is anticipation that Gen AI can bring about significant impact by automating tasks such as script creation for network reconfigurations.

While these areas of experimentation show promise, clients are cautious, seeking confidence before widespread deployment. The current focus remains on relatively safe use cases, such as software engineering and IT help desks, as operators navigate the early stages of integrating GenAI into their operations.

Could you provide more details on the current partnerships between the government and industry aimed at promoting the progress of Generative AI in Asia?

The observation regarding GenAI revealed that many use cases are shared among operators. When one applies AI to their contact center or tailors a large language model to their

business needs, it often mirrors efforts undertaken by other organizations within the same industry. Gen AI presents an ideal opportunity for collaboration among operators on common use cases.

This collaborative approach does not negate competition; rather, it fosters a spirit of cooperation. The emergence of new AI alliances in the industry is an encouraging trend. Collaboration has historically been challenging for many telcos, as it isn't their natural inclination. Despite the complexities involved in running collaborative initiatives, Gen AI stands out as the perfect opportunity for operators to derive genuine benefits through collaboration. For instance, the prospect of fine-tuning large language models specifically for the industry could be a shared effort, as opposed to individual operators training their own models. The formation of collaborations, like the global AI Alliance, signifies a positive step in this direction.

Shifting our focus to the relationship between telcos and government, particularly in a heavily regulated industry, the impact of regulatory bodies and government directives becomes crucial. The telecommunications sector's history of tight regulation requires careful consideration of governmental influence. The encouraging aspect is that, at a country level, governments are beginning to issue regulatory guidance on responsible AI usage within society. This trend is visible globally, from the U.S. to the recent AI Act in Europe, indicating a commonality in emerging regulatory frameworks.

From the perspective of the telco industry, there appears to be no undue cause for concern. The regulatory landscape doesn't seem more challenging for operators than for any other industry. In fact, the work governments are doing to establish boundaries and frameworks is viewed as immensely helpful. Such guidance allows operators to focus their efforts more effectively during this experimental stage, ensuring they avoid wasting resources on irrelevant areas. There's a belief that these government frameworks, rather than being a source of fear for the industry, might actually accelerate collaboration between operators by providing a clear and shared set of guidelines.

How can Gen AI or LLMs be effectively incorporated in telecoms and what is the impact?

It appears that the incorporation of large language models (LLMs) into telcos is already underway. The journey of utilizing LLMs began with the notable impact of ChatGPT, which has been widely experimented with and perceived as somewhat magical. Based on an exceptionally large LLM, ChatGPT possesses the ability to provide answers to a wide array of questions. Operators emphasize the necessity for Large Language Models (LLMs), customized to comprehend their particular business and industry in an optimized fashion.

Looking at the challenges and opportunities, it becomes evident that each operator will leverage a diverse selection of LLMs, with no single LLM dominating their landscape. Specific LLMs will be employed for distinct use cases and purposes. For instance, in the domain of software engineering, co-pilots, driven by LLMs trained solely on software code, are successfully augmenting the productivity of software engineers.

In network operations and maintenance for telcos, the potential for creating conversational agents equipped with in-depth knowledge of a specific network is highlighted. Operators may seek to fine-tune LLMs based on their network data to optimize performance and configuration rapidly. The trend is shifting towards more specialized, efficient, and rapid LLMs focused on single domains, such as telco-specific LLMs.

The introduction of telco-specific LLMs is expected, with operators likely adopting them as foundational models for further fine-tuning. However, the increasing use of multiple LLMs poses a management challenge for operators. The concept of LLM operations (LLMOps) emerges, emphasizing the importance of ensuring that the intelligent software or contact center is guided by the most appropriate LLM and benefits from continuous improvements. Managing the quality of the AI foundation and deploying the right models, in the right context, within

the operator's domain will be crucial in this context.

What challenges do you anticipate in the deployment of Generative AI in the telecommunications sector, and what strategies can be employed to address them?

In terms of the future, there will definitely be remarkable and unpredictable developments in the AI landscape. Reflecting on a substantial number of client conversations within AI labs, there has been a significant shift from experimentation to production, occurring more rapidly than anticipated. The prediction is that this trend will further accelerate, with clients deploying AI solutions into production at an unprecedented pace.

Currently, most organizations, including telco operators, embark on their AI journey in the cloud, leveraging platforms like OpenAI, AzureAI, Google, and AWS. However, there seems to be a growing inclination among operators to own their AI stack, while desiring greater control and innovation. This involves putting a management innovation wrapper around platforms like OpenAI and Google to enhance customization.

Furthermore, Gen AI deployments put emphasis on proximity to quality data, which is deemed crucial for successful AI journeys. And many operators are fortunate to possess abundant, high-quality data in their traditional data center estates. As experimentation begins in the cloud, the journey is expected to transition into an on-premises one. Gen AI is envisioned to become a hybrid multi-cloud reality, requiring operators to build and manage a rich ecosystem for a comprehensive AI environment.

Finally, high-quality data will play an indispensable role in a successful GenAI journey. Operators are anticipated to make substantial investments in effectively connecting their extensive data estates with emerging GenAI platforms. This integration is deemed key to supporting innovative solutions and new use cases, making the connection between an operator's data and the AI stack a pivotal area of investment in the coming year. **TR**



Utilizing the Full Potential of Cloud Services Without the Extra Cost

The global landscape of information technology is constantly evolving, and organizations in Asia are increasingly turning to cloud services in order to streamline their operations, improve their flexibility, and increase their overall efficiency. It is possible to gain tons of benefits from the implementation of cloud services, which, in turn, revolutionizes the way in which enterprises function and handle their data. It is essential for organizations to strike a balance between maximizing the benefits of cloud computing and avoiding the costs associated with it as they embark on their journey toward cloud computing.

Widespread Application of Cloud Services
Various factors have contributed to the boom of cloud adoption in the

Asia-Pacific region. These include digital transformation projects, rapid economic growth, and the requirement for solutions that are both scalable and cost-effective. Through the use of cloud services, businesses are able to gain access to computing power, storage, and apps on a pay-as-you-

go basis. This eliminates the need for enterprises to make significant initial investments in infrastructure.

The scalability of cloud services is one of the most important advantages they offer. With the ability to rapidly scale their IT resources based on demand,

Asian companies can ensure maximum performance without overprovisioning their systems. When it comes to companies that have varying workloads (such as e-commerce during peak shopping seasons or financial services during quarterly reporting) this adaptability is very necessary.

A study revealed that more than 90% of businesses in the Asia Pacific believe that the COVID-19 pandemic has influenced the increased interest and investment in cloud technology. Enterprises have increasingly turned to multi-cloud strategies to address problems that have never been seen before, such as the rise in the number of people working remotely and the requirement for seamless collaboration with new partners. This trend has resulted in the widespread adoption of multi-cloud solutions. In the Asia Pacific region, 97% of businesses are utilizing the services of at least two cloud infrastructure providers, and 35% have chosen to engage with four or more providers.

Benefits of Deploying Cloud Services

Cloud services provide a collection of tools and capabilities that improve the efficiency of a variety of corporate processes. An example of this would be Infrastructure as a Service (IaaS), which offers virtualized computer resources and enables organizations to delegate the maintenance of their physical infrastructure to cloud providers. Not only does this lessen the workload of the IT teams working in-house, but it also improves the dependability and security of the system.

In addition, Platform as a Service (PaaS) and Software as a Service (SaaS) businesses make it possible for organizations to concentrate on application development and innovation without having to worry about the complexity of managing the underlying infrastructure. This rapid development cycle is especially beneficial in the highly competitive corporate environment that exists in Asia.

The banking sector is one good example of how cloud computing may be used to improve productivity.

Numerous banks and other financial organizations make use of cloud services for the purposes of data analytics, the identification of fraudulent activity, and the management of customer relationships. By embracing the capabilities of cloud computing, these businesses are able to handle big data in real time, thereby acquiring new insights and improving their decision-making processes.

Optimizing Cloud Costs

There is no denying the evident benefits that cloud infrastructure offers. Nonetheless, enterprises frequently find themselves struggling with expenses that were not anticipated. According to a study, 32% of the money spent on cloud services is wasted as a result of idle resources and tools that are disregarded. In order to stop this from happening, cloud cost optimization becomes an essential component in preventing unnecessary expenditures. It is an intricate coordination of objectives that calls for an all-encompassing strategy, and it entails the strategic design, deployment, and administration of cloud resources in order to achieve peak performance, robust security, and cost efficiency.

Cloud providers such as Amazon Web Services offer their own management tools for cloud optimization. Efficient tracking and optimization of cloud expenditures can be achieved through various solutions. These tools offer automated real-time actions to maximize the utilization of computing, storage, and network resources across diverse cloud platforms.

