March-April, Volume 14, 2023

A SAMENA Telecommunications Council Publication

SAMENA TRENDS

www.samenacouncil.org

FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

BUILDING DIGITAL ECONOMIES

Government & Private Sector Leaders to Congregate in UAE for SAMENA Council Leaders' Summit 2023

THIS MONTH

SUSTAINABLE CONNECTIVITY AND EMERGING ECOSYSTEMS IN DIGITAL ECONOMY

Yandex

LEADING WEB SEARCH TECHNOLOGY

88 MILLION+ MONTHLY ACTIVE USERS, CAPTURING 63% OF RUSSIA'S WEB SEARCH MARKET

— 60% of the digital marketing spend is Search Advertising
— 92% of clients in digital space buy advertising on Search

THE SEARCH TECHNOLOGY PERFECTED OVER 20+ YEARS IS THE BACKBONE OF A WIDE RANGE OF YANDEX PRODUCTS, SUCH AS:

— Smart assistant
— Ride-hailing
— Maps & Navigation
and more

MARCH-APRIL, VOLUME 14, 2023

SAMENA
TRENDS

Editor-in-Chief
Bocar A. BA

Contributing Editors
Izhar Ahmad
Javaid Akhtar Malik

Knowledge Contributions
Arthur D. Little
Enghouse Networks
Huawei
Protiviti
stc
Syniverse
Tech Mahindra
TMRW Foundation

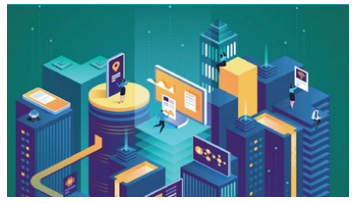
Publisher
SAMENA Telecommunications Council

Subscriptions
subscriptions@samenacouncil.org

Advertising
ads@samenacouncil.org

SAMENA TRENDS
trends@samenacouncil.org
Tel: +971.4.364.2700

CONTENTS



Sustainable Connectivity and Emerging Ecosystems in Digital Economy

Over the past decade, the global digital economy has evolved tremendously, with explosive growth in digital services and technologies. This has enabled businesses and consumers to take advantage of digital technologies in a variety of ways, which is now positively impacting every major economic sector in any given emerging or developing market.

To support the growth of digital economies in developing markets, there needs to be a reliable and secure ICT infrastructure in place – that is the most fundamental pre-requisite for achieving any milestones in digitalization and digital transformation. This includes reliable broadband and mobile internet access, secure data storage and data protection protocols, and resilience in communications capabilities and infrastructure. Additionally, there should be access to cloud computing services as well as resources for businesses, governments, and citizens to access the digital economy. Then, there needs to be an understanding of the potential risks and benefits associated with the digital economy for all stakeholders. But let us not forget that infrastructure is just one major aspect of digital economy: Other aspects are capacity-building, ease of participation, digital inclusion, digital tolerance, digital trust, and a sustainability mindset.

As the digital economy continues to evolve, one of the biggest challenges in building sustainable digital ecosystems in developing markets, is not related to technology or lack thereof, but to having sufficient capital and investment, overcoming human capacity challenges, and effectively translating benefits—whether the digital ecosystem is for public benefit or private. Moreover, with industry-wide focus now positioning toward more human-centric internet, meaningful digital inclusion, and creating a secure cyber space, it is important to be mindful of the sustainability of the digital ecosystems we create and their direct impact on the overall socio-economic progress of developing countries.

The Telecom/ICT Industry, as it evolves, with discussions already in place to explore the evolution of 5G and paradigm shifts that need to be catalyzed by Operators as well as other players in the evolving digital ecosystems, is creating new opportunities and setting new benchmarks in our aspirations to achieve sustainable connectivity throughout the globe and expand the digital economy and its benefits for all.

The evolution of the Industry toward betterment, that is sustainable digital future, across all fronts, requires creating a sustainable ICT environment as the enabler of sustainable digital transformation and ICT development, which is both a challenge as well as an opportunity area and has direct impact on the sustainability of the planet's health and the environment we live in.

We have numerous imperatives to work on, new approaches to devise, for example, in building digital trust, and difficult challenges to overcome with respect to unlocking access to new capital. For all collaborations and intra and inter-industry initiatives to yield good outcomes for socio-economic transformation and service delivery, adequate underlying ICT infrastructure is crucial, well-supported by Telecom Operators and financially sustainable to absorb and maintain all future energy efficiency and sustainability needs.

It is important to recognize how digital solutions and ICT infrastructure can help the world, including the least developed countries, in achieving digital-economy goals as well as in realizing green, low-carbon and high-productivity based economic transformation, which should be human-centric, digitally-powered, and be mindful of the needs of the next generations and the environment.

Bocar A. BA
Chief Executive Officer
& Board Member
SAMENA Telecommunications Council

Advancing a truly, inclusive, sustainable digital economy is a necessity and requires accelerated digitalization, sustainable connectivity (of which investment and enabling environment is an ongoing requirement), and digital value-creation. However, we need to ensure equitable benefits accrue to all, and thus digital value-creation should be accompanied by policies and processes that promote a fair and equitable distribution of resources.

All of this requires strong multi-stakeholder involvement and collaboration, and SAMENA Council is privileged to help foster both of these key objectives by welcoming industry leaders to the next SAMENA Council Leaders' Summit 2023.

SAMENA COUNCIL ACTIVITY

On May 15th, Leading Digital Ecosystem Players to Highlight Major Digital Economy & Ecosystem Imperatives and Socio-Economic Benefits of Digital Transformation at the SAMENA Council Leaders' Summit 2023

SAMENA Telecommunications Council's annual Leaders' Summit of global and regional leaders, bringing market and government-sector representation from multiple continents, will be held in Dubai on May 15th.

With the overall patronage of TDRA-UAE, partnership from the UAE Cyber Security Council for the event and the ITU, the SAMENA Council Leaders' Summit 2023 carries leading collaboration of MOBILY, YANDEX, HUAWEI, and strategic support from stc Group and Zain Group, as well as members' ecosystem support of Avaya.

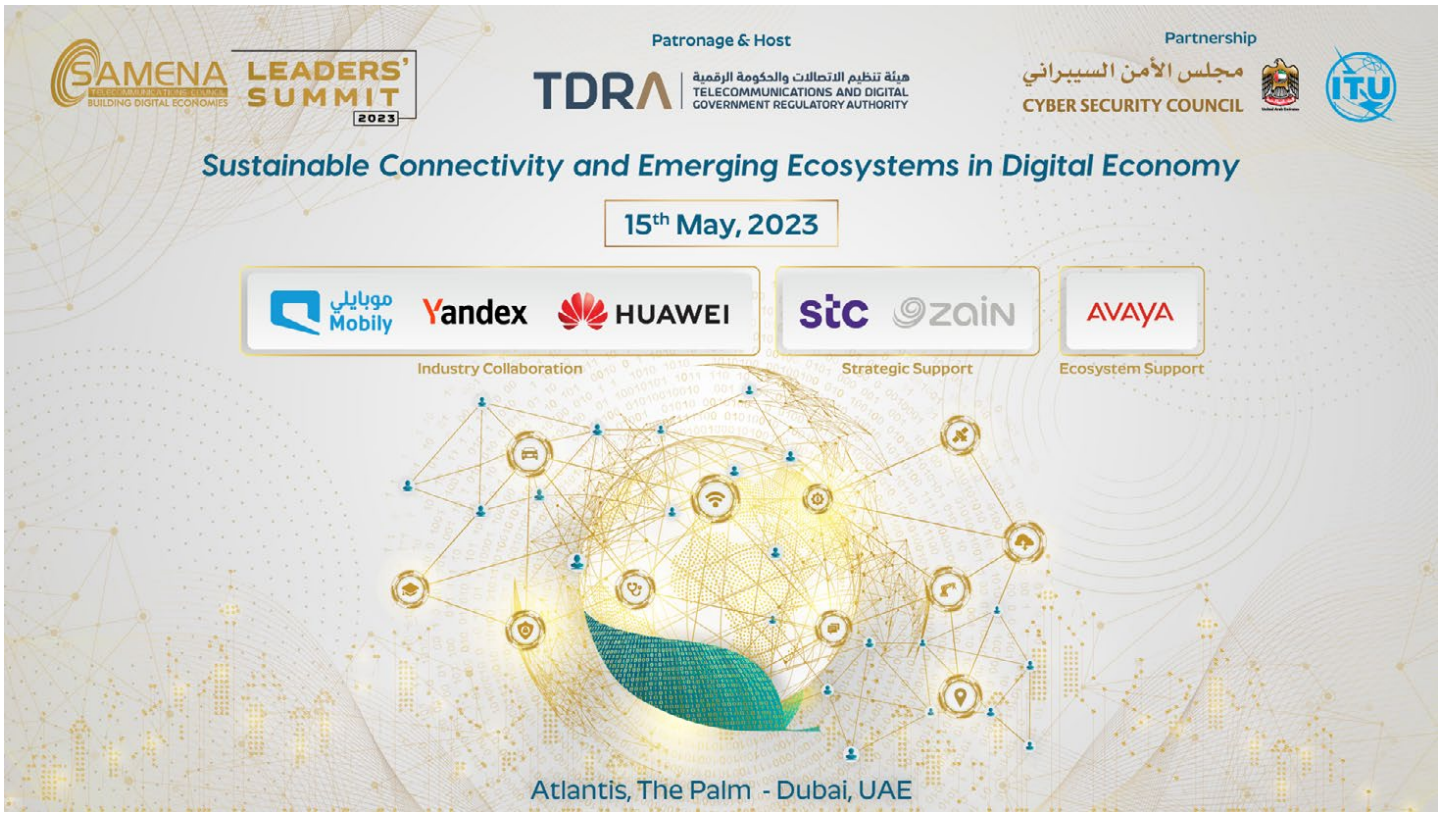
The Leaders' Summit will be held under the theme "Sustainable Connectivity and Emerging Ecosystems in Digital Economy," at Atlantis – The Palm, Dubai. The annual international industry leadership will bring renowned regional and global private-sector players to delve into discussions centered on ICT Infrastructure Requirements in Emerging Markets, SA-ME-NA Digital Services Landscape & New Digital Enablers; Multi-Dimensional Approaches in Cybersecurity; Evolution of 5G Digital Technologies, Future Mobile and Metaverse based Life and Business, a need for New Frequency Allocations for Telecom Operators, Non-Terrestrial Network Integration, and overall Value-Creation, among other important subject areas.

Welcoming leaders of the Industry to the Leaders' Summit 2023, a by-invitation-only industry leadership meeting in the region, Bocar BA, CEO & Board Member of SAMENA Council, stated: "This year's Summit has attracted exceptional participation of stakeholders and privileged patronage and participation from UAE government bodies, including TDRA-UAE, as well as collaboration from the industry's leading regional and international ICT bodies, including the ITU, GSMA, GCC governments, the United Nations Broadband Commission, Telecom Operators, particularly Mobily, Digital Platforms, and leading Technology Providers, such as Huawei. We anticipate achieving new milestones in industry collaboration and multi-stakeholder cooperation-building in pursuit of advocacy on behalf of the Industry."

Mobily CEO, Eng. Salman Al Badran, who is also a Board Member of the SAMENA Council, stated: "Mobily is pleased to express its commitment to accelerating digital development and socio-economic progress in the region. As a major regional digital ecosystem player, having invested in the latest mobile technologies and being aware of the opportunities and challenges ahead, we strongly believe that sustainable connectivity and continued innovation are a requirement that we all must strive together to achieve. Dialogue continuously being enabled by SAMENA Council in the shape of Leaders' Summit, serves as a great medium of support to Operators' objectives."

"For over a decade, the Leaders' Summit has positioned issues, the Industry's needs, private-sector players, and leaders. The 2023 edition of the Leaders' Summit aims to contribute to the global advocacy momentum on addressing digital transformation challenges, including those related to partnerships, collaboration, security, sustainability, and investment. Moreover, Leaders' Summit 2023 serves as a progress-measuring tool with respect to work being done regionwide on the 17 SDGs, building secure ICT infrastructure across emerging markets, revisiting stakeholder inclusion, trust-building, creating an enabling environment, and facilitating the ICT sector players by advocating for the right incentives and resources to deliver on a complex set of expectations."

Bocar BA, CEO & Board Member of SAMENA Council



"Mobily is pleased to express its commitment to accelerating digital development and socio-economic progress in the region. As a major regional digital ecosystem player, having invested in the latest mobile technologies and being aware of the opportunities and challenges ahead, we strongly believe that sustainable connectivity and continued innovation are a requirement that we all must strive together to achieve. Dialogue continuously being enabled by SAMENA Council in the shape of Leaders' Summit, serves as a great medium of support to Operators' objectives."

Eng. Salman Al Badran, CEO, Mobily

Huawei's President of the Middle East & Central Asia, Steven Yi, stated: "We are stepping into the 5.5G era where all things are connected through intelligence, the value of connectivity is being unleashed, and the digital economy is booming. While increasing connectivity and digital innovation – as the foundation for digital transformation – will bring social-economic benefits to the region, new cybersecurity challenges will arise. Huawei calls for broad collaboration between all stakeholders to address the challenges and safeguard their digital future, as it is a shared responsibility that cannot be addressed by one person, organization or nation alone."

"The ICT sector and, in particular, the 5.5G technological innovation that features full-scene IoT, L4 autonomous driving network, and green ICT will play a vital role in tackling sustainability needs of the Telecom industry and its contributions to other industries. Huawei is committed to innovation, and will actively work with industry and ecosystem partners to share its best practices to continuously drive the digital economy forward, and help telecom carriers and enterprises accelerate their digital transformation. We value the need to collaborate to achieve the region's digital requirements that can speed up the arrival of an intelligent and sustainable future and SAMENA Leaders' Summit 2023 is a platform, which supports stakeholders to adjusting to innovative realities and achieving sustainable digital development", Yi added.

"We are stepping into the 5.5G era where all things are connected through intelligence, the value of connectivity is being unleashed, and the digital economy is booming. While increasing connectivity and digital innovation – as the foundation for digital transformation – will bring social-economic benefits to the region, new cybersecurity challenges will arise. Huawei calls for broad collaboration between all stakeholders to address the challenges and safeguard their digital future, as it is a shared responsibility that cannot be addressed by one person, organization or nation alone."

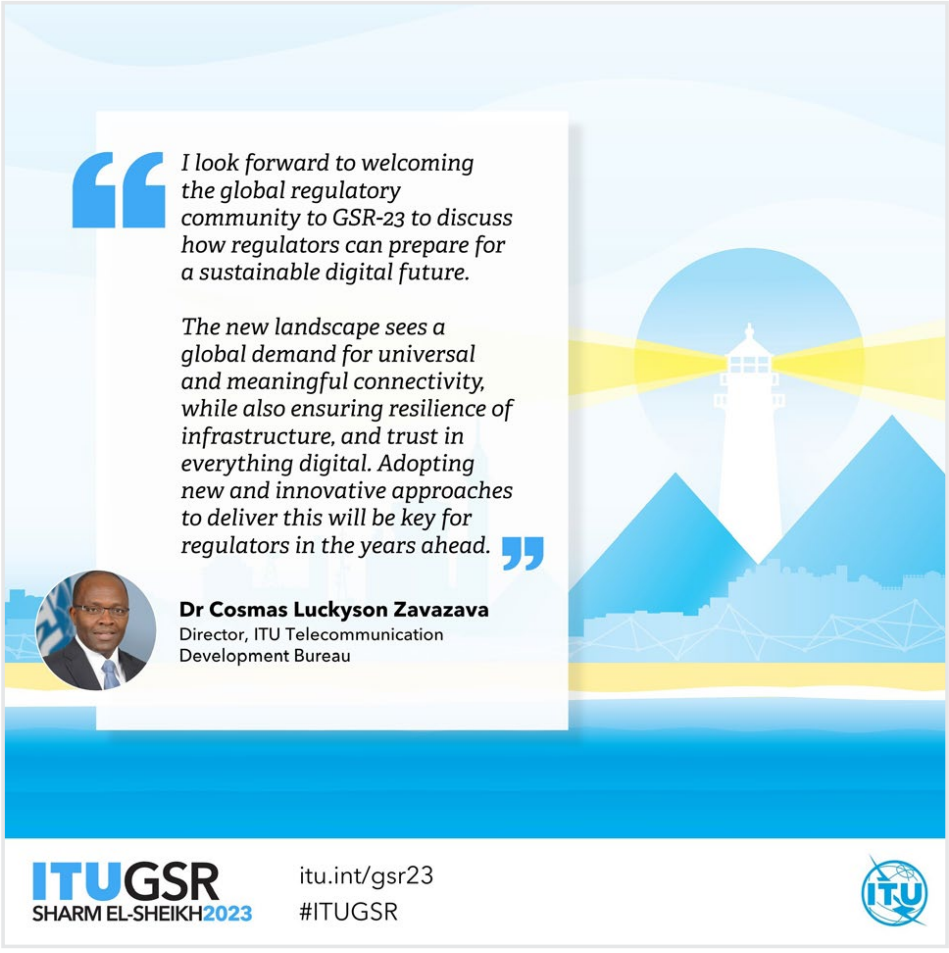
Steven Yi, President, Huawei - Middle East & Central Asia

Since 2018, the SAMENA Council's Leaders' Summit has been focused on 5G, which has catalyzed positive impact on 5G planning and development in the region, empowered cross-industry participation, as well as supported policy and regulatory consideration. The Summit has provided the SA-ME-NA region's stakeholders visibility on what to expect and prepare for in the new Digital Age. In 2023, the Council aims to address evolution of 5G digital technologies and 5.5G ecosystem development requirements, building 21st century financial and telecom synergies, enabling digital competence and boost to the region's digital economy, and supporting constructive enablement of a secure Cyberspace.

Participation in the Leaders' Summit is by-invitation-only. Industry stakeholders, including ICT and non-ICT segments, may contact SAMENA Council to learn more and request participation.

GSR-23 & IAGDI-CRO

Join the Global Symposium for Regulators (GSR-23) and the Industry Advisory Group for Development Issues and Private Sector Chief Regulatory Officers' (IAGDI-CRO) meeting



From 6 to 8 June, the 2023 edition of the Global Symposium for Regulators (GSR-23) will be held in Sharm El-Sheik, Egypt under the theme Regulation for a Sustainable Digital Future. The annual Global Symposium for Regulators (GSR) brings together heads of national telecom/ICT regulatory authorities from around the world regulators to share their views and experiences on pressing regulatory issues. Regulators need novel and innovative approaches to drive universal and meaningful connectivity, while also ensuring resilience of infrastructure and trust in everything digital. GSR-23 features interactive high-level panels which provide regulators and policymakers with a unique platform to discuss topical and cutting-edge policy and regulatory issues with peers and other digital stakeholders. The focus of this year's event will be on novel regulatory approaches for digital transformation. Sessions will also address trustworthy and resilient digital infrastructure, online child and youth safety, digital accessibility, affordability of the devices, emergency public early warning systems, going green with the digital transformation, and harnessing the opportunities of the metaverse. The full programme is available on the GSR-23 website: https://www.itu.int/itu-d/meetings/gsr-23/programme/programme-overview/

The 2023 consultation seeks novel and ground-breaking contributions so that regulators can define holistic and collaborative approaches to investor-friendly markets that promote competition while stimulating innovation. GSR-23 will conclude with regulators adopting the 2023 Best Practice Guidelines on 8 June. These will help guide policy decisions for a more robust and unified global regulatory landscape.

IAGDI-CRO

GSR-23 will be preceded by the Industry Advisory Group for Development Issues and Private Sector Chief Regulatory Officers' (IAGDI-CRO) meeting, which will be held on 5 June 2023. The aim of IAGDI-CRO is to accelerate connectivity and drive innovation and digital transformation to transform people's lives and help set the tone of the ICT development landscape. To achieve this goal, the event brings together innovative business, technological, policy and regulatory perspectives from the industry and private sector across diverse sectors, including operators, service providers, manufactures, international and regional organizations, and more, to share information and coordinate development priorities to deliver a sustainable digital future for all.