Moreover, the adoption of a pay-as-you-go strategy is one of the methods that can be used to achieve efficiency in the cloud era. It involves employing automated techniques to align resources with real-time demand, thereby eliminating unused resources and unnecessary expenditures. A customizable 'cloud bursting' ensures that enterprises scale precisely when they need to; preventing expense overruns.

Cloud services have been widely adopted throughout Asia, which has

resulted in a transformation of the business landscape. These services offer unprecedented levels of flexibility, efficiency, and scalability. Utilizing a method that is both smart and cost-efficient is, however, the most important factor in maximizing the benefits. Companies who adopt cloud services while also deploying cost management methods stand to gain a competitive advantage. In spite of the fact that technology is continuing to have an impact on the future of enterprises, the cloud continues to be an essential instrument for advancement and expansion, provided that it is utilized in a prudent manner and with a keen eye on optimization. **TR**



Cloud services have been widely adopted throughout Asia, which has resulted in a transformation of the business landscape.





Sustainable Data Centers Pave the Way for a Digital Future

In the rapidly changing world of technology, the Asia-Pacific region is leading the way in a groundbreaking movement towards sustainable data centers. With the ongoing growth of the digital age, there is a huge demand for storing and processing data, which has created an urgent need for environmentally-friendly solutions. This region has experienced a significant increase in eco-friendly initiatives, with both industry leaders and governments advocating for sustainability in the data center industry.

Data Centers as Enablers of Societal Advancements
Digital Realty, a major player in the data center

industry, has recently announced a series of innovative sustainability initiatives in the Asia-Pacific region. In a press release, the company has outlined its commitment to reducing its carbon footprint and embracing renewable energy sources. This move

is in line with the global trend towards eco-friendly practices, highlighting the importance of responsible corporate citizenship in the digital era.

The company's strategic approach involves encouraging colocation

service providers and hyperscale operators to adopt renewable energy. According to a report, this shift is not only environmentally responsible but also makes good business sense, as it meets the growing demand for sustainable practices from both consumers and investors.

Furthermore, companies that build data centers often use PUE (Power Usage Effectiveness) figures to measure the environmental impact of their operations. However, the overall environmental impact of a company goes beyond the cooling aspect of data centers. Regulators and public authorities view data centers as energy-intensive facilities that strain the electricity infrastructure. Convincing regulators of the positive societal impact of data centers requires considering their indirect effects, such as enabling businesses to move to the cloud and reducing energy consumption.

For example, data centers play a crucial role in industries like healthcare, allowing for telesurgery and telemedicine. During the COVID-19 pandemic, data centers played a vital role in enabling remote work, virtual learning, and online entertainment. Despite the increased demand for data centers, EdgeConneX, a company committed to carbon neutrality, emphasizes the importance of access to renewable energy. They also collaborate with third-party partners and provide training programs to promote carbon-aware operations.

EdgeConneX consults with other operators to exchange best practices and ensure environmentally-friendly operations. While new technologies like Microsoft's underwater data center may shape the future of eco-friendly data centers, considering multiple factors is essential for an operator that aligns with ecological goals.

Tech Giants Taking the Lead

The sustainability movement in data centers goes beyond corporate initiatives and includes major players in the tech industry. Facebook, a

prominent social media company, has made it clear that it is dedicated to sustainability. In a recent blog post, the company discusses what it takes for a data center to be truly sustainable, with a focus on energy efficiency and renewable energy sources.

To achieve carbon neutrality and zero emissions, Facebook has implemented advanced technologies and practices. The company's commitment to sustainability extends beyond its data centers and encompasses its operations in the Asia-Pacific region, showing a comprehensive approach to reducing its environmental impact.

Meta's head of renewable energy for West America and the Asia-Pacific, Amanda Yang, explained that renewable energy projects are strategically located in areas where they have a presence. This aligns with their core value of adding new renewable energy capacity in the regions where they operate. Whilst all global operations are currently supported by renewable energy; their focus is on continuously improving their efforts to accelerate the decarbonization of the power grid. Yang emphasized that they actively collaborate with utilities, developers, and regulators to drive this transition whenever possible.


Regional Governments Spearheading Change

Government initiatives in the Asia-Pacific region have played a crucial role in guiding the data center industry towards sustainability. A report by CIO Southeast Asia highlighted that data center sustainability has become a top priority in Southeast Asia. Governments in the region are now acknowledging the environmental impact of data centers and are implementing regulations and incentives to promote the adoption of eco-friendly practices.

As discussed in an article, Southeast Asian countries are placing significant emphasis on reducing carbon emissions and striving to achieve carbon-neutral status. This aligns

with global efforts to combat climate change and positions the Asia-Pacific region as a frontrunner in the development of sustainable data centers.

A Collaborative Effort for a Greener Future

Data center managers in the Asia-Pacific region are increasingly recognizing the importance of sustainability, hence, sustainability is a significant factor for data center managers in the region. As the demand for digital services continues to grow, collaboration between industry players, governments, and tech giants becomes crucial for achieving a sustainable and eco-friendly digital future. 



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Ericsson Revolutionizes CJ Logistics' Operations with First Full-Scale Private 5G Network



CJ Logistics, a global logistics leader, has partnered with Ericsson to deploy the world's first full-scale, commercial private 5G network at Ichiri center in Incheon City, South Korea.

The private 5G network at the Ichiri center has improved receiving, sorting, and categorizing commodities and loading and unloading activities. CJ Logistics chose Ericsson for this transformative endeavor because of its scalability and ease of implementation; helping to manage its 400 storage sites in South Korea and 40 more abroad.

CJ Logistics' Ichiri center productivity has increased 20% since the installation. Enhanced accuracy and real-time

connectivity between devices and systems have led to a notable reduction in picking process times, yielding significant improvements. Additionally, the implementation of a private 5G network has minimized manual interventions and optimized workflow processes.

Private 5G Network Benefits

The Ericsson private 5G network enables the high-speed operation of self-controlled vehicles like AGVs (automated guided vehicle) and AMRs (autonomous mobile robots); which reduces collisions and unplanned events, therefore improving workflow and safety.

"Our work with CJ Logistics is a groundbreaking example of the benefits that a private 5G network can bring to a business. With only 22 radio dots installed (compared to 300 Wi-Fi access points), the private 5G network guarantees connectivity; supporting innovative end-to-end solutions for precise material flow, streamlined supply

chains, heightened safety measures, cost reduction and sustainable practices," explained Thomas Norén, Head of Dedicated Networks, Ericsson.

After installing 300 Wi-Fi access points throughout its warehouse, CJ Logistics decided to switch to a private 5G network due to outages and dead zones. Ericsson was chosen for its fast project launches, security, scalability, and cost-efficiency. Ericsson 5G devices had 15% less capital investment than wired equivalents, proving their appropriateness for network power.

Sangcheon Ryu, CIO, CJ Logistics, said, "Connectivity serves as a backbone; enabling seamless communication, data exchange and coordination among various devices, systems and stakeholders involved in complex operations. The ability to utilize dedicated industry spectrum ensures our network's reliability and performance, making private 5G a strategic choice for our organization."

M1 Selects CSG's Cloud Platform for Telecom Revolution in Singapore



The telecommunications market in Singapore is highly competitive and mature, thanks to the presence of a standalone (SA) 5G network and widespread wireless broadband. To enhance the customer experience and explore new revenue opportunities, M1 Limited (M1), the first digital network operator in Singapore, has chosen CSG's scalable cloud-native platform.

This transformation will strengthen M1's enterprise business and improve the customer experience. M1 will utilize CSG Ascendon, which is hosted on Amazon

Web Services (AWS), to revolutionize B2B practices by offering cloud-powered customer experiences that are as easy and personalized as consumer experiences.

Driving Growth through Software and Partnerships

Regular software updates will enable M1 to keep up with the fast pace of change, while streamlined offer management will facilitate the rapid launch of new services. These enhancements will allow M1 to manage a growing network of B2B2X relationships and drive growth through partnerships, such as the National Heritage Board, by capitalizing on the demand for immersive experiences in arts, entertainment, and recreation.

This will establish a foundation for scalable growth and transform Singapore's telecommunications

landscape. CSG Ascendon empowers leading global brands to monetize, manage, and market services to customers faster than their competitors. It enables them to launch, learn from, and expand offerings to remain relevant, build brand loyalty, and maintain a strong customer base across B2C, B2B, and B2B2X environments.

Chief Digital Officer at M1, Jan Morgenthal, stated that M1 is currently undergoing vital digital transformation to ensure readiness for the future. CSG's innovative SaaS platform will provide M1 with cloud capabilities to accelerate innovation and enhance agility in addressing evolving market demands. Additionally, CSG's understanding of customer needs and expertise in enterprise monetization will enable M1 to differentiate its business and improve the enterprise customer experience.

IIJ and Murata Launch New IoT Data Service



Internet Initiative Japan (IIJ) and Murata have partnered to launch the Crossborder Co-DataBiz IoT data service platform. This partnership combines Murata's cutting-edge IoT devices with IIJ's cloud services. These services are constructed using the expertise gained by both organizations through the successful traffic counter data service, encompassing sensing and network technologies, data analytics, and a deep understanding of business models.

Co-DataBiz will provide all the systems and services needed to collect, analyze, and act on data. This includes sensors, data gathering networks, cloud architecture, and edge and cloud monitoring and operating systems.

Complementing Murata's proficiency in IoT devices are cloud services from IIJ

that are privacy-certified and compliant with APEC CBPR and European BCR standards. Safous, an IIJ network service that offers integrated zero-trust level 4 security, ensures that data storage and utilization protections are in place. Ensuring adherence to crucial local laws and regulations in Southeast Asia, the platform effectively manages facets pertaining to the transfer of data across borders.

Customers can utilize Murata's local partnerships and knowledge to personalize the process of gathering, consolidating, examining, and displaying their operational data. Applications such as road and equipment maintenance in public transportation, traceability management of mobile data, sensing of local laborers in industrial areas, and smart agriculture management are ideally suited for the Co-DataBiz platform.

Successful Deployment of Co-DataBiz Platform

Two outstanding customer solutions have been created thus far using the Co-DataBiz platform. Through

a mobile application, the Tripod Works TRac Cloud solution enables centralized administration of alcohol checker measurements in the cloud. Furthermore, photo identification verification is facilitated through the transmission of the solution's output. These services are currently being developed in response to commercial driving regulations, which are presently in effect in Japan and will shortly be mandatory in Thailand. The expertise of IIJ and Murata will ensure that this confidential information is protected in accordance with local regulations.

Furthermore, Nippon Koei and UrbanX Technologies are working together to create an AI solution. This solution will showcase maps and detailed information about road surface damage on a web-based management screen. The solution detects road surface damage automatically using images captured from smartphones and other cameras installed in vehicles. Local governments are able to reduce labor expenses, increase the efficacy of road inspections and restorations, and implement preventive maintenance programs by utilizing this solution.

Telcos Partner with Starlink to Launch Direct-to-Cell Satellites



SpaceX has successfully launched a Falcon 9 rocket carrying the first set of Starlink satellites, designed to transmit satellite phone signals directly to smartphones from space with its direct-to-cell capabilities.

With their innovative direct-to-cell capabilities, Starlink aims to establish a novel and efficient communication infrastructure, bridging the gap between space-based technology and everyday smartphone usage.

Collaborators Utilizing Direct-to-Cell Technology

Wireless service providers from all over the world, such as KDDI in Japan, Australia's Optus, New Zealand's One NZ, T-Mobile in the US, Switzerland's Salt, Chile's Entel and Rogers in Canada, are among the collaborators utilizing SpaceX to deploy direct-to-cell technology.

The technology will leverage the capabilities of Starlink satellites which contain custom silicon phased arrays that can establish a direct connection with smartphones deployed on the ground, which is expected to address geographical challenges that generally impede the delivery of internet services and improved connectivity for users.

According to T-Mobile, the initial phase of the direct-to-cell service will

begin with text messaging, with plans to expand to include voice and data capabilities in the next few years.

Meanwhile, One NZ announced that the live testing for the satellite coverage is scheduled to start later this year in Aotearoa. The network team at One NZ is working closely with SpaceX to ensure a smooth integration. One NZ's existing 4G and 5G mobile networks will be complemented by the satellite coverage.

Industry experts expect this technology to revolutionize mobile communication and overcome gaps in network coverage, particularly in places that are underserved or remote. The successful launch of the first batch of Starlink satellites signifies the potential for worldwide collaboration in the advancement of communication technology.

AMD Inaugurates Largest Global Design Center in Bengaluru, India



AMD, a leading company in high-performance and adaptive computing, has opened its largest global design center in Bengaluru. This marks a significant step in their commitment to expanding research, development, and engineering operations in India.

Campus Features

The state-of-the-art campus will eventually house around 3,000 AMD engineers who will focus on designing and developing semiconductor technology, including 3D stacking, artificial intelligence, and machine learning.

Known as the AMD Technostar campus, it is part of the company's USD 400 million investment in India

over the next five years. The campus will serve as a center of excellence for developing high-performance CPUs for data centers and PCs, GPUs for data centers and gaming, and SoCs and FPGAs for embedded devices.

The campus spans 500,000 square feet and includes collaborative spaces, conference rooms, R&D labs, and a demo center for visitors to experience AMD products. It also features a cafeteria, gym, and yoga center.

Campus Benefits

From a technological perspective, the campus is poised to become a hub for high-performance and adaptive computing innovation. With AMD's reputation as a leader in these domains, the Bengaluru center is likely to drive cutting-edge advancements in semiconductor design, software development, and other critical areas. This could contribute to the creation of innovative products and solutions

that impact various industries, including gaming, data centers, and artificial intelligence.

Moreover, the establishment of such a significant facility can have positive implications on the local economy. It is likely to create a substantial number of job opportunities for skilled professionals in the region, fostering talent development and collaboration. This infusion of talent and resources can also stimulate the growth of the technology ecosystem in Bengaluru and contribute to the city's reputation as a global technology hub.

Additionally, the campus could play a crucial role in fostering partnerships and collaborations with local universities and research institutions. This can enhance knowledge exchange, facilitate collaborative research initiatives, and provide educational opportunities for students, further strengthening the ties between the industry and academia.

DOCOMO Collaborates with Amazon's Project Kuiper for Advanced Satellite Connectivity



NTT, NTT DOCOMO, NTT Communications (NTT Com), and SKY Perfect JSAT are collaborating with Amazon's Project Kuiper to offer satellite connectivity services in Japan. The partnership aims to provide reliable and advanced satellite connectivity options to customers in the country, particularly in remote areas that are difficult to reach with traditional communication technology.

The companies plan to leverage Project Kuiper's low Earth orbit (LEO) satellites

to enhance communication availability and resiliency. NTT and SKY Perfect JSAT will distribute Project Kuiper's connectivity services to enterprises and government organizations, while NTT Group companies will become customers of Project Kuiper.

Building Resilient Networks

The collaboration is expected to enable customers to build resilient and redundant communications networks, especially during natural disasters and emergencies. NTT DOCOMO plans to utilize Project Kuiper to connect rural and hard-to-reach parts of Japan to its core telecom network, eliminating the need for expensive infrastructure.

The partnership will enable Japanese businesses to employ Project Kuiper

connectivity for various applications, including internet of things, predictive maintenance, fleet management, and remote manufacturing. Customers will also have the opportunity to connect to Amazon Web Services (AWS) to access advanced technologies such as machine learning and AI.

The collaboration will explore further opportunities for seamless communication between Earth and space, aiming to develop new services that benefit customers in areas such as healthcare, financial services, and entertainment. Project Kuiper recently achieved a 100% success rate for its satellite test mission, and beta testing of connectivity services is expected to begin in the second half of 2024, with NTT and SKY Perfect JSAT participating.

NBTC Initiates Plan for Mobile Expansion and Free State Digital Services



The chairman of Thailand's National Broadcasting and Telecommunications Commission (NBTC), Dr Sarana Boonbaichaiyapruk, has announced a plan to increase the number of Mobile Virtual Network Operators (MVNOs) in the country.

This move is poised to introduce heightened competition in the telecommunications sector, fostering better service offerings, competitive pricing, and improved overall quality for consumers. The increased presence of MVNOs often sparks

innovation, encouraging both new and established players to adopt novel approaches and services, thereby advancing the technological landscape.

Beyond consumer benefits, the entry of more MVNOs contributes to market growth, attracting investments, generating economic activity, and potentially creating employment opportunities. Furthermore, the initiative signals a favorable regulatory environment that supports a competitive market, ensuring fairness and safeguarding the interests of operators and consumers alike.

It is anticipated that this strategic move will not only enhance the connectivity and infrastructure of the telecommunications sector but also position Thailand as a hub

for technological advancements in mobile communication.

MVNO Establishment

The plan, called One Region, One Mobile Virtual Network Operator, aims to establish four additional MVNOs by 2026, in addition to the three existing mobile phone operators in Thailand. In addition to this, the NBTC also intends to provide free access to state digital services across the country by 2026. This means that all Thai citizens will be able to access basic state services without incurring any internet charges on their mobile tariffs.

The NBTC chairman has stated that this initiative will be implemented in collaboration with mobile phone operators. The NBTC office plans to begin implementing both the One Region, One MVNO scheme and the free government digital services policies this year.

Vantage Data Centers Uncovers 16MW Sustainable Hub in Taipei, Taiwan



Vantage Data Centers, a leading provider of large-scale data center campuses, has announced its entry into Taipei, Taiwan's largest data center market. The company will open TPE1, a 16MW, 215,000 square foot data center in mid-2024. The new facility will be located in Taiwan's capital city, just 35 minutes from the Taiwan Taoyuan International Airport.