Accelerating Digital Transformation through the Innovation and Entrepreneurship Alliance

As the digital world continues to become more volatile, uncertain, complex, and ambiguous (VUCA), the Innovation and Entrepreneurship Alliance for Digital Development aims to build local enablers and strengthen the engagement of the private sector and academia in the critical work of the BDT. This new initiative by the BDT Director will empower ITU-D membership to unlock their digital potential, build local capabilities in innovation and entrepreneurship, and accelerate their ecosystems' impact on cross-cutting sectors for an inclusive and sustainable society.

The Alliance will support the achievement of the ITU-D Priority 'Digital Transformation' outcomes, which include strengthened capacity of ITU membership to integrate telecommunication/ICT innovation and digitalization in their national development agendas, and enhanced human and institutional capacity to foster digital transformation. The Alliance is aligned with several ITU resolutions, initiatives, and strategic plans.

The Alliance will support the achievement of the ITU-D Priority 'Digital Transformation' outcomes, which include strengthened capacity of ITU membership to integrate telecommunication/ICT innovation and digitalization in their national development agendas, and enhanced human and institutional capacity to foster digital transformation. The Alliance is aligned with several ITU resolutions, initiatives, and strategic plans.

To accelerate countries' journey towards an innovation-driven digital economy, the Alliance will fast-track five strategic objectives: Open technology innovation, Entrepreneurship and SMEs growth, Trends research readiness, Policy experimentation, and Ecosystem initiatives acceleration. These objectives aim to enable countries to be ahead of the curve and harness technological know-how into global goods through open innovation and multistakeholder mechanisms.

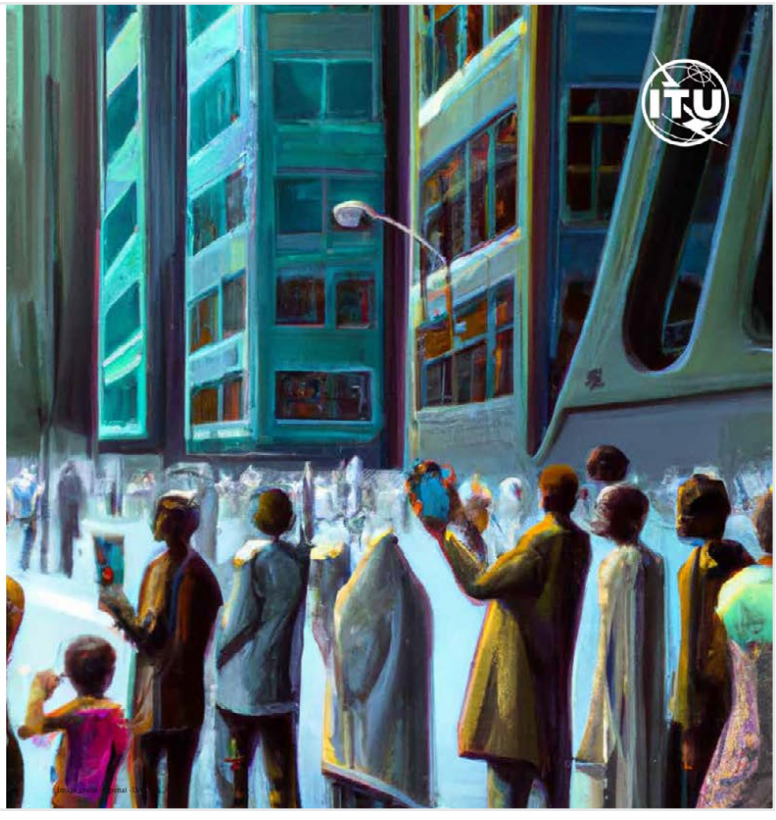
The Alliance will operationalize the needed capabilities through three main vehicles: A Digital Transformation Lab, a Network of Acceleration Centers, and a Digital Innovation Board. The Lab will support the design and implementation of the network of centers and provide technical assistance

BUILDING INNOVATION CAPACITY AT THE GLOBAL AND LOCAL LEVELS

The Alliance will help strengthen countries' capabilities to integrate ICT innovation into national development agendas and build human and institutional capabilities at the country level where it is most relevant and sustainable.

The Alliance will operationalize the needed capabilities through three main vehicles:

1. **A Digital Transformation Lab**
2. **A Network of Acceleration Centers**
3. **A Digital Innovation Board**



"Building capacity in digital innovation is critical to closing the digital divide as it empowers individuals, businesses, and communities to harness the full potential of technology. Digital innovation improves access to essential services, creates jobs, and drives economic growth. No single stakeholder can alone drive digital innovation."

Dr. Cosmas Zavazava
Director, Telecommunication Development Bureau
International Telecommunication Union (ITU)

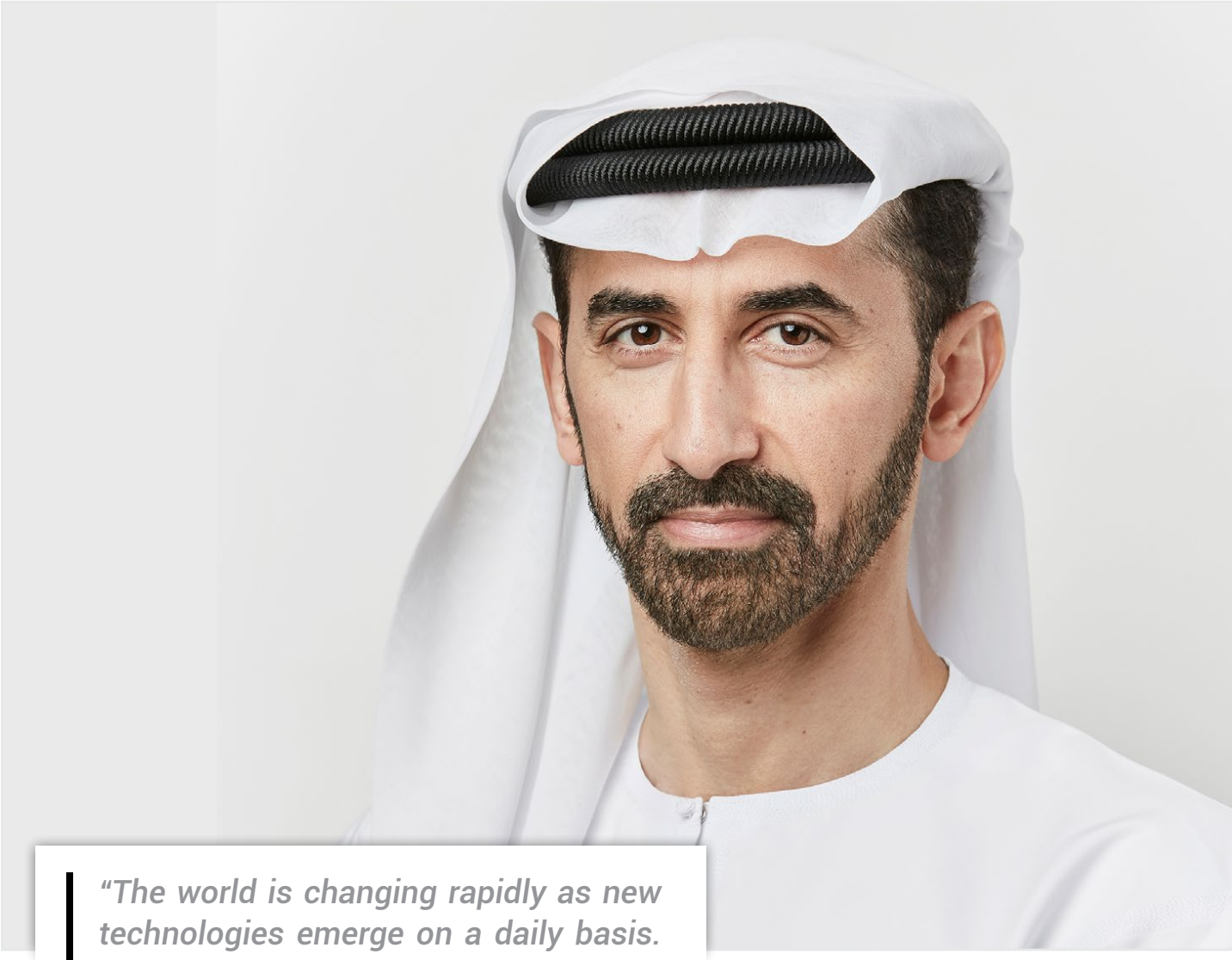
to countries, while the Network will enhance global, regional, and national innovation capabilities for technology, policy, and flagship initiative development. The Digital Innovation Board will guide the work of the Alliance, ensure its effectiveness and accountability, and facilitate high-level coordination and global advocacy.

ITU acceleration centers will catalyze countries' journey towards an innovation-driven digital economy through specially designed initiatives based on the desired strategic objectives. These centers will equip organizations with strategic foresight, knowledge, and competencies to nurture digital innovation, showcase and scale the potential of a vibrant technological ecosystem and innovative SMEs to regional and global markets, and enhance collaboration between various stakeholders to amplify the digital ecosystem impact at the regional or global level.

According to **Dr Cosmas Zavazava,** Director, Telecommunication Development Bureau International Telecommunication Union," Building capacity in digital innovation is critical to closing the digital divide as it empowers individuals, businesses, and communities to harness the full potential of technology." He further added, "Digital innovation improves access to essential services, creates jobs, and drives economic growth. No single stakeholder can alone drive digital innovation." He elaborated on the membership by adding, "Our membership called for a concerted effort to unlock opportunities in this area at the World Telecommunication Development Conference (WTDC-22) that adopted the Kigali Action Plan"

He further invited ITU members and partners by saying, "I invite you to join the Innovation and Entrepreneurship Alliance for Digital Development. This new framework will allow ITU membership and partners to engage in experimentation that supports the growth of local and regional innovation, empower stakeholders to scale their initiatives, and create a digital environment favorable to investment, continuous innovation, and tech-driven entrepreneurship. In fulfilling its mandate, the Telecommunication Development Bureau (BDT) is committed to providing support to the Membership aimed at closing the digital gap, creating a more inclusive and equitable digital Future for all."

TDRA Driving Progress Toward the "We the UAE 2031" Vision



"The world is changing rapidly as new technologies emerge on a daily basis. Therefore, we must keep pace with these technologies using suitable means, in order to foresee their impact on our lives, maximize gains and minimize negative impact, and develop relevant laws and regulations. During the World Government Summit 2023, we announced the creation of the first ICT Sandbox for this purpose, and we have already started working on it…"

HE Eng. Majed Sultan Al Mesmar
Director General
Telecommunications and Digital Government Regulatory Authority (TDRA)

The Telecommunications and Digital Government Regulatory Authority (TDRA) of the United Arab Emirates (UAE) has recently announced three transformation projects under the "We the UAE 2031" vision, aligned with the Digital Transformation Strategy. These projects include the Digital Vault for the banking, insurance, and telecommunication sectors, the Children's Communication Services Program, and the Digital Customer Journey Quality Measurement Program. These projects aim to create a comprehensive digital life in the UAE and establish an attractive digital economic environment.

Moreover, these projects are in line with "We the UAE 2031" Vision and its integrated development program for the next ten years, covering social, economic, investment and development aspects, especially within the "Forward Ecosystem" pillar, and in alignment with the special directions of the pillar, including building the government of the future. The announced projects also fall within an integrated file of initiatives and programs emanating from the Digital Transformation Strategy with the aim of consolidating the foundations and concepts of a comprehensive and integrated digital life in the UAE, while confirming the UAE's global position as a leading and advanced country in the field of digital government and in embracing emerging technologies to serve customers, and support applications that contribute to establishing an attractive digital economic environment.

TDRA continues to showcase the UAE's achievements in telecommunications and digital government, which enabled government entities to provide advanced services based on a robust infrastructure.

Highlighting the UAE's achievements in the context of supporting the SDGs during the recently held World Summit on the Information Society (WSIS) Forum 2023, held in Geneva, HE Majed Al Mesmar, Director-General of TDRA, strong remarked on the need to keep pace with digital development and to positively exploit the power of new technologies. "The world is changing rapidly as new technologies emerge on a daily basis. Therefore, we must keep pace with these technologies using suitable means, in order to foresee their impact on our lives, maximize gains and minimize negative impact, and develop relevant laws and regulations. During the World Government Summit 2023, we announced the creation of the first ICT Sandbox for this purpose, and we have already started working on it", stated the Director General.

TDRA continues to showcase the UAE's achievements in telecommunications and digital government, which enabled government entities to provide advanced services based on a robust infrastructure.

"We the UAE 2031"

"We the UAE 2031" vision represents a national plan through which the UAE will continue its development path for the next 10 years, with focus on social, economic, investment and development aspects.

The plan seeks to enhance the position of the UAE as a global partner and an attractive and influential economic hub. It aims to highlight the successful economic model of the UAE and the opportunities it provides to all global partners.

"We the UAE 2031" follows "UAE Vision 2021" which was created to accelerate the nation's growth in the healthcare, education, sustainability and infrastructure sectors.

Major Pillars of the "We the UAE 2031" Vision

Forward Society	**Forward Economy**
Forward Diplomacy	**Forward Ecosystem**

HE Majed Al Mesmar believes that the "challenges posed by the current situations are too great to deal with in silos. If the essence of the ICT sector is to build bridges of communication between people, then we should strengthen those bridges to understand the present and shape the future."

As the UAE treads a fulfilling path toward sustainable digital transformation, TDRA continues to foster a culture of stakeholder collaboration within the UAE and the region, while acknowledging the efforts of global industry bodies, such as the ITU and regional bodies such as the SAMENA Council, to help fulfill a prolific digital vision. In the words of TDRA DG, "The UAE's interest has been culminated in a number of strategic projects, including the establishment of a comprehensive optical fiber infrastructure, the establishment of the first e-government in the region, and achieving leading positions in many relevant global ICT indicators."

> *"The UAE's interest has been culminated in a number of strategic projects, including the establishment of a comprehensive optical fiber infrastructure, the establishment of the first e-government in the region, and achieving leading positions in many relevant global ICT indicators."*
>
> ***Eng. Majed Sultan Al Mesmar, DG, TDRA***

> *As the UAE treads a fulfilling path toward sustainable digital transformation, TDRA continues to foster a culture of stakeholder collaboration within the UAE and the region, while acknowledging the efforts of global industry bodies, such as the ITU and regional bodies such as the SAMENA Council, to help fulfill a prolific digital vision.*

As well-recognized enabler of digital transformation at the federal level, including the development of core digital enablers such as UAE Pass, FedNet, and the digital verification platform (UAE Verify), TDRA has launched numerous initiatives, including the UAE Pass, which is a comprehensive national digital initiative brought to life in partnership with Abu Dhabi Digital Authority and Digital Dubai. It aims to provide quick and easy access to government and non-government services by various segments of customers around the clock. The number of beneficiaries of UAE Pass application has exceeded 5 million people.

TDRA oversees the telecommunications and digital government sectors in the UAE in accordance with the Telecommunications Law issued by Federal Decree No. (3) of 2003 and its amendments, and in accordance with the Decree No. (23) issued on 27 September 2020 amending provisions of Federal Law by No. (3) of 2003 on the regulation of the telecommunication sector, and the addition of "digital government" to the functions and name of the authority. Leading TDRA's efforts is the Board of Directors, Director General, and Deputy Directors-General for the three sectors: Telecommunication Sector, Information and Digital Government Sector, and Support Service Sector.

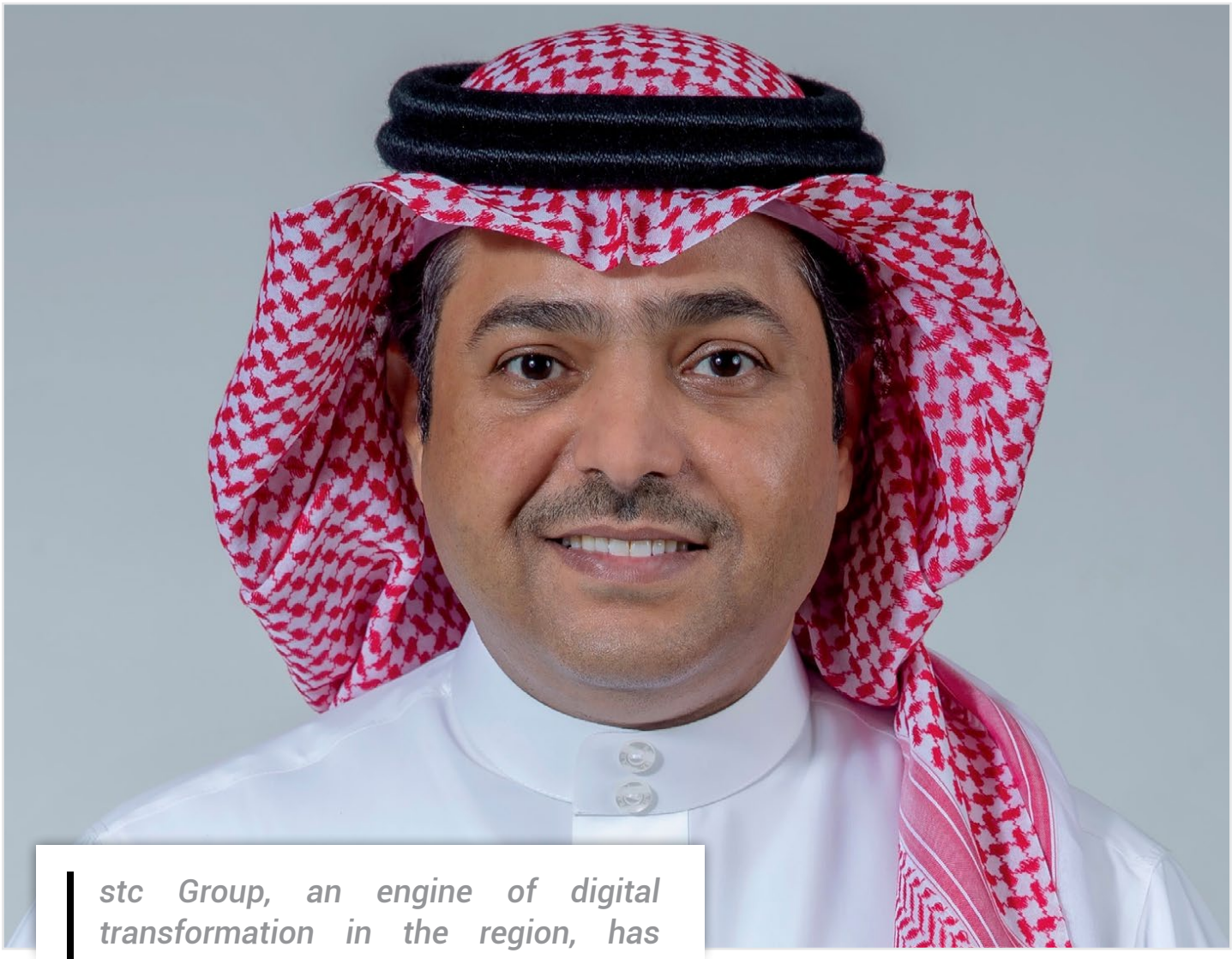
your business data is safe at home

with a data center inside the Kingdom from stc

stc.com.sa/**business**

stc

stc Group Invests More Than SAR 3.5 Billion in Social, Educational and Health Initiatives



stc Group, an engine of digital transformation in the region, has invested more than SAR 3.5 billion in social, educational and health initiatives during the past years. Through these initiatives, stc Group is empowering Saudi individuals and entities alike to adopt a digital way of life and prosper as the Kingdom seeks to become the world's most connected and digitized nation by 2030.