Campus Overview

The TPE1 campus will be built with a focus on sustainability, in line with the local government's efforts to promote renewable energy sources. It will be powered by Taiwan Power Company (Taipower), which is actively developing clean energy solutions. The campus

will also have redundancies in place to ensure uninterrupted service.

Why Taipei?

Vantage chose Taipei due to its role as a hub for Taiwan's digital transformation, as well as its strong connectivity and submarine cable access. This connectivity is crucial for ensuring high-speed, reliable, and resilient data transmission, making Taipei a strategic choice for data center operations.

Taipei plays a pivotal role as a hub for Taiwan's ongoing digital transformation, making it a central point for the country's technological advancements. The city's commitment to embracing and leading in the digital era creates an environment conducive to the growth and development of cutting-edge data infrastructure.

The Taipei data center market is expected to double in size by 2028, presenting a significant opportunity

for Vantage. This expansion presents a significant opportunity for Vantage to capitalize on the increasing demand for data services in the region. By aligning with Taipei's role in digital transformation, leveraging strong connectivity, and recognizing the city's growth potential, Vantage positions itself strategically to thrive in the evolving landscape of data center services.

The president of Vantage Data Centers, APAC, Raymond Tong, stated that Taipei is an ideal location to serve customers in Asia, given the region's increasing demand for modern technologies like AI.

Vantage is committed to supporting Taiwan's sustainable growth and aims to achieve net zero carbon emissions across its global portfolio by 2030. This new campus in Taiwan is Vantage's eighth in the Asia-Pacific region. For more information on Vantage's campuses in the Asia-Pacific region, visit their website.



Asian Telcos Pioneering the 5G Revolution

Asia has emerged as a global frontrunner in the race to fully utilize the revolutionary power of 5G technology, with industry leaders pushing the boundaries of innovation and connectivity. The arrival of 5G holds the potential to transform various sectors, from the medical field to the manufacturing sector, launching a new era of unprecedented speed, dependability and connectedness.

The more developed economies in the region, such as South Korea, Australia, and China, have been leading the transformation, influenced by the introduction of 5G technology. After South Korea's successful deployment of a statewide 5G network in April 2019, other countries including Australia, the Philippines, China and New Zealand quickly followed suit. South Korea set the pace for the industry. According to the projections made by GSMA Intelligence, a second wave of 5G rollouts in countries such as Indonesia, India and Malaysia will allow the Asia Pacific to dominate the 5G industry worldwide by 2025.

A recently published study by Research and Markets, titled '5G Growth Opportunities in Southeast Asian Countries', presents a promising scenario in the region's digital future. The ASEAN region is expected to have a compound annual growth rate (CAGR) in 5G revenue of 35.3%, increasing from USD 1.64 billion in 2022 to an astonishing USD 7.43 billion in 2027. This relentless spread of 5G connection will be the primary driver of this massive shift, and it will emerge as the cornerstone during this transformation.

Success of 5G in Asia Pacific

An essential element in the success of 5G deployment in the region is the allocation of spectrum resources. The process of allocating spectrum for 5G applications has moved quickly throughout the Asia Pacific's regulatory bodies. When coverage and capacity need to be balanced, the mid-band spectrum, and particularly the C-band, has proven to be the optimal choice. Nevertheless, several markets put stringent restrictions and milestones on operators. One such market is South Korea, which has stringent conditions for the retention of spectrum licenses.

According to Ookla, Seoul and Kuala Lumpur are the cities that perform the best in terms of 5G, enjoying outstanding median download speeds. Additionally, Indian cities like Delhi and Mumbai demonstrate outstanding

speeds, highlighting the potential for quick development of 5G in the region. Despite being one of the last entrants to 5G, India is home to some of the most promising internet speeds in the world.

Meanwhile, China has emerged as a formidable competitor in the race to dominate the 5G environment because of its enormous consumer base and relentless efforts to achieve technological advancement. Companies all throughout the world, including Huawei, ZTE and China Mobile, have been instrumental in the formation of the narrative surrounding 5G. In particular, Huawei has been at the forefront of the development of 5G infrastructure, serving as a provider of equipment to telcos all over the world. Chinese enterprises have continued to push the boundaries of technology and have made important contributions to the standardization as well as the commercialization of 5G.

When it comes to taking the lead in 5G technology, Japan is taking a holistic approach that spans beyond major telcos. The rollout of 5G is being led by NTT docomo, SoftBank and KDDI Corporation, but Japan's competitive advantage lies in the partnership between the country's telcos, device manufacturers and vertical industries. This partnership has resulted in the development of new use cases, such as the application of 5G-powered robotics in the manufacturing and healthcare industries. Japan has established itself as a leader not only in the development of network infrastructure but also in the promotion of a flourishing ecosystem for 5G technology, as a result of its dedication to the creation of a comprehensive 5G environment.

Additionally, despite its size, Singapore has continuously shown a forward-thinking commitment to the adoption of new technologies. The country has made significant investments in 5G infrastructure with its vision and goal actualization of becoming a smart nation. The Infocomm Media Development Authority (IMDA) of the city-state of Singapore has been actively cooperating with industry participants in order to establish an environment that is favorable for the

development of 5G. Singtel and StarHub are among the primary companies pushing Singapore's 5G agenda. Their goals not only include placing Singapore as testing ground for novel 5G applications but also achieving statewide coverage with 5G networks.

Asia demonstrates the revolutionary potential of strategic planning, collaboration and innovation during the 5G revolution. The future of the digital landscape will be significantly influenced by the decisions made today. It is not enough to only embrace 5G, it must be pushed into a new era of digital excellence by masterfully conducting a symphony of innovation, strategic alliances and visionary leadership. ■



Asia demonstrates the revolutionary potential of strategic planning, collaboration and innovation during the 5G revolution





Dr. Katsuhiko Kawazoe,
Senior EVP, NTT

Revolutionizing Connectivity: IOWN Vision for Global Sustainability

In an exclusive interview with Telecom Review, NTT Senior EVP, Dr. Katsuhiko Kawazoe, talks about sustainable technology implementation as well as the significance of NTT's participation in this year's ITU CxO meeting.

The NTT Group is aiming to achieve sustainability based on technology. Can you explain the key focus behind the Innovative Optical and Wireless Network (IOWN) concept?

The concept of the Innovative Optical and Wireless Network aims to significantly improve the performance of energy efficiency, transmission capacity, and low latency. Performance advantages of IOWN are 100 times higher in energy efficiency, 125 times higher in transmission capacity, and one two-hundredth end-to-end latency. Toward realizing IOWN, we established the IOWN Global Forum in January 2020 and are working on R&D and social implementation with about 140 global member organizations.

How will IOWN influence Japan's position as an indispensable global player in the semiconductor value chain? How will NTT contribute to fulfilling this goal?

I'd like to emphasize that IOWN is a global project, not a Japanese domestic project. One key component of IOWN is photonic-electric convergence technology, which replaces diverse processes using

electricity with optical processing as much as possible. We'd like to contribute to the semiconductor industry by achieving the world's best performance in this field. In collaboration with the IOWN Global Forum members, NTT will globally create new value chains in all industries with IOWN.

What are the long-term plans for IOWN's implementation moving forward?

We launched our first IOWN All-Photonics Network service in Japan in March 2023. In the next steps, we plan to develop disaggregated computing technology, and then apply these IOWN technologies to all industries, such as mobility, medical care, and construction. In the future, we aim to accelerate social implementation and create a sustainable and smarter world by IOWN.

What is the significance of your participation in this year's ITU CxO meeting?

Until now, IOWN has been discussed and developed on de facto forums mainly from industry perspectives. But we believe the power of de jure standards, especially ITU-T is essential for realizing a sustainable and smarter world in the global deployment of IOWN. At the

roundtable, I would like to emphasize the necessity of collaboration between ITU-T and the industry among the C-level executives and get started together. **TR**



The concept of the Innovative Optical and Wireless Network aims to significantly improve the performance of energy efficiency, transmission capacity, and low latency





Thaib Mustafa,
CEO, FNS Malaysia

Jeon Seung-Ju,
CEO, FNSValue

Securing Telecommunications with FNSValue and FNS Malaysia

In a recent exclusive interview with *Telecom Review*, Jeon Seung-Ju, the CEO of FNSValue, and Thaib Mustafa, the CEO of FNS Malaysia, shed light on the critical importance of security in the ever-evolving landscape of the telecommunications industry. FNS Malaysia is a prominent subsidiary of FNSValue. Through its innovative technologies and commitment to security, FNS Malaysia plays a crucial role within the broader framework of FNSValue's offerings, contributing to the advancement of secure and efficient solutions in the area of distributed security authentication.

As developers of multilateral distributed security authentication technologies, they discussed the role of security in safeguarding sensitive information

exchanged among telecommunication companies.

The Significance of Security in Telecommunications

Jeon, emphasized that as information from telecommunication carriers often contains personal data, there is an

inherent risk of extortion during the process of sending and receiving data. The presence of sensitive information in the communication channels of telecommunication companies underscores the pressing need for strict security measures.

Security has become a paramount concern, with the entire spectrum of telecommunication services vulnerable to hacking. He also highlighted the potential for strengthening the protection of personal information handled by telecommunication companies through the implementation of secure blockchain-based authentication solutions.

Collaboration with Big Dataworks

Mustafa, provided insights into the collaboration agreement between FNSValue and Big Dataworks. Big Dataworks, with a focus on fintech and govtech, seeks solutions for swift access to digital services.

The collaborative effort aims to move away from the conventional ID and password ecosystem, steering towards digital password-less and high authentication blockchain-based services. This strategic alliance signifies a step towards enhancing security in digital transactions and ensuring seamless access to services.

Global Expansion and Future Collaborations

When asked about future collaborations, Jeon expressed FNSValue's commitment to expanding its impact by collaborating with financial service providers, including legacy banking and fintech companies, to establish a robust security ecosystem in Korea. "In addition to Korea, we are trying to create a better security ecosystem by collaborating with many foreign companies," he continued.

Mustafa also highlighted the urgency of global expansion, emphasizing the need to explore opportunities in Asia, Europe, the US, and the Middle East. The goal is to ensure the swift adoption of blockchain-based authentication technology, contributing to the creation of a secure digital world. **TR**

ZTE and China Mobile Propel SPN/MTN Evolution with ITU-T's Release of Fine Grain International Standards



ZTE Corporation, a global, leading provider of information and communication technology solutions, in collaboration with China Mobile and industry partners, has proposed new international standards for the SPN (Slicing Packet Network)/MTN (Metro Transport Networks) series. The standards were recently released at the ITU-T SG15 plenary meeting 2023 in Geneva. These standards focus on fine grain slicing of the SPN: G.8312.20 (fgMTN overview), G.8312 Amendment 2, and G.8310 Amendment 1.

At the same time, two new fine grain MTN standards have been approved—G.8321 Amendment 1 and G.8312 Amendment 3, which encompasses bandwidth hitless adjustment and CBR service. This release enriches the SPN/MTN series standards, indicating their powerful evolution capability, demonstrating their vigorous vitality, and laying a solid foundation for the large-scale commercial use of SPN technology worldwide in the future.

In the realm of technological industrialization, ZTE takes proactive measures to advance the verification of cutting-edge technologies of SPN fine grain slicing and explores novel service applications. For example, ZTE was the first to build a FlexE-based Nx10M fine grain prototype and is proud to be the inaugural vendor to successfully complete the laboratory test, pilot solutions in an existing network, and achieve commercial deployment.

Furthermore, the release of the G.8312 Amendment 2 and G.8312 Amendment 3 approved during this meeting served as the cornerstone of the SPN/MTN fine grain standard series. Notably, they are collaboratively edited by China Mobile and ZTE. Over the years, China Mobile has played a pivotal role as the editor of seven standards within the SPN/MTN series, while ZTE has contributed as the editor of five. Both China Mobile and ZTE have made significant and indispensable contributions to the standardization of key SPN/MTN technologies.

Moving forward, ZTE is committed to a sustained collaboration with China Mobile, focusing on technological innovations and advancing SPN development. This partnership aims to deliver high-quality transport solutions tailored for the new stage of 5G.

NTT Global Data Centers Japan and TEPCO Power Grid Collaborate for Advanced Data Centers



NTT Global Data Centers Japan (NTT GDCJ) and TEPCO Power Grid (TEPCO PG) have partnered to create a new company that will develop and operate data centers in the Inzai-Shiroi area of Greater Tokyo, Japan.

Partnership Outcomes

This partnership aims to strategically place data centers to ensure power and connectivity, with the first project focused on building data centers in the Inzai-Shiroi area with an IT load of 50MW.

The partnership outcomes are not limited to mere infrastructure development; they

encompass a comprehensive strategy aimed at optimizing the synergy between NTT GDCJ's expertise in data center solutions and TEPCO PG's proficiency in power grid management. By leveraging these strengths, the collaborative venture aims to contribute significantly to the evolution and efficiency of data infrastructure within the region.

Beyond the immediate tangible outcomes, this strategic partnership is poised to create a lasting impact on the Greater Tokyo data ecosystem, fostering innovation, economic growth, and environmental sustainability. By integrating more eco-friendly infrastructure technologies and optimizing the balance between power and connectivity, NTT GDCJ and TEPCO PG aspire to set new benchmarks in the realm of advanced data center development.

Combining Solutions

The new company is expected to be established in spring 2024, with the capacity to be delivered in the second half of the 2026 fiscal year. NTT Global Data Centers is investing 1.5 trillion yen (approx. USD 12 billion) over the next five years to expand its global data center business. TEPCO Group aims to improve power generation/transmission efficiency and sustainability by developing data centers with local communities.

The partnership aims to develop an advanced data center model that contributes to digitalization and carbon neutrality, combining NTT DATA Group's expertise in telecommunications and data processing with TEPCO's expertise in power facilities and carbon-neutral solutions.

AIS Teams Up with Netcracker for Billing System Overhaul



In a significant development, Netcracker Technology revealed today that Advanced Info Service (AIS), Thailand's largest mobile operator, is set to streamline its billing systems by adopting Netcracker Revenue Management for all its customers.

This strategic move, integrated into Netcracker Digital BSS, is anticipated to lead to quicker time-to-market, a unified perspective on sales and revenue, the capability to bundle products, and an enhanced overall customer experience.

Utilizing the Netcracker Cloud Platform

To achieve this, AIS will utilize the Netcracker Cloud Platform as the

foundation for a comprehensive IT infrastructure transformation program. The deployment will also leverage Netcracker Revenue Management's Customer Billing Management and Converged Rating & Charging systems, along with CI/CD methodologies to ensure continuous and seamless updates.

The integration of Netcracker Revenue Management's advanced systems, coupled with the deployment of CI/CD methodologies, not only ensures streamlined and efficient customer billing for AIS but also lays the foundation for a flexible and dynamic operational framework. This strategic combination is poised to adapt seamlessly to the ever-changing demands of the market, fostering a high degree of agility and innovation within AIS's operational landscape. It positions AIS to respond promptly to emerging trends, implement innovative solutions, and stay ahead in the dynamic telecommunications industry.

Partnership Advantages

AIS chose to continue its partnership with Netcracker for several reasons. These include: a cloud-native IT stack; alignment with major industry standards (including TM Forum APIs); the flexibility to deploy on the customer's cloud in a SaaS model; simplified operations and system upgrades for its teams; and lower total cost of ownership.

Suppachai Panichayunon, Head of Solutions Business Unit at AIS, stated that having a converged billing platform that conforms to an industry-aligned architecture and supports different deployment models will give the company a significant advantage in the market. He also expressed confidence in the collaboration with Netcracker, citing their past success.

Yaniv Zilberman, Vice President at Netcracker, expressed excitement about the opportunity to work with AIS and help create a next-generation IT landscape that supports current and future business needs.

AxEnTec PLC Begins Operations in Bangladesh



AxEnTec PLC has officially started its operations to provide high-tech digital solutions to customers in Bangladesh and to the global market.

With a focus on innovation, AxEnTec PLC is positioned to navigate the complexities of the digital era, offering a diverse range of solutions that span cloud services, data analytics, artificial intelligence, cybersecurity, and more. By officially commencing operations, the company signals its readiness to address the evolving challenges of the contemporary digital landscape

and to serve as a catalyst for progress in the technological sphere.

Using High-Tech Solutions to Boost Productivity

The company is a newly launched subsidiary of Robi Axiata Limited, which plans to establish itself as a leading one-stop IT solutions and services provider in the country by deploying advanced digital solutions such as cloud services, data centers, artificial intelligence (AI), data analytics, blockchain, cybersecurity services, ERP solutions and IoT to help streamline business operations. These high-tech solutions will also help businesses boost their productivity and efficiency.

Artificial intelligence (AI) and data analytics are instrumental in providing actionable insights and facilitating data-driven decision-making. By leveraging

the decentralized nature of blockchain, the company aims to build trust and integrity in business processes. Cybersecurity services are paramount in safeguarding businesses against evolving digital threats. Enterprise Resource Planning (ERP) solutions are designed to streamline and integrate various business processes, enabling seamless communication and collaboration across different departments. By leveraging IoT solutions, the company aims to create a connected ecosystem that fosters efficiency and productivity.

AxEnTec PLC will use Robi's established connectivity in the country to develop tailor-fit ICT-based solutions to businesses, with plans to engage in collaborations with multiple industry partners in the future to help companies in their digital transformation.