Eng. Olayan M. Alwetaid
CEO
stc Group

stc Group, an engine of digital transformation in the region, has invested more than SAR 3.5 billion in social, educational and health initiatives during the past years. Through these initiatives, stc Group is empowering Saudi individuals and entities alike to adopt a digital way of life and prosper as the Kingdom seeks to become the world's most connected and digitized nation by 2030.

> *"Estidama", stc Group's technical empowerment program, provided digital solutions that supported 560 charities and non-profit organizations across the Kingdom to achieve administrative, financial and operational efficiencies.*

stc Group is driving the region's digital transformation by empowering SMEs and NGOs

"Estidama", stc Group's technical empowerment program, provided digital solutions that supported 560 charities and non-profit organizations across the Kingdom to achieve administrative, financial and operational efficiencies. As part of the program, 385 stc Group employees volunteered for a total of 10,000 hours, providing their expertise to non-profit organizations and the local community, implementing solutions to drive efficiency and performance, and building skills and capabilities in these entities through a series of workshops for more than 100 trainees from 30 non-profit and government institutions in the Kingdom.

stc Group's "ImpactU" program, which incubates startups and entrepreneurs in the environment, sustainability and social responsibility field, supported ten projects and 179 trainees, with the total value of the projects supported by the program reaching SAR 800,000. The program aims to empower sustainable growth, providing entrepreneurship training and counselling and offering access to co-working spaces and free services for CSR organizations and startups. The program aims to incubate five startups annually and increase the initial investment for each to SAR 100,000 to drive local economic growth.

stc Group seeks to unlock opportunities for society through inclusive and innovative solutions

stc Group is committed to enhancing accessibility and digital inclusion for people with disabilities, driving the adoption of technology to improve care and education services. stc Group launched the "Yanmo" platform, which provides professional development training for education and rehabilitation service providers that support students with disabilities. More than 120 training sessions have been held to date, reaching over 1,500 students with disabilities.

In March this year, stc Group launched the "Smart Bus" to enhance digital knowledge for all segments of society. The bus was equipped with devices and screens to educate the elderly on how to use modern technologies, navigate the internet and protect against fraud and cybercrime. It benefited 1,215 people in 9 governorates.

stc partners with organizations that share its commitment to social responsibility

stc Group has collaborated with the "Irtiqaa" association to recycle more than 8,000 desktop, laptop and tablet computers that have been renewed and will be delivered to non-profit institutions throughout the Kingdom.

Through the "Jood" Eskan campaign, stc Group employees came together to donate over SAR 3 million to families in need in 11 cities across Saudi Arabia.

stc Group has installed AI-enabled medical cameras that support early screening for retinopathy for diabetes sufferers at Al Husseiniya Health Center and General Diabetes Center at Jazan General Hospital.

In the educational field, stc cooperates with the "Taa'lam" association to support students to continue their university education in technology.

> *stc Group launched the "Yanmo" platform, which provides professional development training for education and rehabilitation service providers that support students with disabilities. More than 120 training sessions have been held to date, reaching over 1,500 students with disabilities.*

Delivering Compelling Customer Experiences to Unlock Sustainable Commercial Growth

Mobily undertook a strategic refresh with a primary focus on innovation that enabled us to take a far more proactive approach in differentiating our portfolio through intuitive products and services while building new revenue streams in various key digital and ICT areas. Today, everything we do is implemented with a 'partnership-ready' mindset. This in turn means we have had to become far more agile in our operating model while optimizing our cost per transaction.

Eng. Salman Bin Abdulaziz Al Badran
CEO
Mobily

The modern consumer has access to a bewildering number of products and services available from a seemingly endless amount of companies. It is little wonder then that today's customer tends to skip to different providers on a regular basis. This poses a challenge for companies in many industries but is especially acute in the telecommunications and technology sectors.

In these sectors, it is not uncommon for almost continuous customer churn as new and emerging technologies enable a host of exciting services to become available on a regular basis. As a result, it comes as no surprise that customers jump to the latest and greatest new offering from one telecom provider to another. In such a competitive and dynamic market, you must attract, and then retain customers, on a consistent basis.

For this to be successful, it is imperative for organizations to focus on creating customer experiences that meet the needs of their users. The Covid pandemic has shifted habits and customer expectations; they now expect seamless and streamlined experiences from their service providers. But more than this, they must be customizable to fit their needs and not limited to prescribed packages. Off-the-shelf and one-size-fits-all solutions are long gone.

The Covid pandemic has shifted habits and customer expectations; they now expect seamless and streamlined experiences from their service providers. But more than this, they must be customizable to fit their needs and not limited to prescribed packages. Off-the-shelf and one-size-fits-all solutions are long gone.

This is an area in which Mobily has made extensive strides in recent years. Through a steady and carefully planned process, the entire company has been empowered with the ability to become agile enough to withstand market unpredictability, and smart enough to identify new trends and develop products and services that meet the requirements, and desires, of today's consumers.

Mobily became the first telecom company to win the 'Best Customer Experience Award' as well as two Ookla Speedtest Awards at the Mobile World Congress 2022. We were the winner of the Customer Experience Awards during the 2023 ICT Indicators Forum, for achieving the award's international standards based on customer votes, which aims to enhance a user's experience and raise competitiveness among service providers in the Kingdom.

We have been able to do this by placing our primary focus on customer experiences. As a result, we have grown our brand value by 18 percent in 2023 and retained our position as the 7th most valuable brand in the Kingdom. We also became the Middle East's fastest-growing brand in 2023.

This has been made possible through a multi-pronged approach to leverage many different technologies and processes, to ensure the highest levels of customer experience. We set out with a clear vision to make Mobily a leading integrated and digital telecom company in Saudi Arabia. This method has paid off and we have been recognized by various industrial bodies for our customer experience and service.

Mobily became the first telecom company to win the 'Best Customer Experience Award' as well as two Ookla Speedtest Awards at the Mobile World Congress 2022. We were the winner of the Customer Experience Awards during the 2023 ICT Indicators Forum, for achieving the award's international standards based on customer votes, which aims to enhance a user's experience and raise competitiveness among service providers in the Kingdom. This followed the company's awarding by the Communications, Space & Technology Commission (CST) of the Best User Experience Award for 2021.

These awards and the continuing recognition and acknowledgment of Mobily as a telecoms provider that places the customer at the center of its experience have been made possible by extensive investment in infrastructure, technology, services, and products.

Mobily undertook a strategic refresh with a primary focus on innovation that enabled us to take a far more proactive approach in differentiating our portfolio through intuitive products and services while building new revenue streams in various key digital and ICT areas. Today, everything we do is implemented with a 'partnership-ready' mindset. This in turn means we have had to become far more agile in our operating model while optimizing our cost per transaction.

This approach can be seen in our collaboration with Ericsson to implement their artificial intelligence-based solution to improve our network performance across Saudi Arabia. We use this increasingly prominent technology to analyze 5G networks, diagnose issues and their causes, and offer solutions. This in turn allows our customers to enjoy superior uninterrupted 5G connectivity and is part of our wider strategy of digitization.

The end goal is to deliver seamless solutions that are convenient to use and provide the required capabilities to meet the needs and aspirations of consumers. Our Mobily Pay digital payment system is a great example of this. Mobile and digital wallets are having a transformative effect

on the way people shop, transfer money, and carry out their daily financial transactions in a secure manner. We have become industry leaders in this regard and have been able to attract financial transaction giants such as Visa and MoneyGram to our platform. Furthermore, there is close and ongoing cooperation with Cisco to build the region's largest Internet of Things (IoT) Cloud Platform and Equinix to improve the speed and quality of the Internet and much more.

We have also placed high importance on growing and developing our digital infrastructure. This is reflected in our involvement in the Africa-1 undersea cable system consortium. By partnering with various organizations for the project we are establishing and strengthening the Kingdom's connectivity across the Middle East, Africa, and Europe. This desire to enhance our digital infrastructure runs in parallel with our determination to provide excellence and sustainability at all levels and the end beneficiary is the customer.

We have also placed high importance on growing and developing our digital infrastructure. This is reflected in our involvement in the Africa-1 undersea cable system consortium. By partnering with various organizations for the project we are establishing and strengthening the Kingdom's connectivity across the Middle East, Africa, and Europe. This desire to enhance our digital infrastructure runs in parallel with our determination to provide excellence and sustainability at all levels and the end beneficiary is the customer.

Telecoms that continue to cling to the old way of doing things by unflinchingly attaching themselves to the traditional perception of what categories a telecoms company should be involved in will struggle to survive. Mobily is not about surviving we always strive for more. By embracing the concept of digitization, we have become far better placed to compete successfully while taking advantage of and creating new growth opportunities.

The new Mobily is a market-responsive technology provider and service facilitator. But this has only been made possible by following a clear roadmap for transformation. Most importantly we have built up our infrastructure in the ways that matter most and cater to the needs of our users. This has resulted in the launch of various initiatives such as Mobily Gamers Portal, and the Digital Partnership Program as well as working with Monsha'at to support SMEs. Furthermore, we paid more attention to our B2B business with various Cloud and ICT services.

The new Mobily is a market-responsive technology provider and service facilitator. But this has only been made possible by following a clear roadmap for transformation. Most importantly we have built up our infrastructure in the ways that matter most and cater to the needs of our users. This has resulted in the launch of various initiatives such as Mobily Gamers Portal, and the Digital Partnership Program as well as working with Monsha'at to support SMEs. Furthermore, we paid more attention to our B2B business with various Cloud and ICT services.

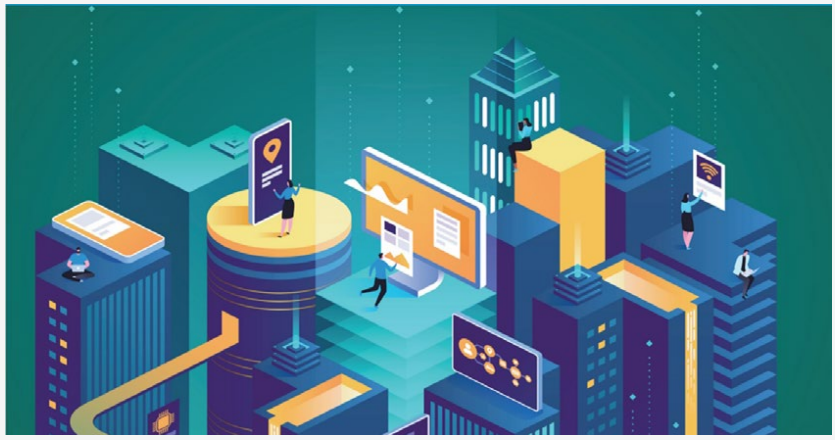
From the beginning of this process, our guiding principles have been to look forward with confidence and a determination to bring the best, most innovative services to our customers. Although there have been plenty of highs and lows in recent years, we are now beginning to see consistent success. That does not mean we should become complacent, and we never take our customers or partners for granted. The process is ongoing. That means continuous enhancement across our product and service offerings together with the expansion of our product portfolio in connectivity, security services, IoT solutions, and other digital services. The needs of our customers change, and we must always be prepared to meet these shifting trends with solutions that make a real difference.

ITU's Findings: World's LDCs Threatened by Deepening Digital Divide

The digital connectivity divide separating the globe's least developed countries (LDCs) from the world shows no sign of narrowing. In fact, it is widening on key factors, according to ITU's Facts and Figures: Focus on Least Developed Countries. While the share of the population in LDCs using the Internet has increased since 2011 from 4 per cent to 36 per cent, about two-thirds of the LDC population remains offline. LDCs also still face numerous barriers to meaningful connectivity, including lack of infrastructure, affordability, and skills. Although no single figure can capture all aspects and complexities of the digital divide, the gap between LDCs and the world in the share of people using the Internet has increased from 27 percentage points in 2011 to 30 percentage points in 2022. "The path to prosperity for the world's least developed countries runs through digital development," said ITU Secretary-General Doreen Bogdan-Martin. The special edition of ITU's Facts and Figures highlights the challenges confronting LDCs and should help strengthen commitments between the least developed countries and their development partners."

The ITU study, prepared ahead of the Fifth United Nations Conference on the Least Developed Countries (LDC5), focuses on trends in digital connectivity in LDCs since 2011, when the UN last held its global conference on least developed countries.

> *For LDCs, the goal of universal and meaningful connectivity – when a safe, satisfying, enriching, productive and affordable online experience is available to all – remains a distant prospect. Even many of those who can access the Internet do not, because of the barriers ranging from awareness, to skills, to costs.*



Notable Findings from Facts and Figures: Focus on Least Developed Countries (2023)

ITU's annual flagship report Facts and Figures, issued every year, serves as a powerful advocacy tool in efforts to put digital development at the top of the agenda of policymakers and the global development community.

- Since the Fourth United Nations Conference on the Least Developed Countries in 2011, Internet use in LDCs surged from 4 per cent of the population to 36 per cent, corresponding to a compound annual growth rate of 22 per cent, more than three times the global growth rate.
- In LDCs, the COVID-19 pandemic did not cause a boost in Internet use, unlike in more advanced economies, where growth rates typically doubled in 2020 and 2021.
- The digital gender gap in LDCs remains significant and is not narrowing.
- In 2022, an estimated 407 million people in least developed countries (LDCs) were using the Internet, accounting for 36 per cent of the population, compared to 66 per cent globally. The 720 million people still offline in LDCs account for 27 per cent of the global offline population, even though the LDC population accounts for only 14 per cent of the world's population.
- As of 2022, almost half (48 per cent) of young people (15- to 24-year-olds) in LDCs were online.
- In LDCs, and most developing countries, mobile broadband (3G or above) is the main way — and very often the only way – to connect to the Internet. And yet only 83 per cent of the combined LDC population is covered by a mobile broadband signal, compared with 95 per cent of the world's population.
- In LDCs, the price gap between mobile and fixed broadband is much wider than elsewhere in the world. Fixed broadband typically costs around three times as much as mobile broadband in LDCs, but 'only' twice as much elsewhere.
- The lack of affordability is one of the main barriers to Internet use and accessing the Internet is more costly in LDCs than anywhere else in the world.
- Broadband services are, however, becoming more affordable in LDCs and affordability has improved faster in LDCs where prices were highest.

ITU Secretary-General Doreen Bogdan-Martin
Doreen Bogdan-Martin was elected Secretary-General of ITU in September 2022 and took office on 1 January 2023, becoming the first woman to head the 157-year-old organization. The world's largest technical professional organization, IEEE, recently presented the ITU Secretary-General with the 2023 IEEE President's Award. With over two decades of leadership experience in global telecommunications policy, Bogdan-Martin has emphasized the need for digital transformation to achieve economic prosperity, gender equality, and socio-economic inclusion, as well as to build circular economies, reduce climate impact, and save lives. Prior to becoming ITU Secretary-General, Bogdan-Martin served as Director of ITU's Telecommunication Development Bureau from 2018 through 2022.

> *"The path to prosperity for the world's least developed countries runs through digital development. The special edition of ITU's Facts and Figures highlights the challenges confronting LDCs and should help strengthen commitments between the least developed countries and their development partners."*
> ***Doreen Bogdan-Martin***
> ***ITU Secretary-General***

According to the research, which uses data from ITU's Facts and Figures 2022, an estimated 407 million people in LDCs were using the Internet in 2022. The 720 million people still offline in LDCs represent 27 per cent of the global offline population, even though the LDC population accounts for only 14 per cent of world population.

The study highlights that only 83 per cent of the combined LDC population is covered by a mobile broadband signal 3G or above, the main way to connect to the Internet in most developing countries. This compares with 95 per cent coverage for the overall world population.

The latest edition of Facts and Figures, ITU's annual overview on the state of digital connectivity, found that the cost of using Internet services inched downward across the globe in 2022. The special ITU analysis produced for LDC5 highlights that accessing the Internet is more costly in LDCs than anywhere else in the world.
According to ITU, the challenge of getting communities online has also become more complex over the last decade than just constructing physical connections.

For LDCs, the goal of universal and meaningful connectivity – when a safe, satisfying, enriching, productive and affordable online experience is available to all – remains a distant prospect. Even many of those who can access the Internet do not, because of the barriers ranging from awareness, to skills, to costs.

ITU, the United Nations specialized agency for information and communication technologies, works around the globe to strengthen collaborative action on universal connectivity and sustainable digital transformation.

MEMBERS NEWS

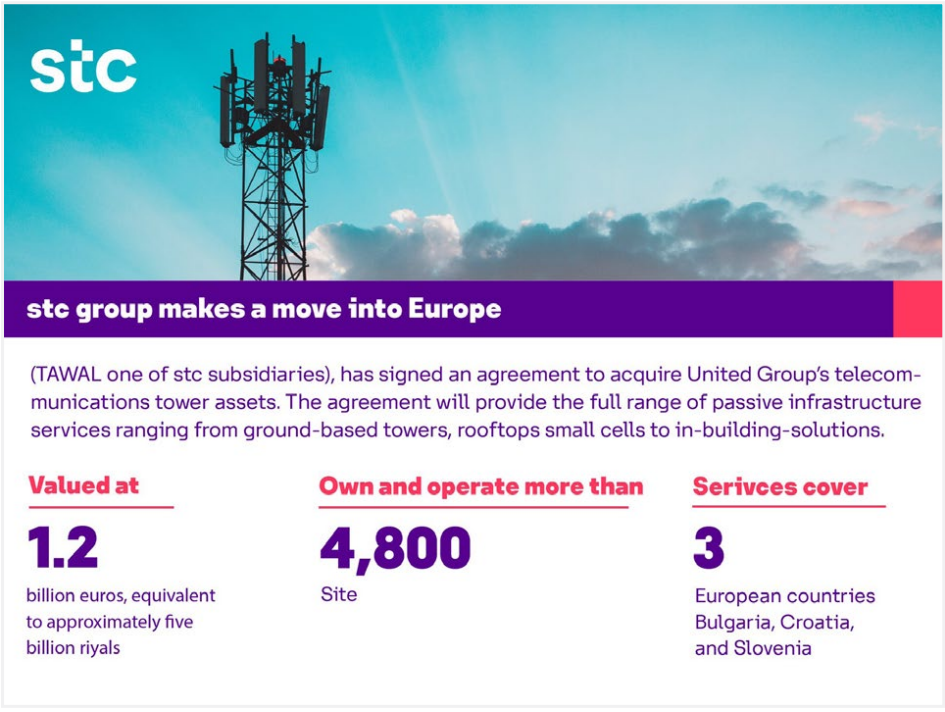
stc Group Confirms Its Outstanding Achievements in Driving Sustainability in the Middle East

stc Group, the leading digital enabler in the region, won the sustainability Middle East Champion of the year award 2023. The awards were arranged by "SME Awards – Sustainability Middle East", highlighting the ME's best sustainability and climate actions. On behalf of the stc group, Mashaal AlRubaian, General manager of corporate communication at stc, received the award during the ceremony held in Dubai, UAE. The group focused on sustainability practices recognizing extraordinary achievements, including driving the sustainability agenda for the Middle East region. With climate change becoming an existential threat, stc worked towards accomplishing net-zero / low-carbon emission and sustainable operations and adopted innovative sustainability strategies by migrating to renewable energy sources, eco-friendly raw materials, and technologically advanced low-carbon-footprint machinery and equipment. stc was awarded due to standing out by its unique sustainability program implemented on the ground while demonstrating measurable improvements in making industry and day-to-day living cleaner and greener for the people in the Middle East. It is well noted that in February 2023, stc group signed the environmental position statement and committed to fulfilling its obligations, including the reduction in the environmental impact of stc's products, services and network operations by driving digitalization to maximize its positive impact on the environment, exceed environment legal obligations imposed by relevant laws and regulations, continuously update and improve its environmental management system, by creating related objectives, science-based targets and deploying specific mitigation programs in addition to minimizing energy consumption, reducing GHG emissions, promoting energy efficiency and integration low carbon energy solutions. Moreover, the group is committed to reducing the environmental impact of its fleet through a combination of cleaner vehicles, fuel-efficient operation systems, minimizing waste and preserving biodiversity. Furthermore, the stc group confirmed its commitment to raising awareness of the importance of environmental protection and sustainability for all its stakeholders and performing yearly internal and external verifications to ensure the accuracy and credibility of its environmental data.