Indosat and BDX Indonesia Drive Indonesia's Digital Future with Data Center Deal



Indosat Ooredoo Hutchison (Indosat) has announced that BDX Indonesia, the company's joint venture with BDX Data Centers (BDX) and Lintasarta, will procure a portfolio of carrier-neutral colocation and edge sites in prominent urban centers such as Jakarta, Surabaya, Batam, Medan, Makassar, Bandung, and Semarang. This includes ten strategic locations connected to five international and six domestic subsea cables.

BDX Indonesia will borrow from Bank Central Asia (BCA), Bank Permata, and Bank KB Bukopin to optimize its capital structure and support its

rapid expansion. The transaction worth IDR 2,625 billion will strengthen the collaboration established between Indosat and BDX in 2022. This partnership aligns with the government's Digital Roadmap and aims to contribute to the construction of top-tier data centers in Indonesia, supporting the nation's digital infrastructure goals.

BDX Indonesia's Portfolio Improvements

The obtained portfolio will enhance BDX Indonesia's ecosystem, providing enterprises with the capability to connect to various cloud providers, content delivery networks, and digital finance companies through Internet Exchanges (IXs), cloud onramps, and private interconnects. This involves collaboration with multiple telecommunications providers, facilitating distributed digitalization throughout the country. This will accelerate hybrid digital transformations and improve

enterprise, technology, and internet user digital experiences.

Once acquisition is complete, BDX Indonesia will encompass a total IT capacity of more than 150 MW across ten carrier-neutral colocation facilities; a new 15 MW facility near Jakarta, that is scheduled to be operational by the fourth quarter of 2024; and a 100 MW hyperscale campus at Suryacipta, East Jakarta. The carrier-neutral edge locations that are available throughout all of Indonesia's major islands will adhere to environmentally friendly design criteria.

Vikram Sinha, President Director and Chief Executive Officer of Indosat Ooredoo Hutchison, expressed his delight over this new venture that aims to propel Indonesia's digital future. Vikram also emphasized the role that the collaboration will play in driving Indosat's transformation from a telco to a techco.

PLDT Pioneers Testing of 50GPON in the Philippines



PLDT Inc. (PLDT), a leading integrated telecommunications company, has successfully tested the first 50G Passive Optical Networks (50GPON) in the Philippines.

Increased Speed and Delivery

The technology is the latest and fastest among the Passive Optical Networks (PON) and will be used for PLDT's fiber-to-the-home (FTTH) services, nationwide.

The 50GPON technology allows PLDT to deliver fast speed of up to 50 Gigabits per second (Gbps) for every

equipment port, surpassing existing technologies such as GPON (2.5 Gbps) and XGS PON (10 Gbps).

"After successfully testing XGS PON in 2021, PLDT is taking it further by testing the latest and fastest technology in Passive Optical Networks called 50GPON, which will allow five times faster speeds than XGSPON and 20 times faster speeds than GPON, which is the most widely used technology by fiber providers in the Philippines," said Arvin L. Siena, VP and Head of Network Strategy and Transformation office at PLDT and Smart.

Enhanced Fiber Development

Additionally, Eric Santiago, Head of Network at PLDT and Smart said that this milestone signifies the company's dedication to providing the best services to its customers.

The PLDT Group has expanded its total fiber footprint to more than 1.1 million cable kilometers as of September 2023, both for local and foreign fiber. The company's fiber service has reached more than 17.3 million residences in 69% of the country's municipalities and towns. Additionally, there are a total of 6.15 million fiber ports that cover over 18,000 barangays across the country.

Commitment to UN's SDGs

The company has also implemented projects aligned with its commitment to assist the United Nations' (UN) Sustainable Development Goals (SDG), specifically, SDG No. 9— Industry, Innovation, and Infrastructure. PLDT is continuously making progress toward its objective of delivering digital access that is both accessible and sustainable for all Filipinos by pushing the boundaries of technology and connectivity.

Ciena and KT Launch South Korea's First 600G Nationwide Transmission Network



Ciena and KT have successfully completed the construction of South Korea's first nationwide 600G transmission network. This project, led by the South Korean telecommunications company, aims to address the growing data traffic from AI, cloud, and 5G, and prepare for future services like 6G.

Ciena's Transmission Network

The transmission network has been operational since September 2023 and covers over 1,000 km. It can transmit 600G per wavelength in long-distance segments, connecting major cities from Seoul to Busan, Gwangju, and Jeju Island.

To achieve this, Ciena's 6500 flexible grid Reconfigurable Optical Add/Drop

Multiplexer (ROADM) photonic layer with WaveLogic 5 Extreme (WL5e) coherent optics, and Manage, Control and Plan (MCP) domain controller were utilized. This transmission route provides a solid foundation to handle the increasing bandwidth demands.

The Regional Managing Director of Ciena North Asia, Henry Kim, stated that Ciena has been a pioneer in coherent optical technology, supplying equipment capable of delivering 100G and 400G services to domestic telecom operators.

Revolutionizing High-Capacity Traffic

One of the key advantages of this transmission network is its cost-effectiveness. By optimizing the utilization of resources, it offers an efficient and economical solution for meeting the ever-increasing data transmission needs. This cost-effectiveness is crucial in ensuring that businesses, individuals, and various industries can access and utilize high-capacity traffic transmission without incurring exorbitant costs.

Furthermore, the introduction of the 600G transmission network is expected to significantly enhance dedicated circuit services. These services are vital for enterprises and organizations that rely on secure and robust data connections for their operations. The increased capacity and efficiency of the network contribute to a more resilient and responsive dedicated circuit infrastructure, meeting the stringent requirements of modern businesses.

The 600G transmission network provides a substantial boost in data transmission capacity. This is particularly crucial in the face of the burgeoning data traffic stemming from emerging technologies such as AI, cloud computing, and the widespread deployment of 5G networks. The increased capacity ensures that South Korea's telecommunications infrastructure can efficiently handle the surges in data flow associated with these transformative technologies.

DE-CIX Malaysia and Digital Penang Launch Penang IX



DE-CIX Malaysia and Digital Penang have launched the Penang Internet Exchange (PIX) powered by DE-CIX, which aims to improve digital connectivity in the region. PIX will serve as a central hub for data exchange and support the digital transformation goals of the Penang state government. This initiative will localize internet traffic exchange within Penang, leading to lower network latency for users, promoting the adoption of next-generation digital applications.

Driving Economic Growth Through Robust Digital Infrastructure

The launch of PIX is expected to strengthen the region's digital infrastructure and drive economic growth by attracting investments and fostering tech growth. DE-CIX Malaysia also plans to develop a new Internet Exchange at the border between Malaysia and Thailand in 2024. The Minister of Digital and Chief Minister of Penang both emphasized the role of PIX in driving economic growth and technological progress in the region.

Furthermore, Wong Weng-Yew, Member of the Board of Management at DE-CIX Malaysia, explained that the core objective of Penang IX is to enable internet traffic localization for Penang state. This will improve internet performance by reducing network latency between participating networks, thereby catalyzing the adoption of

IR4.0, VR, and IoT applications and expediting the digital transformation in the state.

Meanwhile, Ivo Ivanov, CEO of DE-CIX and Chair of the Board of DE-CIX Group AG, expressed his pride in DE-CIX's role in shaping Penang's digital landscape. He emphasized that Penang IX is not just a hub for data exchange but also a gateway to innovation, economic growth, and the localization of digital infrastructure.

This reliable infrastructure will provide a resilient platform for these startups to accelerate their digital initiatives and contribute to Penang's digital economy. The launch of Penang IX represents a collaborative effort between DE-CIX Malaysia and Digital Penang, setting the stage for a digital revolution that will propel the region into a new era of connectivity and innovation.



Unlocking the Potential of Autonomous Data Management in Revolutionizing Operations

In most businesses and operations, data has emerged as an essential component that drives innovation, efficiency and strategic decision-making. Data can provide insights into market trends, customer behavior, and the dynamics of the sector, which is the foundation for strategic planning. Moreover, by using data-driven analysis, businesses can make informed decisions when developing new products, expanding into existing markets and distributing resources.

Adopting **Autonomous Data Management (ADM)** The exponential growth in the amount of data being collected resulted to companies putting more

importance on having an efficient data management system. Unlocking the full potential of data management requires adopting autonomous data management (ADM), which is the key to revolutionizing the way in which businesses manage, analyze, and draw insights from their data.

Autonomous data management is the process of automating various parts of data handling, processing, and optimization through the utilization of artificial intelligence (AI) and machine learning (ML) techniques. Businesses are able to streamline their operations, minimize the amount of manual

intervention they need to perform, and unlock the full potential of their data assets by utilizing this strategy. In every stage of the data management process, from data collection to analysis and storage, the goal of autonomous data management systems is to improve efficiency, accuracy, and scalability.

Traditional data management often involves the use of manual procedures, which not only increases the likelihood of committing errors but also slows down decision-making, particularly when it comes to jobs that are repetitive. ADM, on the other hand, integrates hyper-automation with data-driven intelligence in order to reduce the amount of reliance on human operations. Data administration is made easier and security against new threats is automated with the help of ADM, which utilizes cloud-optimized technology.

Data Collection and Integration

The seamless gathering and integration of varied datasets derived from a variety of sources is probably one of the most significant difficulties that companies face. Automating the process of data gathering and integration is one of the primary reasons why ADM systems are so important in this domain. Companies such as Google and Amazon, for example, make use of autonomous systems to collect and combine huge amounts of customer data from a variety of touchpoints. This allows them to create a comprehensive framework comprised of user behavior and preferences.

By using AI and ML, new data sets may be recognized quickly, appropriate management and protection policies can be determined, and strategies can be implemented with minimal problems. When it comes to cloud storage, they are experts at selecting the most effective configurations, which guarantees both efficiency and cost-effectiveness.

Moreover, these technologies can be deployed to do routine data monitoring, with the goal of identifying possible risks such as malware (by identifying anomalies in patterns). Data integrity can be maintained using



these technologies, which enables regeneration in the event that data is lost or corrupted. Deploying AI and ML in processing data have brought about improvements that enable enterprises to reliably make decisions based on data, even in the face of increasing cyber threats.

Challenges in Autonomous Data Management

Despite the obvious benefits of ADM, there are still certain challenges that companies face in their pursuit of maximizing the benefits of ADM. Considering the increased interconnection and accessibility of data, it is of utmost importance that privacy and security are protected. It is necessary to implement stringent security protocols and strictly comply with data protection regulations in order to prevent the possibility of data breaches. Moreover, the implementation of ADM systems requires specific experience in AI and ML, therefore the skills gap needs to be overcome. A great number of companies are currently struggling with a skills gap, which has resulted in the need for strategic investments in the form of training, or the hiring of professionals, who are proficient in utilizing these cutting-edge technologies.

As more businesses begin their journeys toward digital transformation, the implementation of autonomous data management becomes a

necessity. A pathway to better efficiency, greater decision-making, and a deeper understanding of customer behavior can be found through the deployment of autonomous systems. This has become more important for organizations as they attempt to maintain their competitive edge in the industry. In doing so, businesses can garner the ability to unlock the full potential of their data by embracing this technology. ■



Automating the process of data gathering and integration is one of the primary reasons why ADM systems are so important in this domain





The Role of Artificial Intelligence in Driving Digital Economies in Asia

The foundations of digital businesses in Asia are being gradually reshaped by a technological revolution. One of the driving factors behind this revolution is artificial intelligence (AI). AI is an effective tool that can be leveraged to promote innovation, efficiency, and growth across a wide range of businesses. During the process of embracing AI, businesses in the region are not merely adopting a new technology; rather, they are ushering in a technological advancement that has the potential to redefine the whole aspect of their commercial and industrial operations.

For years, businesses have been embarking on the journey of digital transformation in order to update their operations and acquire a competitive

advantage. However, the focus has slightly shifted in recent times with the digital business era receiving a lot of attention. Businesses are not only attempting to transform themselves, but they are also working toward becoming digital entities themselves

by utilizing technology for their operations, goods, services, and overall experiences.

"Digital transformation was only the first step— to truly gain value from change, companies need to move to an

innovative state," said Craig Powers, research director, Worldwide Digital Business Strategies at IDC.

Impacts of AI on Digital Businesses

The International Data Corporation (IDC) predicts that AI solutions will play a vital role in altering the information technology industry and revolutionizing corporate operations and decision-making processes all over the world. The transformative impact of artificial intelligence on every facet of the corporate landscape is evident, as the projected global expenditure on AI solutions is expected to exceed USD 500 billion by the year 2027.

Generative AI (GenAI) is expected to revolutionize the way in which businesses collaborate on the development of digital products and services. GenAI can be used to identify market opportunities and efficiently allocate resources, which will provide a competitive advantage in the process of implementing strategies that generate money.

Additionally, the combination of predictive AI, machine vision, and GenAI, along with on-demand services provided by digital ecosystems, will open up new possibilities for the creation of creative products and services that can meet consumer demands.

By the end of 2025, IDC forecasts that 30% of businesses in the Asia-Pacific region will implement human-like interfaces in their enterprise systems. This will make decision-making processes more efficient and will increase total decision speed.

The capacity of artificial intelligence to facilitate highly personalized experiences is reshaping the manner in which businesses engage with their customers. AI is being used by digital firms in Asia to analyze enormous datasets and gain a better understanding of client preferences. This gives these organizations the ability to personalize their products and services to meet the specific requirements of each individual customer.



Challenges in Deploying AI in Businesses

While AI presents digital businesses in Asia with unparalleled potential, it also poses challenges that need to be addressed. Ethical considerations, apprehensions regarding data privacy, and the demand for skilled AI specialists are all significant challenges that merit attention due to their critical importance. It is imperative that both governments and corporations collaborate in order to establish solid regulatory frameworks and make investments in education and training programs in order to construct a talent pool that is capable of utilizing the full potential of AI.

Initiatives such as Singapore's Artificial Intelligence Strategy, which focuses on developing a vibrant ecosystem, stimulating industry collaboration, and assuring responsible adoption of AI, are examples of the joint efforts that are being made between the public and commercial sectors.

Organizations also face the challenge of aligning their investments in digital technology with their sustainability objectives. This requires executives to seek methods that meet both their digital ambitions and their environmental duties.

As AI continues to advance, the influence it has on digital enterprises in Asia is becoming more and more significant. AI is playing a pivotal role in transforming the business landscape

in the region, ranging from automating routine tasks to unlocking new frontiers in personalization. The capacity of digital enterprises in Asia to harness the potential of artificial intelligence in a responsible and innovative manner stands as one of the most critical factors influencing their growth trajectory. **IT**



The capacity of artificial intelligence to facilitate highly personalized experiences is reshaping the manner in which businesses engage with their customers.





Navigating the Future:

Technology-Driven Transportation Infrastructure in Asia-Pacific

The Asia-Pacific region, known for its vast and diverse landscapes, is undergoing a monumental transformation in its transportation infrastructure. From bustling metropolises to remote rural areas, technological advancements are driving a revolution in mobility and connectivity. The convergence of innovation, investment and sustainability is shaping a future where transportation becomes more efficient, accessible and environmentally friendly.

Embacing
**Technological
Trends**
According to statistics provided by GlobalData, the Asia Pacific region saw an issued total of 1 billion

standard debit cards in 2021, with a projected growth of over 30% expected by 2025. Simultaneously, the unique mobile penetration rate surpassed 1.6 billion. Despite its prominent position in card usage, the region's private and municipal transport operators are missing out on opportunities to attract

new audiences due to the limited adoption of diverse payment methods and technologies.

However, an increasing focus on digitalization and environmental transformation has emerged on the agendas of several governments in the

region, such as Thailand, Indonesia, the Philippines, Vietnam, and others. They are actively exploring avenues to foster the development of sustainable and accessible transportation systems, both within smart cities and beyond, employing various modes of transit.

Indonesia, for instance, has made significant strides in this direction by establishing a Bus Rapid Transit (BRT) network with government support. Accessible transportation services have been implemented with fixed pricing and complimentary amenities for different segments of the population. The system underwent modernization, incorporating automated fare collection systems and card payments to enhance service availability and transparency. The Indonesian government's next focus is to further enhance multi-modal accessibility across the city.

In Thailand, the government has taken a proactive role in upgrading rail and metro lines within cities, with a particular emphasis on Bangkok. This initiative aims to create a multi-modal environment for citizens and enhance transit speed within urban areas.

Meanwhile, in response to the escalating urban density and mounting traffic congestion, the Department of Transportation (DOTr) in the Philippines has embarked on the modernization of its most widely used urban transportation modes, minibuses and jeepneys. This modernization includes the adoption of automated fare collection systems, enabling contactless payments and introducing digital ticketing to offer a new and more convenient experience for travelers in Metro Manila.

Infrastructure Networks Links

The Asia-Pacific region encompasses a diverse array of nations, each characterized by varying government systems, economic growth trajectories, population sizes, and geopolitical positions. In the context of Intelligent Transport Systems (ITS) development, this region spans a spectrum, featuring countries with well-advanced ITS infrastructures

alongside those that have only established rudimentary traffic operation systems.

To assess the progress of ITS development in Asia and the Pacific, a holistic approach has been adopted. It involves delineating each phase of ITS development at the macroscopic level and subsequently evaluating the advancements made by selected countries in this domain.

Asia's transportation infrastructure is not confined to its own borders. The United Nation's Economic and Social Commission for Asia and the Pacific (ESCAP) report highlights the importance of interconnected transportation networks, not only within the region but also linking Asia to Europe. This interregional collaboration is key for global trade and economic growth.