stc Tower Company to Buy Towers in Eastern Europe

stc Group, an engine of digital transformation in the MENA region, announces that its ICT infrastructure subsidiary, TAWAL, has signed an agreement to acquire United Group's telecommunications tower assets. The agreement, valued at EUR 1.220 bn supports stc Group's ambitious strategy to expand its international footprint in key markets with significant growth potential. Marking TAWAL's first step in Europe, this move represents a major milestone in its international expansion journey and stc Group's growth ambitions which have been active growing in the ICT adjacencies including recent investments in ICT, IoT, Cloud, Cybersecurity, Fintech and digital entertainment through its subsidiaries. Following completion of the acquisition, TAWAL will own and operate more than 4,800 sites across Bulgaria, Croatia, and Slovenia (all European Union member

states, two of which are already members of the Eurozone), providing the full range of passive infrastructure services ranging from ground-based towers, rooftops small cells to in-building-solutions. As part of the 20-year master services agreement with United Group, TAWAL will deploy over 2,000 additional sharable sites, while co-location relationships with other mobile network operators will be maintained and expanded, enabling stc Group to drive digital transformation through providing world-class connectivity. Olayan Alwetaid, Chief Executive Officer, stc Group, said: "Our agreement with United Group represents an exciting new chapter for TAWAL and the wider stc Group. The agreement is a significant milestone in our ambitious growth strategy and the expansion of our international footprint. We are already leading the transformation of Saudi Arabia's digital capabilities and this transaction reinforces our commitment to investing in best-in-class technology and infrastructure to lead the way in enabling the world to connect." Mohammed Alhakbani, Chief Executive Officer, TAWAL, said, "We are delighted to partner with United Group in our first investment in the European market. The partnership supports our goal to continue to provide innovative and efficient ICT infrastructure solutions to our partners and deliver the quality of services we are renowned for." The transaction is subject to regulatory approval from the relevant authorities in Bulgaria and Slovenia. Upon completion, TAWAL's operations in the European market will be rebranded as "TAWAL Europe" and will serve as TAWAL's platform for any future expansion in Europe. TAWAL currently owns a portfolio of over 16,000 telecom towers. The company is actively supporting digital transformation plans in Saudi Arabia, expanding its reach across new cities and rural areas in the Kingdom and actively rolling out smart-city-ready technologies such as camouflage telecom towers, smart poles capable of hosting 5G and IoT applications, in-building solutions, and small cells.



stc Supports Smart Port Automation in the Kingdom

stc Group, the digital enabler in the region, in partnership with the Saudi Ports Authority, has launched the Smart Ports Initiative to automate the Saudi ports' operations, which will advance ports performance, economic competitiveness, reduce costs, and increase safety. The collaboration will also support the automation of operational processes across ports and apply modern technologies in logistics services, in line with the Kingdom's vision to become the global logistics hub. The digital solutions provided by stc include an enhanced 5G network to ensure a secure and reliable connection in the ports of Dammam and Jeddah in contribution to the digital infrastructure development, cranes automation and a remote operation for ports from the central control room through video surveillance. This technology will help to improve crane operation and improve time efficiency. The three-dimensional visualization technology of cranes will support tracking cranes' conditions and the number of containers transported, reducing downtime in port operations and increasing their productivity. It also includes using smart cameras and artificial intelligence to link the containers to the trucks since it was lifted from the ship. Moreover, it identifies the trucks' card numbers to help in managing a huge number of containers in less time and precision, which will promote continuous flow within the port area. In addition to the aforementioned digital solutions offered by stc, the group will also enable smart monitoring to increase safety and security at the ports through facial recognition, license plate recognition, fraud detection and real-time alerts that are transferred to the security team about vehicles exceeding speed limits, in addition to providing direct control of the transport of goods that contribute to reducing the cost of damage in some cases. These digital solutions strengthen the Kingdom's position as a global logistics center, making Saudi ports proactive in applying modern technologies, enhancing regional and international competitiveness in cargo handling, serving importers and exporters, and providing logistics services and maritime transport in line with the Kingdom's Vision 2030.

stc Group announces Partnership with Lucid LLC for Connectivity Services for Lucid Vehicles in KSA

stc Group, the leading digital enabler of KSA, announced a partnership with Lucid Group to provide direct-to-consumer connectivity services for Lucid customers in KSA. Through this collaboration, the companies will deliver exceptional connectivity that enables in-car infotainment and over-the-air functionality to enhance the driving experience for Lucid customers. As a leading digital enabler in the region, stc is committed to providing innovative solutions that meet the evolving needs of our customers. The partnership with Lucid allows stc to simplify the delivery and management of advanced over-the-air (OTA) in-car services and provides a foundation for innovating and meeting the changing needs of customers as new services evolve. This new connectivity service will enable Lucid customers in KSA to enjoy enhanced vehicle performance and functionality, including continuous improvements to vehicle control and infotainment systems via OTA updates, remote vehicle diagnostics, controls, and serviceability, music streaming through in-vehicle apps, and navigation. "We are excited to collaborate with Lucid Group to create a seamless connectivity experience

for Lucid Air customers in Saudi Arabia," said Saud Alsheraihi, VP of Business Products & Solutions at stc Group. "This partnership allows us to continue to push the boundaries of innovation and provide the highest quality products and services to our customers." "Through our collaboration with stc Group, Lucid aims to create a seamless connectivity experience to make Lucid vehicles more enjoyable, advanced, and convenient for our customers," said Faisal Sultan, Vice President and Managing Director, Middle East, Lucid. "We are extremely excited to bring these features to our customers in Saudi Arabia." This partnership with Lucid further strengthens stc's commitment to providing cutting-edge technology solutions and driving digital transformation both nationally and regionally.

e& Announces Yet Another Increase in Its Stake in Vodafone Group

Less than a month after announcing it had increased its stake in Vodafone Group to 13%, UAE-based e& has revealed it has yet again acquired more shares in the British telecoms giant, with the latest purchase bringing to its holding to 14%. In line with the three other incremental stake increases previously announced by e& in December 2022, January 2023 and February 2023, it has once again said its investment rationale remains unchanged from when it initially announced acquiring 9.8% of Vodafone Group's issued share capital back in May 2022. At the time of that initial share purchase, e& said it had made the investment in Vodafone Group 'to gain significant exposure to a world leader in connectivity and digital services.

e& Money and Mastercard Enter into a One-of-a-Kind Partnership to Transform Digital Payments for 10 million Consumers in the UAE

e& money - the fintech arm and financial super-app of e& life announced its partnership with Mastercard to transform and evolve the way customers make payments via an exclusive prepaid card - enabling payments anywhere in the world and offering the flexibility and convenience of using virtual and physical cards. The e& money card significantly enhances the current proposition, where customers have a digital wallet to make peer-to-peer transfers, international money transfers, payments, and much more. Khalifa Al Shamsi, CEO, e& life said: "In recent years, the payments landscape has undergone a massive transformation, with innovations in products and customer experience. Our partnership with Mastercard will reinforce our goal of becoming the region's leading financial super app. The card will enable e& money to drive financial inclusion in the UAE and make digital payments accessible to all segments of our society. "We are excited about the possibilities and opportunities that the card will bring, and will constantly push the boundaries to introduce new digital fintech solutions that will enrich the financial experiences of customers. Previously, e& money customers were already able to make retail payments at integrated points of sale. The new strategic partnership with Mastercard will now allow them to make in-store or online payments instantly, anywhere in the world. As a digital-first card, customers will initially have virtual cards for online payments and will soon be able to request physical cards for offline payments. By committing to advancing innovation, technology and digitalization to simplify payments through mobile money, Mastercard is actively engaged in driving digital inclusion and accessibility for people across the region. The new payment solution will support financial inclusion and digital payments across all customer segments, including the banked, underbanked and unbanked. Through its partnership with Network International, one of the leading enablers of digital commerce in the region, Mastercard is providing a fully-fledged payment processing platform to empower this strategic initiative. Mastercard will further leverage Network's payment solutions to enable e& to diversify their revenues and make a seamless transition to digital commerce. "At Mastercard, we are committed to supporting the national payments ecosystem and the transformation of the UAE digital landscape. We are the technology provider of choice that connects telecom operators, digital e-retailers and fintech companies to their consumers, and our partnership with e& money will enhance the digitally connected lifestyle that unlocks exceptional experiences for consumers," said Amnah Ajmal, Executive Vice President, Market Development, EEMEA, Mastercard. Prepaid card transactions will also form an integral part of e& money's loyalty program, where customers will earn cashback and rewards for every dirham spent. These in turn can be redeemed for various benefits such as free data plans, minutes, discount codes, and more. In addition, the e& money app card will allow customers to take control of their finances and track their spending. In the first phase of the launch, the free virtual card will be provided to all eligible customers who download and register on the app. It can also be added to Apple, Google and Samsung pay platforms for retail payments in the near future. In the next phase, e& money will enrich its card portfolio with various value propositions to meet the needs of customer. e& launched its new identity in February 2022 with a strategy to accelerate growth through the creation of a resilient business model represented by the Group's main business pillars. The telecoms business currently continues to be led by etisalat by e& in the Group's home market and e& international for other markets, upholding the Group's rich telecoms heritage, bolstering the strong telecoms network and maximizing value for the Group's various customer segments. Ramping up the digital services for individuals to elevate their digital-driven lifestyle, e& life brings next-generation technologies through smart platforms in entertainment, retail and financial technology. e& enterprise focuses on maximizing value through its end-to-end solutions in cybersecurity, cloud, Internet of Things (IoT) and Artificial Intelligence (AI), as well as deploying mega projects, in order to enable the digital transformation of governments, large-scale enterprises and corporates. e& capital allows the Group to focus its efforts on driving new investments while maximizing shareholder value and strengthening the Group's global presence.

etisalat by e& Announces First 5G SatComs in the UAE

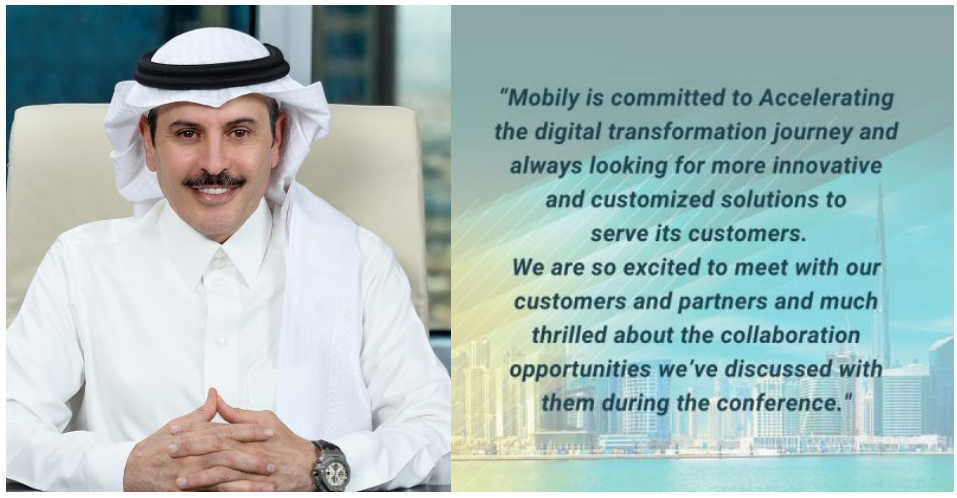
etisalat by e& announced the implementation of the EUTELSAT QUANTUM satellite solution, becoming the first telco in the country to expand 5G network capabilities over a software-defined satellite giving customers access to high speeds, enhanced coverage and scalability to meet future demands for high bandwidth applications. This deployment was a result of rigorous testing with customers for over a year to rapidly scale up the 5G mobile network deployment. etisalat by e& implemented Eutelsat's latest technology Quantum satellite with the recently installed state-of-the-art Newtech Dialog Hub enhancing the mobile network capability. Khalid Murshed, Chief Technology and Information Officer, etisalat by e& UAE said: "With the demand for 'always-on' connectivity as technologies like IoT, AI and blockchain make a bigger impact on consumer lives, satellite connectivity can empower communities and business in this rapidly evolving digital landscape. With the deployment of this satellite solution and technology, our customers will be able to access their data at 5G speeds even when terrestrial connectivity is unavailable, marking another important step towards the regions' 5G adoption and bridging the digital divide". Oscar Garcia, Business Marketing and Product Innovation, etisalat by e& said: "The need for connectivity has grown beyond traditional communications with customers wanting to access the highest speeds in the network to meet their requirements and demands for bandwidth-intensive applications such as GSM services, Remote IT, Unified communications, OTT, and media streaming among others. The testing and implementation of this satellite solution greatly enhances the mobile network capability to address the futuristic development of new age applications while being able to build and deploy 5G use cases for various industry verticals and business." "Eutelsat are proud to partner with etisalat by e& to deploy this 5G use case on the world's first Software Defined satellite network. Our fully steerable beams are capable of meeting the most rigorous demands of Next Generation mobile and satellite networks," said Ghassan Murat, Head of Connectivity Business Unit for Middle East, Africa and Asia Pacific, Eutelsat. EUTELSAT

QUANTUM is the first commercial Ku-band satellite to have a fully flexible payload that can be remotely configured by software from a user's premises. Its strategy aims to accelerate growth through the creation of a resilient business model represented by Group's main business pillars. The telecoms business currently continues to be led by etisalat by e& in the Group's home market and e& international markets, upholding the Group's rich telecoms heritage, bolstering the strong telecoms network and maximizing value for the Group's various customer segments. Ramping up the digital services for individuals to elevate their digital-driven lifestyle, e& life brings next-generation technologies through smart platforms in entertainment, retail and financial technology. e& enterprise focuses on maximizing value through its end-to-end solutions in cybersecurity, cloud, Internet of Things (IoT) and Artificial Intelligence (AI), as well as deploying mega projects, in order to enable the digital transformation of governments, large-scale enterprises and corporates. e& capital allows the Group to focus its efforts on driving new investments while maximizing shareholder value and strengthening the Group's global presence.

Mobily Celebrates Global Partnerships and Achievements at Capacity Middle East 2023

Mobily highlighted its biggest recent achievements during the industry leading Capacity Middle East conference. More than 2,000 ICT professionals and industry leaders attended the three-day event in Dubai, with delegates hearing firsthand how Mobily is helping to transform the region's communications landscape for the 21st century. As a diamond sponsor for the event, Mobily had a number of participants taking part in discussions and talks during the course of the conference. The talks included network upgrades vs network modernization – the notion of putting in increased capacity across the region against bringing together and optimizing different technologies as well as peering and How IXPs has transformed Middle Eastern interconnectivity. Eng. Thamer Alfadda, Mobily Wholesale SVP, said: "We are delighted to have taken part at this event as it showcases the remarkable progress we have made as a company in recent years. To get to where we are now, we have had to take a holistic view of where the industry was and leverage our expertise, assets and solutions to enable further growth of the digital economy. As a result, we have partnered with industry leading organizations and companies to push the Kingdom and wider region's digital infrastructure to the next level." For this to be made possible the company has been steadily establishing the foundations for future growth and success. As such it has focused on becoming a premier digital enabler and is now one of the largest wholesale and carrier providers with

national and international footprint. Mobily maintains full connectivity solutions with reliable secure networks that cover Mobily's local and international network, global POPs, submarine cable systems through various land stations, neutral JED1 IX and data centers. These investments all form important pillars under Mobily's digital hub which seeks to create a holistic communications ecosystem deploying a number of different technologies and solutions to meet growing demand for innovative services. This is built upon a range of achievements that include the JED1 IX international Internet exchange which is helping to fuel the region's digital economy while also enhancing the experience of internet users. The JED1 IX acts as a neutral interconnection hub, which makes it the ideal commercial choice for global and regional ISPs, operators, OTTs, content providers, and enterprises to land and peer in Jeddah, making it a significant gateway for traffic which in turn places Saudi Arabia as a digital hub between Europe, Asia, and Africa and aims to improve the peering ecosystem in the region. Central to this approach is Mobily's focus on carrier neutrality, which is why the company recently partnered with Equinix, a top-tier and the largest global data center and Internet Exchange platform provider.



This enables the establishment of full carrier-neutral Internet Exchange (IX) in the JED1 datacenter facility. With these sizable investments in regional and international connectivity, Mobily aims to strengthen its position as a leading digital enabler and strategic partner for operators and digital ecosystem players.

During the ICT Indicators Forum CST Announces Mobily as the Winner of the Customer Experience Awards 2022

During the ICT Indicators Forum, held on the 8th of March 2023, the Communications, Space & Technology Commission (CST) announces Mobily as the winner of the Customer Experience Awards 2022 for achieving the award's international standards based on customer votes. The award aims to enhance the user's experience and raise competitiveness among service providers in the Kingdom. The Award includes a number of criteria based on the outputs of periodic surveys on the user's satisfaction indicator, the Net Promoter Score (NPS) index, in addition to measuring the user's effort in accessing services, and the rate of escalated complaint received by CST on service providers. This award stems from the CST's efforts to encourage positive competition among service providers, resulting in better sector products that improve the user experience, as well as developing communications services in accordance with international best practices for service quality.

Omantel and BankDhofar Sign Pact for Cloudification Journey with Omantel

As resistance to cloud migration is dissolving globally, cloud technology is playing a pivotal role in reshaping the banking industry. Once considered unlikely, core computing in the cloud is now seen as a game-changer and a necessity to be secure, scalable, and agile in an ever-changing marketplace. Through its subsidiary company Oman Data Park, Omantel continues to enable large corporates and enterprises to migrate to cloud and stay competitive in dynamic markets by designing cost-effective solutions that streamline the customers' operations and achieve the desired growth without compromising on data security. Omantel and BankDhofar have recently inked a five-year contract to provide the bank with a bespoke hybrid solution and wide suite of data center offerings from co-location & connectivity solutions into disaster recovery, followed by stepping stones for workload migration into cloudification. The long-term strategic partnership was signed at Omantel's headquarters by Eng. Baha Allawati, VP of Enterprise Business Unit at Omantel, and Dr. Tariq Taha, Chief Information Officer at BankDhofar. "Enterprises are constantly evolving, and their success is strongly linked with their ability to adopt new technologies and serve their customers with unique offerings to elevate their experiences. We are thrilled to sign a strategic partnership with BankDhofar and be part of their successful journey into cloudification. With our hybrid solution delivered through Omantel's Data Centre and hosting arm Oman Data Park, we will be moving the workload and operations of BankDhofar into our data center as a part of their journey towards digital transformation and cloud adoption. This strategic move will optimize their operation, increase agility in product offering, and improve the customer experience. By leveraging the power of cloud technology, we are confident that this move will not only enhance the scalability and reliability of their operations but also enable them to stay ahead of the curve in a rapidly evolving industry. We are committed to delivering a seamless transition and ensuring that our clients' needs and expectations are met with the highest level of excellence." Commented Eng. Baha Allawati, Vice President of Enterprise Business Unit at Omantel. Dr. Tariq Taha, Chief Information Officer at BankDhofar, said "Core computing in the cloud has become a reality and it is reshaping the banking industry. At BankDhofar, we are keen on embracing the future as we are always looking for ways to stay ahead of the curve. Therefore, adopting state-of-the-art solutions provided by our partner, Omantel, is key towards streamlining our operations and be more agile in a dynamic market while at the same time ensure maximum data security. I am confident that this partnership will bear fruit and it will foster cloudification among large entities." Hassan Abdul Ali, General Manager of Business Development at Oman Data Park, commented "We are excited to have been given the opportunity to shift BankDhofar's data center to the cloud. This is a major step forward for streamlining the bank's operations, enabling it to focus on strategic initiatives while reducing operational expenses and avoiding capacity constraints." "Not only shifting to the cloud eliminates the costs of operating and maintaining an on-premises data center, but it also elevates data security levels and ensures speedy data recovery in emergencies. We have empowered BankDhofar with disaster recovery capabilities across Tier III data centers and cloud, and this is a game-changer as it will automate the disaster recovery procedures, significantly reduce data recovery time, and enable BCP operation anytime, anywhere. Moreover, the bank will have the agility and flexibility that is needed to stay competitive. It can handle peak loads with ease and without any service disruptions, thanks to the elasticity of the cloud." He added.