The significance of connectivity between Asia and Europe on a global scale is expected to persist. Given the substantial trade flows between these two regions, it is clear that there is a high demand for freight transport. Establishing an efficient and sustainable transport network that facilitates the smooth movement of goods and services between the European Union and Asia holds the potential to drive economic growth, create job opportunities, enhance global competitiveness, and promote trade.

Recognizing this, ESCAP has incorporated sustainable transport connectivity between Asia and Europe as one of the key areas of focus within its Regional Action Programme for Sustainable Transport Connectivity in Asia and the Pacific (Phase I, 2017-2021). The primary objective of this initiative is to bolster transport connectivity between these two regions by concentrating on infrastructure development and the alignment of technical standards.

Ultimately, the goal is to establish an inter-regional, coordinating body that can harmonize existing mandates, initiate collaborative actions, and assess progress to foster a seamless,

sustainable, and resilient transport network for both passengers and freight.

A Promising Future

As the Asia-Pacific region continues to grow and urbanize, the demand for efficient and sustainable transportation will only increase. The collaboration between governments, international organizations and the private sector is fostering a climate of innovation and investment, enabling the region to build a robust and resilient transportation infrastructure.

This dynamic transformation is not only about moving people and goods but also about connecting communities and fostering economic growth. The Asia-Pacific region is poised to be at the forefront of technology-driven transportation infrastructure, paving the way for a more connected, accessible and sustainable future. As the region continues to navigate its future, the road ahead is marked by endless possibilities. **III**



As the Asia-Pacific region
continues to grow and urbanize,
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Powering Sustainable Development: Green Technology Initiatives in Asia

Industrialization, brought about by the rapidly evolving technological and economic progress in Asia has come at a cost. Namely, in the form of pollution, resource depletion and global warming. In today's world, with a heightened focus on environmental issues, organizations in Asia are increasingly moving towards embracing green technology and sustainable practices. In the pursuit for environmental sustainability, companies need to adopt eco-friendly technology. Sustainability has evolved into a key focus for many businesses to reduce their negative effects on the environment and boost their productivity and competitiveness.

A Journey Towards Green Technology
Solar energy adoption has been one of the most widespread green technology projects in the region. One company that is known for using solar energy to meet its operational demands is India's Tata Power Solar. Tata Power

Solar is a major contributor to India's renewable energy sector due to its dedication to sustainability. Its solar products and services help businesses and households cut down on carbon emissions and consume less non-renewable energy.

Approximately 70,000 tons of carbon dioxide are reduced every year because of these solar power plants. The

company's environmental aims are met while customers' energy prices are reduced, and India makes progress toward its climate change mitigation targets.

The transportation sector is also one of the biggest contributors to air pollution and carbon emissions. This has led to enterprises in Asia to develop electric and hybrid vehicles to reduce these



negative environmental impacts. BYD Company Limited has become a world leader in the EV industry by developing electric cars, buses and even monorails. Green technology projects undertaken by the company are lowering emissions from public transportation networks not just in China, but in other parts of the world.

For instance, BYD's electric buses have been deployed by several Asian cities as an eco-friendly replacement for conventional diesel-powered buses. Due to the cheaper price of electricity compared to diesel fuel, electric buses not only reduce air pollution and noise levels, but also reduce operational costs. Not only does this help the planet, but it also boosts the efforts of cities and transit systems to become more sustainable.

Energy Conservation Developments

As a result of Asia's high population density and ongoing urbanization, waste management and disposal have emerged as one of the region's most pressing concerns in recent years. ecoWise Holdings, headquartered in Singapore, is an example of how Asian companies are leveraging innovative eco-friendly technologies to meet this challenge. ecoWise is an industry leader in recycling food scraps that are repurposed to be used as a source for clean power and materials. Through anaerobic digestion, ecoWise is able to efficiently transform organic waste

into biogas and organic fertilizers with a high nutrient content.

This reduces the negative effects of trash dumps and incinerators by turning wastage into usable materials. Producing renewable energy is not only good for the environment, but also good for the economy in the long run.

Challenges in Green Tech Revolution

While enterprises are gradually embracing green technologies, there are still obstacles to overcome. These include the initial expense of introducing green technology, the necessity for specialized staff to maintain and run green systems, and the importance of creating awareness about the benefits of sustainable measures. The sustainability of the supply chains for green technology, such as the mining of rare earth metals for batteries, is also an issue of concern.

Working together as governments, corporations and institutions is crucial to resolving these issues. The workforce needs to be equipped with the knowledge and abilities to operate and maintain green technologies, hence training programs and educational efforts should be implemented. Additionally, it is critical to invest in R&D to enhance the effectiveness and cost-efficiency of green technologies.

As urbanization and industrialization spreads across Asia and the rest of

the world, the need for sustainable practices will only grow along with it. Businesses in Asia need to take the lead towards a more environmentally friendly and sustainable future by overcoming obstacles and thinking outside the box. Government and private sectors must work hand in hand to generate an eco-friendly, sustainable future in technology. **TR**



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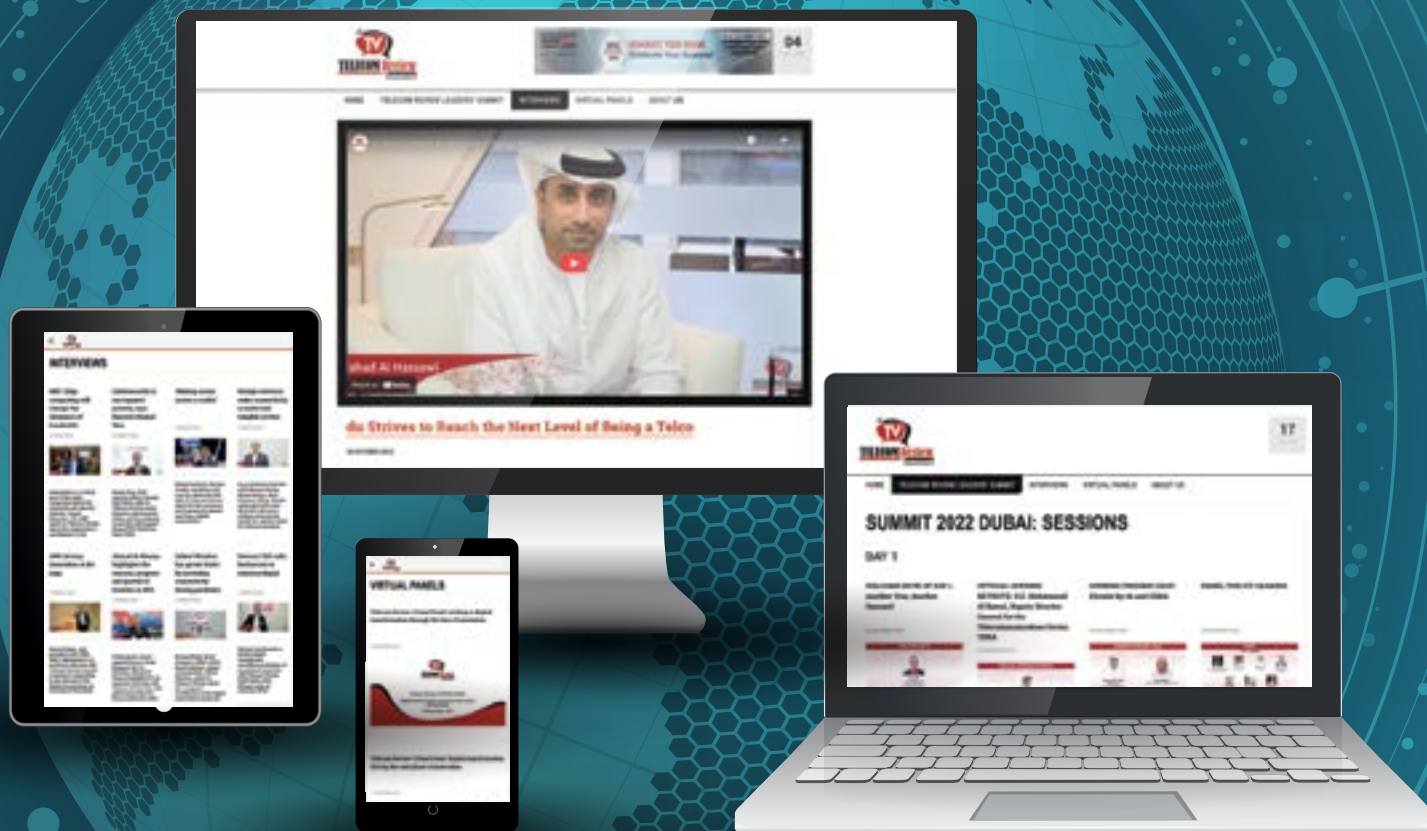
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