Omantel Posts 16% Rise in FY22 Domestic Net Profit

Oman Telecommunications Company (Omantel), the Sultanate's incumbent telecoms operator, has announced its unaudited financial results for the year ended 31 December 2022, reporting revenue of OMR2.68 billion (USD6.9 billion), an increase of 11.4% from OMR2.41 billion in 2021. Domestic turnover rose 6.4% year-on-year to OMR565.5 million, primarily driven by an increase in mobile post-paid (up 11.2%) and fixed broadband (3.3%) revenues. Group EBITDA grew from OMR970.3 million in 2021 to OMR998.9 million the following year, while group net profit jumped 19.4% over the same period to OMR278.9 million in FY22. Domestic net profit rose by 16.0% year-on-year to OMR85.7 million, thanks to revenue growth and cost optimization measures. Omantel's total domestic fixed and mobile subscription base (excluding mobile resellers) was 3.216 million at end-2022, up 0.3% from 3.208 million a year earlier. Including resellers, the total stood at 3.8 million.

Omantel Partners with Wingu Group to Expand into the African Market Through Djibouti

Omantel, the leading provider of integrated telecommunication services in the Sultanate of Oman, has sealed a partnership deal with Wingu Group's Djibouti Data Centre to expand into the African market and further boost its standing as a leading regional wholesale hub. Wingu Group's Djibouti Data Center was the first and only carrier neutral data center facility in East Africa with access to all major international fiber optic systems connecting Europe, the Middle East, and Asia Pacific regions with Africa. Apart from providing access to the African market, Omantel's Point of Presence (POP) in Djibouti will help forge new wholesale partnerships with operators and hyperscalers, improve the utilization of connectivity between Oman and Africa, facilitate better commercial models that will lead to business growth and enable better support for customers with connectivity requests to and from Africa. Sohail Qadir, Vice President of the Wholesale Business Unit in Omantel, said, "As a global wholesale player, Omantel is always on the lookout for new market opportunities. Our new partnership with Wingu Group's Djibouti Data Center presents us with a great opportunity to solidify our presence in Africa. It will help us attract more customers to connect to and from Africa, resulting in an enhanced customer experience and new business opportunities for Omantel and Djibouti Data Center. This is indeed another important milestone of fulfilling our wholesale vision: from Oman to the World". Demos Kyriacou, Deputy CEO & Chief Operating Officer at Wingu Group, the owner and operator of Djibouti Data Center (DDC) said, "We pride ourselves on creating a strategic gateway to East and Southern Africa. We are pleased to cement this partnership with a prestigious global player like Omantel. A collaboration of this nature will trigger greater connectivity in the region and inspire more global players to collocate in our Djibouti data center. We are very happy that the Djibouti Data Center has cemented itself as a reliable and cost-effective gateway hub to many of the fastest growing markets and service providers in Africa". Mr Kyriacou added, "The interest from such world-class players as Omantel has prompted us to begin construction on a second facility, which will provide, uniquely in Djibouti, our clients with an integrated Cable Landing Stations and carrier-neutral data center". The partnership is set to open doors to new opportunities in Africa and will further extend Omantel's reach by utilizing the cable systems landing in Oman (Salalah) and Djibouti, such as the AAE-1, EIG, MENA as well as a number of new cable systems which will be announced soon. As a global wholesale service provider, Omantel offers top-class services and an enhanced customer experience by leveraging its ecosystem, which boasts an international network of subsea cables and carrier-neutral data centers. Omantel has Points of Presence in different countries across the globe including key wholesale hubs such as Marseille, London, Amsterdam, Frankfurt and Singapore, to name a few. Wingu Group is a specialist carrier-neutral data center operator focused on East Africa providing international and local enterprise customers with cost-effective commercial collocation solutions and access to a growing and dynamic ecosystem. Established over a decade ago and successfully operating the Djibouti Data Center, where the Wingu Group provides world-class colocation services to leading international telecoms companies, the Wingu Group now has Tier III certified, carrier-neutral data centers in Ethiopia, Somaliland and Tanzania, and is adding a second facility in Djibouti – in each market, the Wingu Group facilities are the first of their kind and represent key digital infrastructure that will enable economic growth and the rise of the global digital economy.

The Launch of Oman Emirates Gateway (OEG) Telecom Project

Omantel and UAE's du, from Emirates Integrated Telecommunications Company (EITC), have come together to link the Sultanate of Oman and UAE through a newly activated 275km international fiber optic submarine cable named the Oman Emirates Gateway (OEG) that will meet the evolving market demands, scale up speed, expand connectivity, deliver enhanced customer experience and provide wider commercial offerings. Oman and UAE are currently connected through terrestrial and submarine routes. The new cable system of OEG will serve as an express connection between both countries and the partnership will reiterate Omantel's and du's position as leading wholesale players supporting the region to evolve into the

new promising global communication hub. Talal Al Mamari, CEO of Omantel, said, "I am glad to announce this partnership with du. This direct and dedicated corridor will synergize the goals of Omantel as the global wholesale hub and of du as the regional data hub, bringing huge benefits to our Wholesale and Enterprise customers. Both companies will also be able to further expand their networks with higher efficiency and improved connectivity which will result in a significant positive impact in terms of services quality and product variety.". "The importance of this partnership is reflected by the fact that it is the first of its kind regional fiber optic submarine cable which connects two international data centers - Equinix MC1 in Barka, Oman and datamena DX1 in Dubai, UAE. This link will act as a major facilitator for hyperscalers, content providers and international carriers that are currently hosted in these datacenters to avail improved connectivity services and higher capacities and will be able to directly link their Point of Presence (POPs) in the region. Increased connectivity between the two data centers will also attract more global players to the region, improve the

quality of connectivity, which will in turn, boost customer experience," Al Mamari added. Fahad Al Hassawi, CEO of du, said, "We are excited to enter into this partnership with Omantel. The agreement comes from a common vision for a new strategic direction that will help both companies optimize their assets and positions in the local, regional and global markets. OEG will trigger more investments to the region and boost the performance of our wholesale and enterprise customers, which will be passed further down the line to the society by bringing largescale transformation. We share the same vision with Omantel of transforming the region to a global telecom hub and have always strived to introduce cutting-edge solutions to our customers.

Zain Held Week-Long Internal Initiative to Promote Sustainability Strategy

Zain, Kuwait's leading digital service provider, announces the successful conclusion of Sustainability Week, a week-long internal awareness initiative that targeted employees and featured a wide range of interactive programs aimed at promoting the company's sustainability strategy. Zain is committed to building a comprehensive program that adapts the company's operational processes to align with its sustainable development goals. The company has made addressing climate change one of the four pillars of its corporate sustainability strategy and is dedicated to reducing its overall energy consumption and emissions across its entire value chain, enhancing the environmental performance of its workplaces, and promoting environmental care.

Sustainability Week targeted Zain employees across the company's departments and aimed at promoting the principles of its sustainability strategy. The initiative featured various interactive programs and activities that ran for a week, including extensive seminars, discussion panels, workshops, documentary film screenings, and field visits to parks and natural reserves. The programs featured participation from both employees and executive management teams. The initiative kicked-off with a welcoming session by CEO Eaman Al Roudhan, where she discussed and outlined the company's strategic plans to achieve sustainable development goals, as well as the most crucial steps taken to achieve such goals. The week-long program also featured workshops, interactive sessions, field visits to Al Abdali and Al Jahra natural reserves, and a visit to Al Shiggaya Solar Farm. Sustainability Week aimed at promot-

ing key sustainability pillars and increase employee awareness to shed more light on the role every employee plays in achieving the company's sustainable development goals. The initiative gave employees an opportunity to learn more about sustainability as a concept as well as to participate in activities with their colleagues outside of the office environment. Zain has established short and medium-term targets to lower its entire carbon footprint and aims to achieve net zero by 2050 to minimize its negative environmental effects. The company continues to conduct extensive research on cutting-edge technologies such as 5.5G, artificial intelligence, and renewable energy to reduce the ICT infrastructure's carbon footprint.

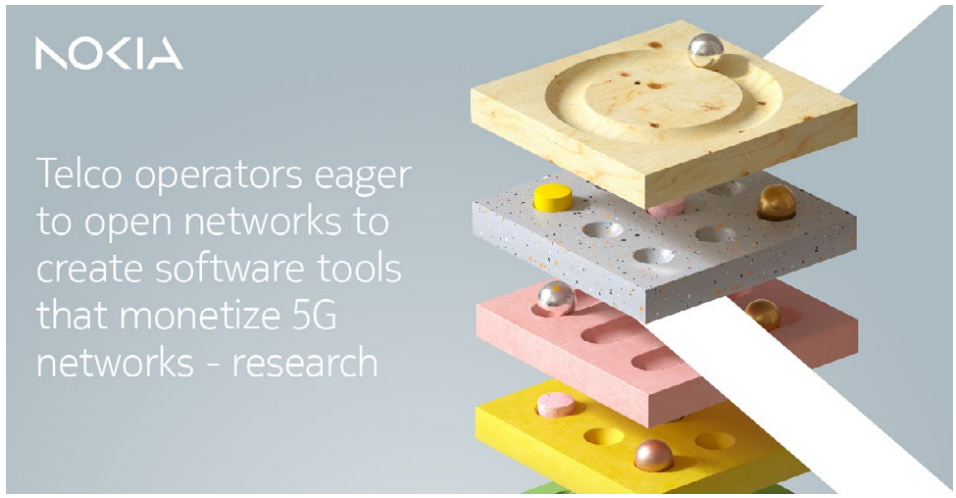
Zain 'Best Mobile Operator' and 'Best ISP' in Kuwait During 2022

Zain, Kuwait's leading digital service provider, ranked first in the 'Best Mobile Operator' category for the eleventh time and the 'Best Internet Service Provider' category for the seventh time in Kuwait for the year 2022 by Service Hero, the region's only consumer powered customer satisfaction index. The announcement was made during a virtual awards ceremony held by Service Hero to celebrate the companies that received the highest scores from consumers in recognition of their world-class service levels and quality, each in their respective industries from across the Kuwaiti private sector. Zain came on top of the companies operating in the ICT sector. Zain ranked first for achieving the highest customer satisfaction scores by providing the best quality service standards in the Kuwaiti market. The award came after an in-depth evaluation by Service Hero's independent advisory council, which recognized Zain's leadership in offering the best innovative digital services, as well as its relentless pursuit of excellence and innovation with the aim of achieving superior digital lifestyle transformation for its customer base, the biggest in Kuwait. Based in Kuwait, Service Hero is the only consumer powered customer satisfaction index in the Middle East. The company is a member of ESOMAR and adheres to the global organization's principles and guidelines for self-regulation and ethical practice. Service Hero is overseen by an Independent Advisory Council to assure results that are impartial, objective, and accurately reflect consumers' preference, making the company's findings a credible benchmark that offers transparent and relevant insight for companies. The council is comprised of academics and business professionals representing leading institutions and corporate establishments in Kuwait and the UAE, including the American University of Kuwait, Australian College of Kuwait, Gulf University for Science and Technology. Since 2010, Service Hero has measured over 410,000 validated consumer assessments covering more than 450 private sector companies.

Telco Operators Eager to Open Networks to Create Software Tools that Monetize 5G Networks – Research

Research commissioned by Nokia and conducted by Analysys Mason revealed that network API exposure is a top 5 priority for 73% of communication service providers (CSPs), who are turning to open APIs (application programming interface) and SDK (software development kits) to enable software developers to create programs that offer new 5G services to customers. In addition, the research found that around 60% of software developers are keen to write software programs that enable developers to enrich their applications for customers with new services, such as improved quality on demand. The research surveyed 44 CSPs and 67 software developer firms around the world and assessed their attitudes on various dimensions of the concept of network-platform-as-a-service (NPaaS), sometimes referred to as Network-as-Code, or programmable network. The market for these services that are enabled by telecom APIs is forecast to grow from $12 billion in 2022 to $34 billion by 2026, according to Nokia estimates. Enlisting software developers, at scale, is increasingly essential to the creation and delivery of 5G services. Telecom service APIs have a significant role to play in monetizing 5G because they can expose the deep functionality and data within telecom networks; allowing developers to then develop new use cases for their customers, both enterprises and consumers. Still, according to the research, while CSPs and software developers

are broadly aligned in their assessment of the most important network APIs, around half of developers cited network issues, like the need for more insight and control of how network quality affects the performance of their applications, as a major challenge when trying to utilize cloud and Software-as-a-Service (SaaS) services. Further, some 76% of software developers said that network APIs must be easy to use and indicated that complexity and the lack of API documentation from CSPs currently deter them from using network APIs. The research results will be discussed by Nokia and Analysys Mason at a Telecom TV event on May 2, with the full research made public on May 4. Caroline Chappell, Partner at Analysys Mason, said: "CSPs have the opportunity to generate incremental revenue through collaboration with developers and other CSPs to create a larger ecosystem. CSPs should strongly consider contributing their APIs to a third-party, network-platform-as-a-service (NPaaS), engaging with developers, and



building an ecosystem that includes other CSPs in order to prevent fragmentation that could hinder the viability of this opportunity." Shkumbin Hamiti, Head of Network Monetization Platform, Cloud and Network Services, at Nokia, said: "In the 5G world, a new digital ecosystem is emerging, with multiple service chains of hyperscalers, infrastructure, networks, and applications being created on a case-by-case basis to create end-user value. This research underscores the appetite to drive this ecosystem forward, but also highlights the work to be done to facilitate a deeper understanding between CSPs and developers and the required work between them."

Analysys Mason and Huawei Release 5G New Calling White Paper

Analysys Mason, a world leading management consultancy focused on telecoms, media and technology, and Huawei just released a white paper on 5G New Calling. Based on Analysys Mason's survey results, Opportunities and Challenges of 5G New Calling describes the opportunities and challenges facing 5G New Calling, and introduces the strategies and best practices that Chinese operators have developed in the construction of 5G New Calling.

5G New Calling Has Enormous Market Potential for Both Individuals and Enterprises

Caroline Gabriel, author of the white paper and Research Director of Analysys Mason, said that voice remains a core telecom service crucial to operators' revenue growth and customer loyalty. In 2022, Analysys Mason surveyed 4000 individuals and 501 enterprises and organizations to gain insights into their communication expectations. The survey revealed that individual users want an enhanced mobile calling experience, that for example makes use of emojis and AR to enhance their calls. Enterprises meanwhile seek to reduce costs while improving communication efficiency. About 77% of the enterprises surveyed would upgrade their customer service systems to improve user experiences; among them, 55% hoped to shorten the time taken to process calls and complete transactions over the phone . In addition, over half of enterprises surveyed plan to launch features such as enterprise business cards, interactive menus, and video-based customer services. 5G New Calling is likely to be a powerful means for implementing these features. In contrast with 4G, 5G offers high-bandwidth and low-latency network connections, which lays a solid foundation for implementing high-definition and immersive audio and video calling. In particular, 3GPP has defined the data channel that works on top of the IP Multimedia Subsystem (IMS) to support interactive calling, which paves the way for the healthy development of 5G New Calling.

Make Joint Efforts to Build a 5G New Calling Ecosystem

According to the white paper, cultivating a wide and vibrant ecosystem is critical to the prosperity of 5G New Calling, which includes building industry consensus and vision, collaborating with suppliers, promoting services step by step, and setting benchmarks. The white paper recommends that operators strive to improve users' recognition of service value, collaborate with suppliers to accelerate the development of devices compatible with 5G New Calling, and encourage developers to use open APIs to develop New Calling applications. This will stimulate service innovation, provide users with a wider variety of services, and prevent the New Calling industry from becoming scattered. At present, operators in China are moving towards the commercial deployment of 5G New Calling, including services such as real-time translation, video-based customer services, and remote maintenance. Earlier this year, China Mobile recruited 'friendly users' in Jiangsu, Zhejiang, and Guangdong provinces to try out 5G New Calling services, such as visualized voice calling, fun calling, and real-time translation. With the launch of new terminals that support data channels, more real-time interactive services will be developed. The white paper proposes that more partners group together to build the 5G New Calling ecosystem, so as to catalyze the development of this new industry and open up a new horizon for communications.

AT&T is Taking 5G to the Next Level with Standalone 5G

AT&T is architecting tomorrow's wireless network to connect people to greater possibility. As engineers, we design, build, test, refine and repeat so that you can get more out of your 5G connection and developers can build and deploy the next generation of apps and services. A key part of this evolution is the critical transition phase we are entering in scaling from 5G non-standalone (NSA) to 5G standalone (SA). How does Standalone take 5G to the next level? Unlike 5G NSA that still relies on a 4G LTE core, 5G SA uses a dedicated 5G core that can unlock capabilities like faster upload speeds, ultra-low latency, ultra-high reliability and edge functions. This technology will be key to business opportunities like the next generation of connected cars. We have said that we plan to deploy Standalone 5G when the ecosystem is ready, and AT&T is charging forward to advance SA ecosystem readiness. Businesses and developers will be some of the first to take advantage of the new technologies standalone 5G enables as we continue to move from research & development to their deployment. This new age of connectivity is not only about consuming more content but also generating more content than ever before. Demand for uplink capacity and speed continues to increase, about 30% a year in AT&T's mobility network. Whether you are uploading large files, on a video call with family, live streaming, cloud gaming or using extended reality applications, the network is facing surging upstream traffic demands it never has before. Our latest network innovations are complex but are all about helping meet this new demand. Just a few weeks ago, we completed the first 5G SA Uplink 2-carrier aggregation data call in the U.S. Carrier aggregation (CA) means we are combining or "aggregating" different frequency bands to give you more bandwidth and capacity. For you, this means faster uplink transmission speeds. Think of this as adding more lanes in the network traffic highway. No one in the U.S market has successfully aggregated two carriers in 5G SA uplink – until now. This is part of our ongoing effort to provide greater reliability for our customers. The test was conducted in our labs with Nokia's 5G AirScale portfolio and MediaTek's 5G M80 mobile test platform. We aggregated our low-band n5 and our mid-band n77 spectrum. Compared to our low-band n5 alone, we saw a 100% increase in uplink throughput by aggregating our low-band n5 with 40MHz of our mid-band n77. Taking it a step further, we achieved a 250% increase aggregating 100MHz of n77. The bottom line? We achieved incredible upload speeds of over 70 Mbps on n5 with 40MHz of n77 and over 120 Mbps on n5 with 100MHz of n77. While carrier aggregation is like adding more traffic lanes in the highway, adding another vehicle to carry traffic is another way we are managing surging uplink demand. We are doing this via a two-layer uplink MIMO on time division duplex (TDD) in our mid-band n77. MIMO combines signals and data streams from multiple antennas ("vehicles") to improve signal quality and data rates. This feature will not only improve uplink throughput but also enhance cell capacity and spectrum

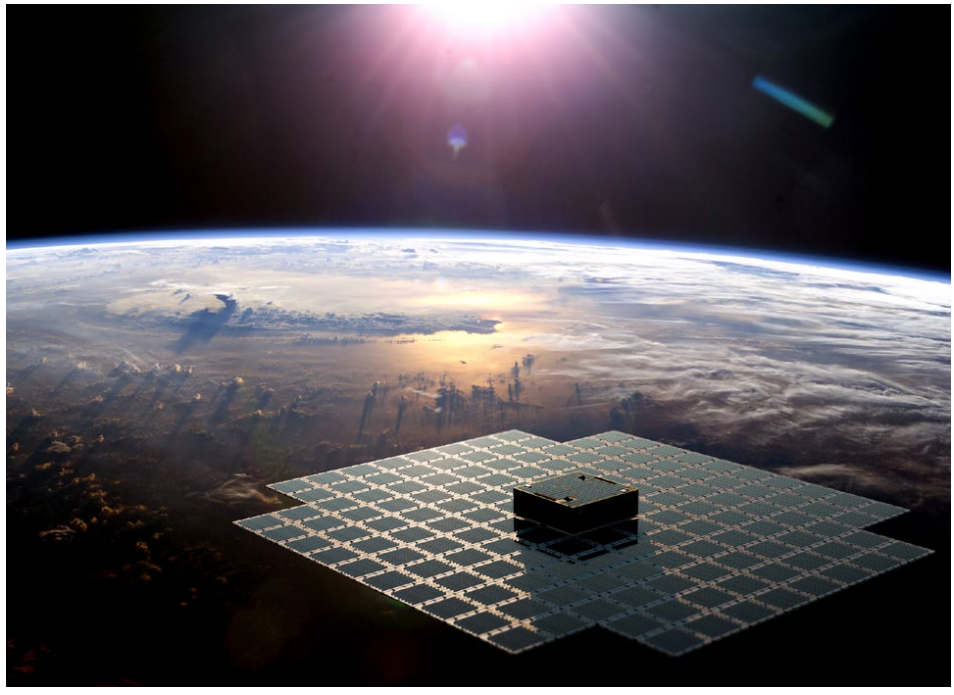
efficiency. Although we continue to make progress in enhancing uplink coverage, we haven't forgotten about the downlink. Enhanced downlink and uplink carrier aggregation capabilities work together to bring the 5G SA performance today's technologies need. Last fall, we completed a 5G SA four component carrier downlink call by combining two FDD carriers and two TDD carriers. These capabilities allow AT&T devices to aggregate our mid-band n77 in the C-Band and 3.45GHz spectrum ranges. Compared with low band and mmWave spectrum, mid-band n77 provides a good balance between coverage and speed. This follows the 5G SA three component carrier downlink feature that we introduced last year to 2022 AT&T Flagship devices which combines one frequency division duplex (FDD) carrier and two TDD carriers. In the coming months, AT&T will also enable 5G New Radio Dual Connectivity (NR-DC), aggregating our low and mid-band spectrum with our high-band mmWave spectrum on 5G SA. Our labs have achieved 5G NR-DC downlink throughput speeds of up to 5.3Gbps and uplink throughput speeds of up to 670Mbps. This technology will help provide high-speed mobile broadband for both downlink and uplink in stadiums, airports, and other high-density venues. The 5G SA ecosystem is rapidly evolving, with new technologies and capabilities being introduced to provide differentiated experiences. Here are some features that are on the horizon for 5G SA:

Specialized Network Services – think network slicing, precision location, private routing, etc. – for tailored network solutions to meet specific user requirements;

Non-terrestrial network solutions to supplement coverage in remote locations; and Reduced capability 5G (RedCap) for a new generation of 5G capable wearables, industrial IoT or wireless sensors and other small form factor consumer devices. AT&T is dedicated to being the best connectivity provider. The 5G SA ecosystem is rapidly evolving, with new technologies and capabilities being introduced to set the foundation for next generation applications and services.

AT&T Conducts 'Space-Based' Call Using a Regular Smartphone

AT&T has achieved a significant milestone by successfully conducting the first-ever two-way audio call using satellites with a standard smartphone. The call was made from AT&T in Midland, Texas, to mobile carrier Rakuten in Japan on a Samsung Galaxy S22 smartphone using AST SpaceMobile's BlueWalker 3 satellite. The breakthrough could help to increase cellular access in the US and developing countries. Typically, a mobile phone call requires nearby cell towers to provide service, which is not feasible in rural communities and national parks. The same technology could be a great solution to the same issues in developing countries, where satellites could act as a space-based network of cell towers. "It was a unique thrill and honor to have the Rakuten team talk with Abel in a world-first direct-to-satellite experience. Congratulations to AST SpaceMobile and all of its strategic collaborators on this groundbreaking event," said Mickey Mikitani, Chairman & CEO of Rakuten. "As technological advancements like space connectivity become possible with pioneers like AST SpaceMobile, Rakuten will also progress even further along the road to democratizing connectivity for all." AT&T aims to use satellites to provide global cellular broadband from 2G to 5G. The technology holds the promise of bridging the digital divide to enable everyone to participate in the global digital economy. "AT&T's heritage began with



the birth of the telephone 147 years ago and has continued with many other firsts including trans-continental call, overseas call, call from the moon, and partnering to deliver the only network built with and for America's first responders," said Chris Sambar, Head of AT&T Network. "We connect people to greater possibility, and this important milestone with AST SpaceMobile is a big step and we can't wait to see what's next in our space-based journey." Verizon, meanwhile, is partnering with Amazon's Project Kuiper satellite network for its alternative. Amazon plans to deploy 3,236 satellites and the FCC requires at least half of them to be operational by July 2026. T-Mobile's choice of partner is SpaceX, which has already launched over 4,000 Starlink V2 satellites into orbit. T-Mobile claims that customers should have satellite access through most existing plans and existing phones should work with the satellite offerings. While satellite offerings are not yet available for consumers, this latest successful test brings widespread access one step closer to reality.

Avaya Helps Enable Organizations Seeking to Retain and Innovate Existing On-Premises Systems with Hybrid Cloud Deployments

Avaya, a global leader in solutions to enhance and simplify communications and collaboration, through hybrid cloud deployments, transforms on-premises solutions for organizations and their contact centers so they can experience technology innovation without disruption to their existing operations. Embracing a hybrid cloud model with Avaya contact center and cloud-based solutions enables organizations to chart their hybrid cloud course to the modern contact center while experiencing its advantages including flexibility, allowing organizations to take advantages of the known cloud benefits. As the contact center industry continues to evolve, many platform vendors are transitioning to cloud offerings. However, some organizations have legitimate concerns about the pace and consequences of making a wholesale cloud migration. According to a recent, Avaya-sponsored Ventana Research1 white paper — Migration to the Hybrid Cloud, Innovation for the Modern Contact Center, authored by Keith Dawson, VP and Research Director, 39 percent of organizations prefer on-premises analytics and data deployment. When faced with technology advances and the pressure to adopt an all-or-nothing complete solution to stay current, organizations can encounter challenges of fully migrating to the cloud such as a disruptive and often costly 'rip-and-replace', long deployment cycles, and resource dedication. However, organizations can innovate without disruption. "Innovation starts with ideation and follows through with implementation, but current investments shouldn't be abandoned in the name of innovation," said Tim Sherwood, GVP of Product and Offer Management, Avaya. "The innovation journey to optimize your contact center, and simplify your customer experience, doesn't necessarily need to be a full cloud transition. While this might be the right move for some organizations, others prefer to keep their current on-premises contact center. Companies today need to move at a pace and path that fits their business needs." Avaya Experience Platform is a powerful cloud solution that helps create memorable experiences for today's customers—and the employees who serve them—from any location. Organizations can easily connect everything—voice, video, chat, messaging, and more—to deliver effortless experiences for customers and employees at every touchpoint across cloud while retaining their on-premises solutions. These tools make every interaction a positive experience for customers and employees alike by: Infuse AI throughout customer and employee journeys to deliver intelligent experiences and deepen connections. Empower employees to provide quality interactions across voice and digital channels—all in a single desktop view. Monitor performance analytics to help reach peak performance and provide feedback in real time. Create customer experience superstars by matching employees' unique skills with customer needs. "In today's uncertain economic environment, many organizations would like to take advantage of advanced contact center technology but are wary of the cost and disruption of a full shift to the cloud," said Keith Dawson, VP & Research Director of CX at Ventana Research. "In those cases, a hybrid deployment model makes a great deal of sense." A hybrid model gives organizations access to innovative features without the disruption of throwing away what works. Existing investments can be enhanced with new cloud capabilities at a measured pace, according to organizational preferences. In essence, a hybrid deployment can be seen as a migration, rather than a transformation. Canada's largest propane supplier, Superior Propane, wanted to improve customer retention and reduce average handle times. Avaya, through its strategic partner alliance with Calabrio, a customer experience intelligence company that empowers organizations to enrich human interactions, helped solve this challenge and improved their contact center experience. The customer leveraged Calabrio's desktop and speech analytics capabilities to get an in-depth understanding of current processes and how they were impacting the customer experience. Superior Propane was able to reduce average handle time by 30 seconds per call without needing to scale its team, support a permanent hybrid work model and up level Customer Experience with custom integrations and proactive communications. "The capabilities of Avaya enable us to communicate with customers in ways we never have before," said Alex Wozniak, Director of Customer Enablement at Superior Propane. "Avaya challenged us to think outside the box with how we handle these calls. Offering the option to schedule a delivery through an automated system is not only efficient, but a preferred method for some customers. That's when we decided to move forward with the custom integration for self-service."

Avaya Named to Constellation Research ShortList™ for Contact Center as a Service Solutions (CCaaS)

Avaya, a global leader in solutions to enhance and simplify communications and collaboration, today announced Avaya Experience Platform, the cloud-based contact center-as-a-service solution, has been recognized by Constellation Research in its latest Constellation ShortList™ for Contact Center as a Service (CCaaS). The ShortList presents vendors in different categories of the market relevant to early adopters and includes products that meet the threshold criteria for the category as determined by Constellation Research. Avaya Experience Platform gives organizations the power to personalize agent experiences with a customizable, modern workspace that easily brings end-user insights from different applications and systems into a single pane of glass. It also enables companies to get ahead of every end-user interaction by predicting needs and proactively engaging them with journey intelligence. "Every customer service interaction is a make-or-break opportunity for your organization," said Ahmed Helmy, Global VP of Avaya Experience Platform Product Management, Avaya. "As channel options continue to expand along with customer expectations, organizations need the right cloud customer service solution to help create innovation without disruption for everyone. It is more important than ever for organizations to have the right tools in place to deliver exceptional experiences across all channels. Avaya Experience Platform empowers businesses of all sizes to build and scale their contact centers, while arming agents with real-time customer data and innovative cloud technologies. We're proud to be at the forefront of this market and look forward to continuing to deliver cutting-edge solutions for our customers." With Avaya Experience Platform, organizations can quickly and easily layer-on innovative cloud technologies to deliver an experience that provides their end-users with more options, faster responses, and a more personalized approach. Organizations can easily connect everything—voice, video, chat, messaging, and more—to deliver effortless experiences for customers and employees at every touchpoint – bringing together teams, resources, and insights to maximize contact center performance and experiences. Silver Spring Pathfinder (SSP) is a disruptor in the social enterprise space and Avaya helped enable them to strengthen their unique business model without any business disruption. As business process outsourcing (BPO) partner of choice to public- and private-sector organizations, SSP works closely with a community of social service agencies to employ people with disabilities as customer service agents. Avaya Experience Platform allowed the company to innovate with omnichannel, virtual work capabilities, and so much more all while retaining its core service and not disrupting its existing contact center technology. "By our very nature as a social enterprise, we're more in tune than most when it comes to being mindful of our employees' needs." said Tom Cheong, Founder & Managing Director, Silver Spring Pathfinder. "By the same token, for the business to be successful, we need to deliver on our customers' demands. Avaya Experience Platform provides it all, and we're still able to optimize our premise-based system. We have the freedom to choose the technology we need when we need it. We're innovating and improving in a practical way that works for our business." Constellation Research evaluates more than 21 solutions categorized in this market. This Constellation ShortList is determined by client inquiries, partner conversations, customer references, vendor selection projects, market share, and internal research.

Avaya Named for Excellence in Customer Service with a NorthFace ScoreBoard Service Award (NFSB) for the 10th Consecutive Year by the Customer Relationship Management Institute (CRMI)

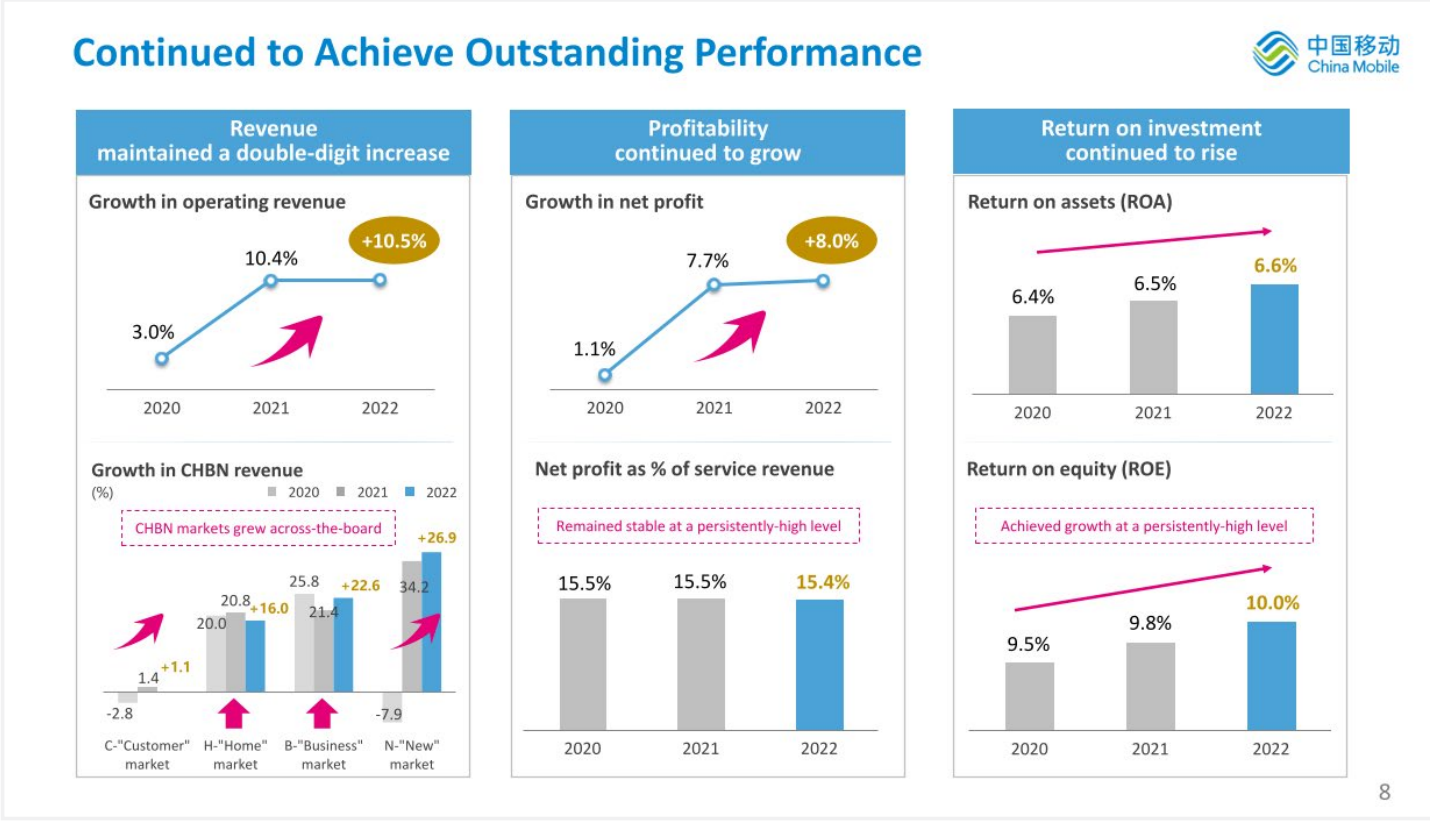
Avaya, a global leader in solutions to enhance and simplify communications and collaboration, announced it has been named for excellence in customer service with a NorthFace ScoreBoard Service Award (NFSB) for the 10th consecutive year by the Customer Relationship Management Institute (CRMI). Avaya's support services teams achieved an overall transaction survey for perfect Customer Satisfaction (CSAT) score in field technology support and a 97% CSAT score for remote support with a ScoreBoard Index (SBI) of 4.8 and 4.7, respectively. The scores and recognition solidify Avaya's position as a leader effectively delivering exceptional customer experiences. "While many organizations tout their customer service prowess, Avaya's support service teams doubled down on their efforts working diligently on a global level to ensure they're providing the highest caliber of customer service," said Tammie Briscoe, Vice President of Customer Support, Avaya. "This award recognizes the team for

their relentless pursuit of excellence with almost perfect SBI and CSAT scores, and we're proud of them for their achievement." Currently in its 23rd year, the NorthFace ScoreBoard Service Award is presented annually to companies who achieved excellence in customer service during the calendar year, as solely rated by their own customers. The process of determining NFSB recipients begins with evaluating customer satisfaction processes and reviewing customer ratings in such categories as technical support, field service, account management, professional services, customer training, depot repair, and customer service and support, among others. Last year, CRMI invited more than five thousand companies to participate, reviewing customer satisfaction survey results from more than 500 companies to determine their qualification standards for the NFSB Award. The NFSB awards program is the only one of its kind with results based upon actual customer satisfaction surveys. To qualify, organizations must achieve a 4.0 out of a possible 5.0 rating in any of the approved categories. The NFSB Award program not only recognizes companies who offer exemplary service to their customers but are also at the core of their existence deeply committed to the principles of respect, employee empowerment, and trust in others.

China Mobile International

China Mobile Books 8% Growth in Annual Net Profit

China Mobile has published its financial results for the year to end-December 2022, reporting a 10.5% increase in operating revenue and 8.0% increase in profit attributable to equity shareholders. The operator registered operating revenue of CNY937.26 billion (USD137.17 billion) for the twelve-month period, compared to CNY848.26 billion in 2021, with revenue from telecommunications services making up CNY812.06 billion of that total (up 8.1% year-on-year). Annual EBITDA improved by 5.8% y-o-y to CNY329.18 billion, although the EBITDA margin narrowed slightly from 36.7% to 35.1%. Net profit for the year grew from CNY116.15 billion in 2021 to CNY1125.46 billion. China Mobile counted a total of 975 million mobile subscriptions at the end of 2022 (up from 957 million a year earlier), including 614 million 5G package subscriptions, 327 million of which were 5G network subscriptions; the former includes all those signed up to a plan that allows them to use the 5G network whilst the latter is the total that used the network (i.e. had a compatible device and were in a 5G coverage area in addition to a 5G tariff). At the end of 2021, 5G package and network subscriptions had totalled 387 million and 207 million, respectively.



CMI Successfully Launched Oman MC1 PoP, Marking Another Milestone of Its Digital Infrastructure Development

China Mobile International Limited (CMI) announced the successful launch of its Oman Muscat MC1 point of presence (PoP) on March 7 at Capacity Middle East 2023, one of the largest telecommunications industry exhibitions in the Middle East. Ren Lei, Division Head of CMI Planning & Development Department, Colin Wang, Managing Director of CMI Middle East and Africa region, and other members of both companies attended the ceremony. The CMI Oman MC1 PoP is CMI's second PoP in Oman, located in the operator-neutral Equinix MC1 data center in Barka, which is also a landing station for multiple submarine cable systems connecting Asia, Africa, and Europe. The launch of the MC1 PoP has greatly improved CMI's connectivity in the region, making it one of the regional hubs for providing seamless connectivity to major global markets and customers. This is significant given the growing importance of Oman as a network hub bridging Asia to Europe and Africa. Ren Lei, Division Head of CMI Planning & Development Department, said, "CMI is committed to building reliable, scalable, and resilient network resources globally. It has deployed over 140 PoPs along the 'Belt and Road' region, covering over 50 countries and regions along the way, to provide high-quality international information services to

regional partners." CMI continues to expand its global infrastructure deployment, focusing on the "information highway" (cable resources), "information station" (PoPs), and "information hub" (IDCs). Currently, CMI has 80 cable resources and 230 PoPs globally, with international transmission bandwidth of over 123T. CMI strives to create an ecosystem with global and regional partners and empower local operators to provide convenient information services and solutions leveraging China Mobile's leading 5G industry applications and rich practices. As one of the world's leading data center, cloud, and IoT solution providers, CMI has abundant computing network resources globally and is also the only Asian operator investing in the 2Africa submarine cable project. As the longest subsea cable ever deployed, 2Africa is designed to deliver seamless international connectivity to approximately 3 billion people, connecting Africa, the Middle East, Europe and Asia.

Cisco Unveils New Solution to Rapidly Detect Advanced Cyber Threats and Automate Response

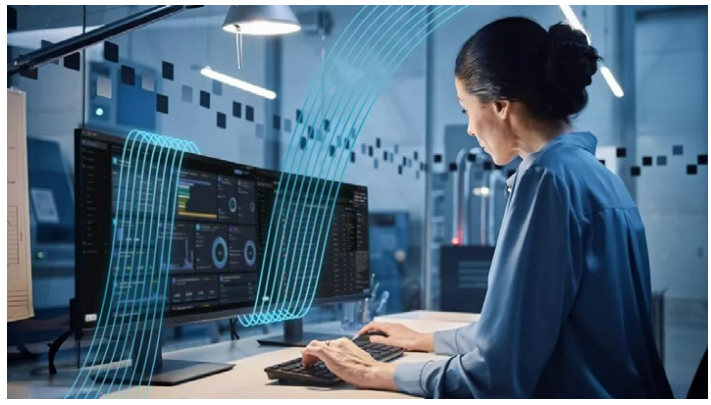
Cisco, the leader in enterprise networking and security, unveiled the latest progress towards its vision of the Cisco Security Cloud, a unified, AI-driven, cross-domain security platform. Cisco's new XDR solution and the release of advanced features for Duo MFA will help organizations better protect the integrity of their entire IT ecosystem.

Threat Detection and Response

Cisco's XDR strategy converges its deep expertise and visibility across the network and endpoints into one turnkey, risk-based solution. Now in Beta with General Availability coming in July 2023, Cisco XDR simplifies investigating incidents and enables security operations centers (SOCs) to immediately remediate threats. The cloud-first solution applies analytics to prioritize detections and moves the focus from endless investigations to remediating the highest priority incidents with evidence-backed automation. "The threat landscape is complex and evolving. Detection without response is insufficient, while response without detection is impossible. With Cisco XDR, security operations teams can respond and remediate threats before they have a chance to cause significant damage," said Jeetu Patel, Executive Vice President and General Manager of Security and Collaboration at Cisco. "Cisco continues to ensure that 'if it's connected, then rest assured you're also protected.' We are uniquely positioned to deliver integrated solutions that simplify securing today's increasingly complex, hybrid multi-cloud environments without compromising user experience." While traditional Security Information and Event Management (SIEM) technology provides management for log-centric data and measures outcomes in days, Cisco XDR focuses

on telemetry-centric data and delivers outcomes in minutes. It natively analyzes and correlates the six telemetry sources that Security Operations Center (SOC) operators say are critical for an XDR solution: endpoint, network, firewall, email, identity, and DNS. On the endpoint specifically, Cisco XDR leverages insight from 200 million endpoints with Cisco Secure Client, formerly AnyConnect, to provide process-level visibility of where the endpoint meets the network. "The true measure of XDR is its ability to deliver actual security outcomes, real and measurable benefit to organizations — early detection, impact prioritization, and effective and efficient response," said Frank Dickson, Group Vice President, Security & Trust, IDC. "True results need to be quantifiable numerically and not just qualitatively described with words. Cisco XDR delivers a clear framework for enabling organizations to achieve such tangible outcomes." In addition to Cisco's native telemetry, Cisco XDR integrates with leading third-party vendors to share telemetry, increase interoperability, and deliver consistent outcomes regardless of vendor or technology. The initial set of out-of-the-box integrations at general availability include:

- Endpoint Detection and Response (EDR): CrowdStrike Falcon Insight XDR, Cybereason Endpoint Detection and Response, Microsoft Defender for Endpoint, Palo Alto Networks Cortex XDR, SentinelOne Singularity, Trend Vision One
- Email Threat Defense: Microsoft Defender for Office, Proofpoint Email Protection
- Next-Generation Firewall (NGFW): Check Point Quantum, Palo Alto Networks Next-Generation Firewall
- Network Detection and Response (NDR): Darktrace DETECT™ and Darktrace RESPOND™, ExtraHop Reveal(x)
- Security Information and Event Management (SIEM): Microsoft Sentinel



Cisco Powers Unrivaled Hybrid Work Experiences with Purpose-Built AI Innovations in Webex

Cisco has unveiled new purpose-built Webex artificial intelligence (AI) capabilities that deliver unrivaled hybrid work experience as the new normal continues to evolve. In a world where people demand exceptional, personalized work experiences, organizations must meet both employees and customers on their terms – while driving real value. "AI presents the next evolution of hybrid work, holding the key to unlocking a materially enhanced hybrid work and customer experience," said Jeetu Patel, EVP and GM, Security and Collaboration, Cisco. "Cisco has decades of experience in AI with its industry-leading natural language understanding, and audio and video intelligence in Webex, which I'm thrilled is extending into even more innovations across our collaboration portfolio. As we double down on our AI investment, we're empowering our customers to deliver exceptional hybrid work and customer experience outcomes based on their datasets, while relentlessly protecting their confidentiality and privacy." As employees increasingly come back to the office, great hybrid work experiences require innovative use of video intelligence to ensure everyone is able to participate equally when they collaborate. Building on advanced AI capabilities already available in Cisco Collaboration devices today, Webex is expanding its video-intelligence in its devices through conference room operating system Cisco Room OS. Users will benefit from the ability to automatically provide the most optimal views in any meeting, at any moment, in any space with new capabilities that deliver:

- Cinematic meeting experiences: With cinematic meetings on Cisco Collaboration devices, cameras follow individuals through voice and facial recognition, automatically switching views to capture the best angle of the active speaker. This benefits people in the room with immaculate focus on the speaker, and hybrid workers not in the meeting room will feel included even if they are not physically in the room.
- Meeting zones: With this capability, IT admins can set virtual boundaries for any collaboration space in the office, turning it into a meeting zone. With meeting zones, people are individually framed in a condensed view – leaving any blank space out of the view. Only people that are inside defined boundaries are included in the meeting. This is critical in busy open spaces and in conference rooms with glass walls, to eliminate the distraction of people outside the meeting.

New Huawei Chair Puts Focus on Digital Strategy

Huawei CFO and deputy chair Sabrina Meng used her first presentation as rotating chair to highlight the huge upside of digital transformation and called for continued cooperation across value chains, but warned disruptions to resource supplies could impact innovation and economic growth. In a keynote, Meng explained the digital economy is growing into a key driving force behind the reorganization of resources, the restructuring of the global economy and the changing competitive landscape. "The principles we have come to know and trust are being disrupted or revised, which will have a direct impact on industrial innovation and economic development." Industries are working to redefine productivity, supported by data analytics, and bringing fresh vitality in this new digital era, she suggested. "The time is right to thrive with digital. Digital technology is redefining productivity and driving a shift from quantity to quality, gradually becoming the key for social economic development." Huawei estimated that by 2025, around 55 per cent of global economic growth will be driven by the digital sector. Meng cautioned the digital shift is an opportunity and a challenge for the industry, insisting any successful transformation must be driven by strategy, not technology. Since data creates value only when it flows across an organization, she said methodical governance is vital. Meng explained Huawei aims to provide customers with digital infrastructure with "the simplest possible architecture, the highest possible quality that delivers the best possible experience at the lowest possible costs". She closed by noting Huawei is strengthening cooperation with industry organizations, opening up hardware for integration and making software open source, which brings more partners and developers into the fold and drives joint innovation.

Huawei and Cloud Security Alliance UAE Chapter to Jointly Promote Industry Standards in Cloud Security and Accelerate UAE Cybersecurity Capability and Ecosystem

The Cloud Security Alliance (CSA) UAE Chapter, a non-profit professional organization dedicated to defining and raising awareness of best practices to help ensure a secure cloud computing environment, and Huawei, have signed an MoU to promote cloud security awareness, professional training and certification. The MoU was signed during Gulf Information Security Expo & Conference (GISEC) Global 2023 by Shivani Jariwala, President of Cloud Security Alliance UAE Chapter, and Frank Dai, President of Huawei Cloud Middle East & Central Asia, on behalf of Huawei and witnessed by H.E Dr. Mohamed Al Kuwaiti, Head of Cyber Security, UAE Government. Shivani Jariwala, Cloud Security Alliance UAE Chapter president, said, "It is recognized that collaboration among cloud industry stakeholders to promote cloud security awareness is key to a safer UAE's cyberspace. As the world's leading organization involved in promoting cloud security awareness, professional training and certification, CSA supports this mission by continuously providing innovative research results and excellent best practices for the industry. Our partnership with Huawei will significantly expand our capabilities and contribute to the industry's ability to foster a safer cyberspace for all." Frank Dai, President of Huawei Cloud Middle East & Central Asia, said, "Huawei remains committed to supporting UAE's efforts as the country accelerates its digital transformation journey." H.E. Dr. Mohamed Al Kuwaiti, said, "This MoU signing marks strategic cooperation between both sides to promote UAE cloud security knowledge transfer and education and nurture a strong cloud security talent pool. This will support national cybersecurity capacity building and proactively align with the UAE government's efforts in positioning UAE as a globally trusted digital hub." The world faces an acute cybersecurity talent shortage, with 56% of security professionals globally saying that cybersecurity staff shortages are putting their organizations at risk. It is, therefore, imperative that all stakeholders work together to enhance capacity and skills development

in the sector. Huawei participated at GISEC Global 2023 as the Lead Strategic Partner, where it displayed the diverse range of its latest cybersecurity solutions, innovations for digital transformation, and successful use cases. At the event, Huawei was also awarded the Network Security Innovator of the Year at the ITP.net Security Leadership Awards held against the backdrop of GISEC Global 2023 for its Multilayer Ransomware Protection Solution. Judges picked Huawei for developing the industry's first Data Center Multilayer Ransomware Protection solution, transforming cyber security protection capabilities from passive response to proactive defense.

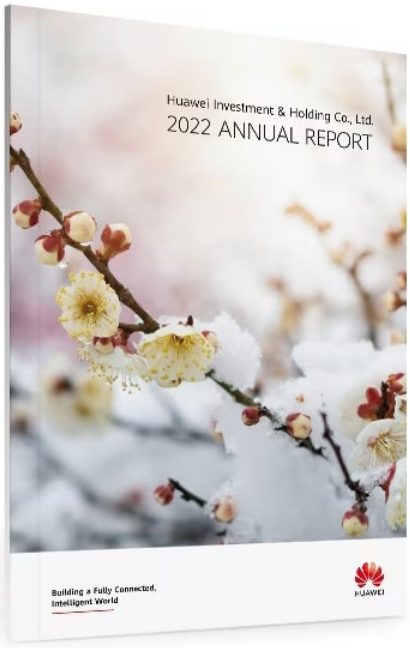
For Second Year in a Row, Huawei named a Customers' Choice in Gartner Peer Insights™ Voice of the Customer for Distributed File Systems and Object Storage

Huawei was recognized as a 2023 Customers' Choice in the Gartner Peer Insights™ Voice of the Customer for Distributed File Systems and Object Storage. This recognizes Huawei for the second year in a row. According to customers' comments, Huawei OceanStor scale-out storage was highly praised by global customers for its excellent quality and comprehensive services. Gartner Peer Insights is a free peer review and ratings platform designed for enterprise software and services decision makers. Reviews are organized by products in markets that are defined by Gartner Research in Magic Quadrant™ and Market Guide documents. And the "Voice of the Customer" is a document that applies a methodology to aggregated Gartner Peer Insights' reviews in a market to provide an overall perspective for IT decision makers. Huawei outperformed the included distributed storage vendors around the world. It was named as a Customers' Choice and 5.0/5.0 score based on 97 reviewers in that research. We believe customer evaluation is an important indicator to measure product performance, and the results reflect that customers appreciate the comprehensive competitiveness, maturity of large-scale commercial use, and after-sales services of Huawei OceanStor scale-out storage products. Some reviewers expressed their willingness to recommend Huawei products to their peers, which we believe is a sincere recognition of our products. A medical and biotechnology engineer commented: "As a data analyst, I'd like to focus on the data and our software, and spend as little time as possible on the IT infrastructure. And OceanStor Pacific helps our team to make it. The system is agile; resources can be deployed flexibly and acquired on demand. Great performance is delivered to me to process data concurrently." [2] An IT operator from the banking industry recorded the following comments: "After using OceanStor Pacific for another year, I really love it… Another experience I should mention is the humble and customer-centric attitude that Huawei's local engineers show. When encountering issues, they always think of how to fix them in time, instead of checking whether it's their duty or not, which a lot of other vendors do." [3] In response to the report, Yidong Wang, President of Huawei Scale-Out Storage Domain, said, "It is a great honor to be recognized as a Gartner Peer Insights Customers' Choice in Voice of the Customer for Distributed File Systems and Object Storage again in 2023. Thanks to all our customers for their trust in Huawei. Every customer's voice will help us continuously innovate, improve, and break through. In the future, we will stay customer-centric and continue to innovate and improve the efficiency of mass data applications, simplify data management, and enhance data resilience based on the unified scale-out storage platform, helping users in various industries build better and more agile data infrastructures."

Huawei Releases 2022 Annual Report: Steady Operations, Sustainable Survival and Development

Huawei released its 2022 Annual Report. The company reports steady operations throughout 2022, having generated USD92.37 billion in revenue and USD5.12 billion in net profits. Huawei continues to strengthen investment in R&D, with an annual expenditure of USD23.22 billion in 2022, representing 25.1% of the company's annual revenue and bringing its total R&D expenditure over the past 10 years to more than USD 140.55 billion. "In 2022, a challenging external environment and

non-market factors continued to take a toll on Huawei's operations", said Eric Xu, Huawei's Rotating Chairman, at the company's annual report press conference. "In the midst of this storm, we kept racing ahead, doing everything in our power to maintain business continuity and serve our customers. We also went to great lengths to grow the harvest – generating a steady stream of revenue to sustain our survival and lay the groundwork for future development." Also present at the event was Sabrina Meng, Huawei's CFO. She noted, "Despite substantial pressure in 2022, our overall business results were in line with forecast. At the end of 2022, our liability ratio was 58.9% and our net cash balance was USD25.35 billion. In addition, our balance of total assets reached 0.14 trillion USD, largely composed of current assets such as cash, short-term investments, and operating assets. Our financial position remains solid, with strong resilience and flexibility. In 2022, our total R&D spend was USD23.22 billion, representing 25.1% of our total revenue – among the highest in Huawei's history. In times of pressure, we press on – with confidence." In 2022, revenue from Huawei's carrier, enterprise, and consumer businesses was USD40.84 billion, USD19.15 billion, and USD30.84 billion, respectively. Huawei is a strong proponent of growing together with its ecosystem partners, and believes that openness and collaboration lead to shared success. The company has continued to open up its platform capabilities across its HarmonyOS, Kunpeng, Ascend, and cloud portfolio, focusing on improving developer experience as well as enabling and supporting its ecosystem partners on all fronts. Huawei currently works with more than nine million developers and over 40,000 ecosystem partners to fuel ecosystem-based innovation and create greater value for its customers. "2023 will be crucial to Huawei's sustainable survival and development," Xu noted. "Plum blossoms tend to grow sweeter from a harsh winter's freeze. Today, Huawei is like a plum blossom. While it's true that we have considerable pressure ahead of us, we have what it takes to come out the other end – with opportunities to grow, a resilient business portfolio, a unique competitive edge, the enduring trust of our customers and partners, and the courage to invest heavily in R&D. We are confident in our ability to rise above any challenge that comes our way, laying a solid foundation for sustainable survival and development." All financial statements in the 2022 Annual Report were independently audited by KPMG, an international Big Four accounting firm.



Nokia and MobiFone Sign 5G Cooperation Agreement

Vietnamese telecoms operator MoibFone has announced the signing of a cooperation agreement with Finnish equipment vendor Nokia at the Mobile World Congress (MWC 2023) in Barcelona. Under the agreement, Nokia will support MobiFone with the deployment of 5G technologies and the digitization and 'cloudification' of its infrastructure, including the launch of 5G fixed wireless access (FWA) services. The vendor will also help the company plan a network development roadmap. 'We are extremely excited for the opportunity to further strengthen the strategic partnership with MobiFone on 5G technology and support MobiFone in preparing and promoting the commercialization of 5G on its network,' commented Nokia's Vice President of Global Business Ricky Corker, adding: 'We believe that the cooperation will help increase the 5G market share for MobiFone and Nokia's solutions and services will benefit not only users but also businesses in Vietnam.'

Nokia Named as one of the World's Most Ethical Companies by Ethisphere

Nokia announced it has been chosen as one of the "World's Most Ethical Companies®" by Ethisphere. In 2023, 135 honorees were recognized spanning 19 countries and 46 industries. Nokia is one of two winners in the telecommunications industry and the only Finnish company to be honored. This award distinguishes Nokia for its strong business ethics, governance and sustainability practices. Esa Niinimäki, Chief Legal Officer of Nokia, said: "As part of our renewed company strategy, we want to be the trusted provider of choice in our industry and draw on our ESG approach as a competitive advantage for Nokia. This award recognizes the commitment of our leaders, employees and partners to operating with the highest standards of business ethics." In 2022, Nokia announced an enhanced ESG strategy that has been designed to maximize Nokia's impact where its technology, solutions and capabilities combine to address some of the biggest global challenges and create value. Among the five key pillars of the ESG strategy is Nokia's commitment to continue to take a proactive and values-driven approach in driving responsible business practices internally and in its value chain, working closely with customers and suppliers to engage on systemic issues related to environment, mitigating the misuse of technology (for example, in responsible use of AI), ethics, human rights, and working conditions. Erica Salmon Byrne, CEO of Ethisphere, said: "Ethics matters. Organizations that commit to business integrity through robust programs and practices not only elevate standards and expectations for all, but also have better long-term performance. We continue to be inspired by the World's Most Ethical Companies honorees and their dedication to making real impact for their stakeholders and displaying exemplary values-based leadership. Congratulations to Nokia for earning a place in the World's Most Ethical Companies community." Grounded in Ethisphere's proprietary Ethics Quotient®, the World's Most Ethical Companies assessment process includes more than 200 questions on culture, environmental and social practices, ethics and compliance activities, governance, diversity, and initiatives that support a strong value chain. The process serves as an operating framework to capture and codify the leading practices of organizations across industries and around the globe.

Nokia Selected by Zain Jordan for Nationwide 5G

Nokia has announced that it has been selected by Zain Jordan in a multi-year deal to supply 5G Radio Access Network (RAN) equipment throughout Jordan. Through the deal, Zain will be able to support the digital transformation of the country by offering superior 5G services with enhanced connectivity and capacity to customers. A major part of the deployment is expected to be completed during 2023. Under the deal, which totals over 3,000 sites nationwide, Nokia will provide the latest generation of its AirScale Baseband, Massive MIMO radios, and Remote Radio Head products. These are all powered by its energy-efficient ReefShark System on Chip (SoC) technology and combine to provide superior coverage and capacity. In parallel to deploying 5G, Nokia will also modernize Zain's existing 4G infrastructure. Nokia has a long-standing partnership with Zain across several territories, including the Kingdom of Saudi Arabia. Tommi Uitto, President of Mobile Networks at Nokia, said: "We are delighted to be partnering with Zain Jordan on this project to modernize their complete Radio Access Network and introduce 5G technology, and by doing so support the Jordanian Government's digital transformation objectives. The deployment of 5G is expected to stimulate the incubation and growth of new technologies and industries."

protiviti
Global Business Consulting

Protiviti Named to Fortune '100 Best Companies to Work For' List for Ninth Consecutive Year

Global consulting firm Protiviti has once again been named to the prestigious Fortune 100 Best Companies to Work For® list. To determine the list, Great Place To Work® gathered and analyzed confidential survey responses from more than 500,000 employees in organizations with at least 1,000 U.S.-based employees. Earning a spot on the Fortune list means Protiviti surpassed rigorous benchmarks, including demonstrating its generous and innovative support for employees. "We're honored to be recognized for creating a welcoming, diverse and inclusive workplace where employees can thrive and grow to their fullest potential," said Protiviti president and CEO Joseph Tarantino. "During these uncertain times, our people have continued to rise to the challenge and make positive contributions to our clients as well as to their local communities. Their commitment shines through every day, and we're thankful for such a dedicated and engaged team." Great Place To Work is the largest ongoing annual workforce study in America. To demonstrate why they are a great workplace for all, companies also submit demographic data and information about their corporate culture and DEI initiatives, along with innovation efforts, recruiting, professional development, benefits and recognition programs, which are validated against employee survey responses. "A great workplace calls for an ongoing commitment to listening to your employees and putting them front and center in your agenda," said Scott Redfearn, executive vice president, global human resources, Protiviti. "Our employees say they value the fair treatment of all people, the ability to make choices in how they work, and seeing the impact of their work with our clients. Empowering our people and supporting them in both their careers and personal lives fosters a positive employee experience that translates directly to the service we deliver to our clients." Protiviti offers employees meaningful rewards and benefits focused on family, well-being and professional development, including gender-neutral paid parental leave, backup childcare, sabbaticals, on- and off-the-job training, tuition reimbursement and a robust mentoring program. In addition, Protiviti is committed to fostering an environment where everyone can feel a sense of belonging, express their authenticity and contribute their unique perspectives. The annual Fortune 100 Best Companies list is highly competitive, with only Great Place To Work-Certified organizations eligible for the list. Each organization is assessed on how well it is creating a positive work environment for employees regardless of race, gender, age, sexual orientation, disability status or role. "It's during times like these that the best workplaces separate themselves," said Michael C. Bush, CEO of Great Place To Work. "In a challenging economy, many companies reduce investments in their people and scale back goals for diversity, equity and inclusion. But the 100 Best relentlessly pursue a better work experience for every employee, and if anything, double down on the employee experience regardless of title, tenure, gender or ethnicity. These companies know this is how you increase performance, productivity and your innovation velocity when your firm needs it the most." In 2022, Protiviti was named one of the Best Workplaces for Parents™, and to the Fortune lists of Best Workplaces for Millennials™ and Women™, and was ranked #3 on the Fortune Best Workplaces in Consulting and Professional Services list. The firm was also recognized by Seramount as a Best Company for Dads and by the Dave Thomas Foundation as an Adoption-Friendly Workplace. Additionally, Protiviti was named one of the PEOPLE 100 Companies That Care®.

Technical Debt and Skills Shortages Threaten to Stifle Innovation, According to Protiviti Survey

Technology leaders still have work to do when it comes to balancing their ambitious innovation strategies with organizational priorities and a host of business challenges, according to a new Protiviti survey of more than 1,000 CIOs, CTOs, CISOs and other senior technology executives around the globe. As technology leaders navigate the hype cycles of emerging technologies like Web3 and the metaverse, they are also contending with obstacles such as technical debt, a shortage of talent and skills, and a turbulent global economic environment that is prompting companies around the world to examine their broader innovation

strategies along with their spending on new technologies. While the Protiviti study, titled, "Global Technology Executive Survey: The Innovation Vs. Technical Debt Tug of War," found that most (79%) organizations reported having defined innovation goals, only 54% of organizations responded that they have a clear innovation strategy in place, raising the possibility that many companies have yet to think through how to align their investments in innovation with broader business objectives. "When it comes to developing smart innovation strategies, technology leaders must ask themselves if they're innovating to achieve a specific business goal," said Kim Bozzella, global leader of Technology Consulting, Protiviti. "It's easy to fall into the trap of innovating for the sake of innovation. This is especially important as the uncertain economic outlook prompts companies to scrutinize every dollar of spending to ensure it benefits the bottom line. Creating a roadmap that measures immediate and long-term innovation progress and how these investments map to business objectives is critical to navigating the current business environment."

Obstacles to Innovation

Technical debt, the accumulated cost of maintaining and supporting legacy IT systems, is a leading obstacle that impacts nearly 70% of organizations' ability to innovate – and is expensive to tackle. On average, surveyed organizations invest more than 30% of their IT budget and devote more than 20% of their resources just to tame technical debt. The talent war, one of the top risks facing organizations today, is also affecting technology teams, challenging leaders to attract and retain top talent. Complicating matters is the need to ensure that new hires and current technology employees have the necessary skills for the next generation of emerging technologies. Among respondents, the largest talent gaps organizations face are in the areas of design thinking (37%), solution architecture (37%), enterprise agility (35%) and technical knowledge (31%).

Strategies for Driving Technology Adoption and Innovation

While cloud and the Internet of Things (IoT) have become table stakes for organizations, the pace of their adoption is showing promising signs for other emerging technologies. Among the top technologies organizations are planning to implement in the next three years are:

- Web3 (41%)
- Robotics (38%)
- Low code/no code platforms (38%)

"Companies need to ignore the noise of buzzwords, and instead focus on understanding the capabilities that emerging technologies bring. Rapid technology innovation is here to stay and will have a profound impact on business in the coming years," said Christine Livingston, a managing director in the Technology Consulting practice at Protiviti. "Companies also need to realize that emerging technologies are not optimized without enabling and upskilling the right talent, who will educate themselves and experiment with the new technologies in order to understand them well enough to use in the service of broader business goals." When it comes to the use of innovation strategies, according to the survey, 94% of organizations are employing agile development and 65% have found it delivers the results they wanted, while 90% of organizations are using design thinking and 57% have found that strategy delivers desired results.

SES Secures €75 Million of Multi-Year Video Contract Extensions

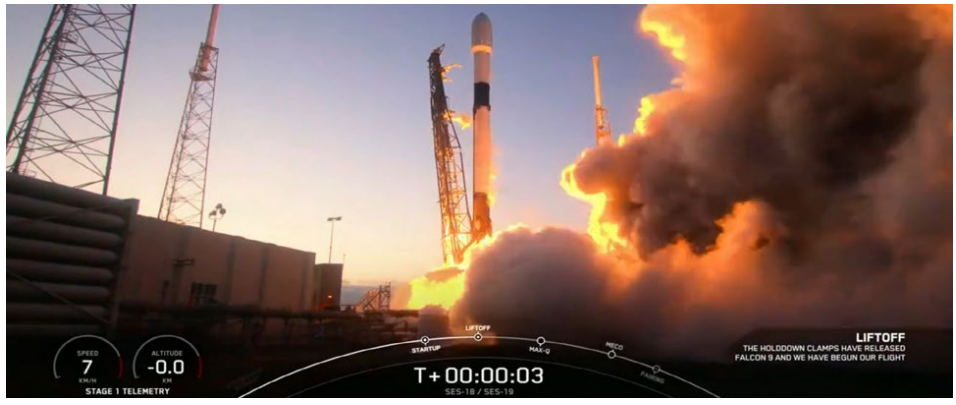
SES announced that it has signed multi-year capacity agreements totalling more than €75 million in backlog with multiple German private and public broadcasters. The majority of renewals span several years and will enable millions of satellite TV households across Germany to continue watching SD and HD content, reinforcing SES's position as the leading global content connectivity provider. The renewal deals include both private and public broadcasters who are looking to maintain the broadest reach, highest quality and maximum reliability for their video content delivery, including:

- QVC Germany – the live shopping broadcaster is renewing both SD and HD channels
- Seven.One Entertainment Group – the broadcaster's channel offering continues to be available in SD
- Media Broadcast Satellite GmbH (MBS) – the provider of global satellite and terrestrial communications services is renewing capacity for SD channels
- Zweites Deutsches Fernsehen (ZDF) – the public broadcaster is renewing its HD offering
- HIGH VIEW – recently signed an extension with SES and has just launched additional channels

SES's latest video contract extensions illustrate how both private and public broadcasters across Germany are leveraging SES's satellites at the prime 19.2 degrees East orbital slot to directly reach more than 17 million satellite TV homes, surpassing other satellite or terrestrial operators in the country. "Whether for news, entertainment, live sports, shopping or public service, audiences continue to demand access to a wide range of high-quality video content," said Norbert Hölzle, Global Head of Media at SES. "The size of these deals and length of the contracts highlight that for both private and public broadcasters the most efficient way to reach millions of households and build the biggest audience is through satellite – today and well into the future."

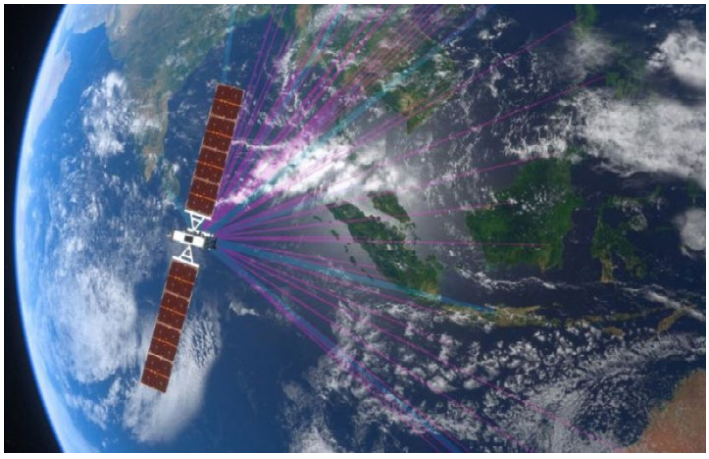
SES's Fourth and Fifth C-Band Satellites for the United States Successfully Launched

SES announced that the SES-18 and SES-19 satellites, designed and assembled by Northrop Grumman, were successfully launched by SpaceX's Falcon 9 rocket from Cape Canaveral Space Force Station in Florida, United States. The two American-made satellites are the fourth and fifth – and final – satellites to be launched as part of SES's C-band transition plan, following the launch of SES-22 in June 2022 and the tandem launch of SES-20 and SES-21 in October 2022. These satellites are essential parts of SES's plan to achieve the Federal Communications Commission's (FCC) program to clear C-band spectrum to enable wireless operators to deploy 5G services across the contiguous U.S. (CONUS) while ensuring that SES's existing customers continue to enjoy uninterrupted TV, radio, and critical data transmission services to millions of Americans. Since 2020, SES, along with other satellite operators, has been clearing 300 MHz of C-band spectrum and transitioning customer services to the remaining allocated 200 MHz of spectrum by launching new satellites, building new ground stations and sending hundreds of satellite earth station technicians across the country to install new filters on customers' antennas. By providing contractual service protections to customers who receive video services in the U.S., SES-18 and SES-19 will enable SES to safely clear C-band spectrum to help accomplish the FCC's ambitious goals for American 5G innovation. SES-18 is expected to begin operations in June 2023 at 103 degrees West replacing SES-3 C-band payload and SES-19 will be co-located with SES-22 at 135 degrees West. "This successful launch marks one of the last remaining milestones on our journey to clear a portion of the C-band, and we are incredibly grateful to Northrop Grumman, SpaceX, and all of our partners who helped make this plan a reality," said Steve Collar, CEO of SES. "We are now on the home stretch in protecting our customers' broadcasts while freeing crucial 5G spectrum and we look forward to successfully concluding our work well before the FCC's December 2023 accelerated clearing deadline."



SES, NTT Take Private 5G to the Skies

SES struck a multi-year agreement with Japan-based NTT to deliver its edge and private 5G products to enterprise customers through satellite, a move designed to meet a surge in demand the pair claimed is proving beyond the reach of fixed terrestrial networks. In a joint press release, NTT stated it would use SES' second-generation medium Earth orbit satellite communications system, dubbed o3b mPower, to deliver its Edge as a Service offering to enterprise customers. The arrangement will provide "expanded and reliable connectivity", NTT stated, adding the system is primarily intended for companies operating in regions "where terrestrial networks are lacking". NTT positions its Edge-as-a-Service play as offering enterprises opportunities to increase efficiency and grow revenue through edge and IoT, alongside promoting the potential of private networks to propel industries including energy, mining and manufacturing "that have otherwise been limited by connectivity" to ramp digital transformation. The duo's satellite-based set-up will deliver coverage to more than 190 countries with public-private roaming, along with making additional services available in application development, system integration and managed services. Olivier Posty, country MD for Luxembourg at NTT, pointed to the benefits of private 5G, saying as customers continue to innovate, "network partners with the right skills and expertise will be critical to success in today's competitive market". Alejandro Cadenas, AVP of EMEA telco mobility research at IDC, said the partnership was an "industry-first milestone" and would also open opportunities in countries "where 5G spectrum is not ready yet". SES last week revealed it had entered talks with satellite rival Inmarsat over a possible merger, which could create a company valued at more than $10 billion.



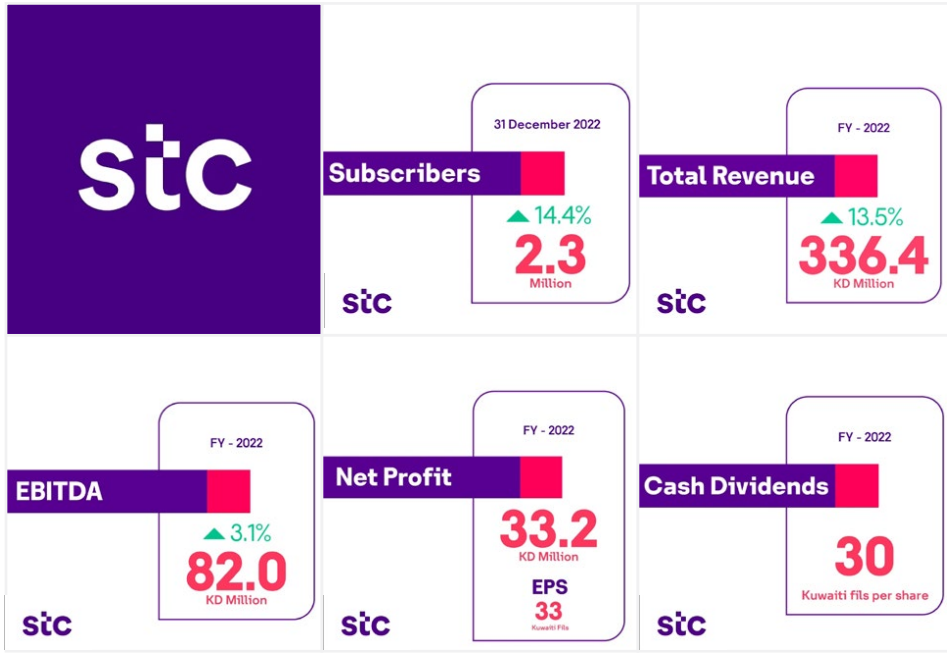
stc Bahrain, the first to launch Enhanced Voice Service (EVS) with Super HD Voice Quality in Bahrain

stc Bahrain, the world-class digital enabler, in partnership with Huawei, has announced the successful launch of Enhanced Voice Service (EVS), becoming the first operator in the Kingdom to offer super HD voice quality to its customers. EVS is a new voice feature designed to deliver a superior voice experience, with higher voice quality and clarity, and reduced background noise. "At stc Bahrain, we are committed to providing our customers with the latest and most advanced technologies to enhance their communication experience," said Ahmed Alsharif, CTDO of stc Bahrain. "Our successful launch of EVS reflects our commitment to innovation and our efforts to provide the best possible service to our customers." The new EVS technology is available to all stc Bahrain customers with compatible devices, without any additional charges or fees. It is compatible with all 4G and 5G networks, ensuring that customers can enjoy the benefits of super HD voice quality on all their calls. "With EVS, our customers can experience crystal-clear voice quality and improved call reliability, even in noisy environments," added Ahmed Alsharif. "We believe that this technology will revolutionize the way people communicate and interact with each other, and we are proud to be the first operator in the Kingdom to offer this service." The launch of EVS marks a significant milestone for stc Bahrain, reinforcing its position as a leading provider of innovative and advanced telecommunications services in the Kingdom.

Kuwait Telecommunications Company (stc) Holds Its Annual Ordinary General Assembly Meeting for the Year Ended on 31 December 2022

Kuwait Telecommunications Company (stc), a world-class digital leader providing innovative services and platforms to customers enabling the digital transformation in Kuwait, held its Ordinary General Assembly (AGM) at the Company's Headquarters – Olympia Mall / West Office Towers on 21 March 2023, where the attendance represented 76.227% from the total shareholders. The AGM was held physically and virtually using the online platform provided by Kuwait Clearing Company. The AGM approved the Board of Directors' and Financial Position's report, the Auditors' report and the Sharia Committee's report for the fiscal year ended on 31 December 2022. The AGM also approved the Audit Committee report and the Corporate Governance report including the Board of Directors' and the Executive Management's remuneration and benefits report for the year ended on 31 December 2022 besides approving all the other items in the AGM agenda. The AGM also approved the Company's financial statements and the Board of Directors' recommendation to distribute cash dividends of 30 Kuwaiti fils, representing 30% of the share's nominal value for the year ended 2022, for shareholders registered in the Company's shareholders register as at the end of the record date set for it on Thursday corresponding to 06 April 2023. The cash dividends will be distributed to the shareholders who are entitled to it at payment date, as of Tuesday, corresponding to 11 April 2023 Commenting on the announcements of these results, Dr. Mahmoud Ahmed Abdulrahman, stc's Chairman, stated: "Kuwait Telecommunications Company (stc) witnessed a number of outstanding achievements during 2022 in terms of expanding the Company's operating model, supporting the digital transformation strategy and adding value to its shareholders. Therefore, stc was keen to capture all the available business opportunities that shall support the Company to achieve growth in its operations as well as financial results in line with the rapid development of the Telecommunications sector. Whereby, stc has been able to sustain its flexibility to drive further progress and accelerate the digital transformation process. The reliance on stc's solid infrastructure has been crucial in achieving its corporate strategy focused

on expanding the Company's operations, especially in the enterprise sector. This has contributed in achieving stc's desire to support its internal capabilities, enhance its market share, and upgrade its customer experience. Commenting on the company's financial position as at 31 December 2022 Dr. Mahmoud, stated: "stc's total assets reached KD 424.4 mn by the end of December 2022, while total shareholders' equity increased by 2% reaching KD 241.4 mn. Moreover, stc has a strong solvency position among its peers in the Middle East." Dr. Abdulrahman commented on the cash dividend recommendation of 30% of the Company's total capital for the fiscal year ended December 31, 2022, saying: "stc has demonstrated its capacity by maintaining good cash flows resulted from adopting its successful business model as well as financial planning that ensure good financial returns and results that would enable the company to distribute sustainable cash dividends on an annual basis, and in the best interest of the company's valued shareholders." Commenting on stc's achievements in 2022, Eng. Maziad Alharbi, stc's CEO stated: "stc's robust results during the financial year ended in December 2022, demonstrated the successful implementation of its corporate strategy with all the operational and financial KPIs adopted. This was the key factor behind reaching stc's best results aimed at exceeding the aspiration of our customer's in addition to placing stc amongst the leading companies in Kuwait for digital transformation and providing integrated technical solutions with a value added to the traditional telecommunications sector. This is considered as an added value to the traditional telecommunications sector due to acquiring the most sophisticated 5G network as well as solid infrastructure that shall fulfill all the customer needs." Alharbi noted: "stc's strategic expansion in April 2022 through the acquisition of E-Portal Holding Company and its subsidiaries demonstrated the Company's success in creating strong and solid grounds to achieve the sustainable growth in the future through the holistic operating model, which significantly supports the strategic pillars of its digital transformation process. Our subsidiaries solutions by stc and E-Portal specialized in in providing the latest business solutions play a key role in supporting the Company to expand its operational model, ensure the best outcomes and capture all the potential opportunities." Commenting on the announcement of company's financial results for the year ended December 31, 2022, Eng. Maziad Alharbi said: "stc proudly managed to achieve strong financial results in 2022, recording the highest total revenue since inception to reach KD 336.4 mn with a growth rate of 13.5% in 2022, compared with KD 296.3 mn last year. This growth in revenue was achieved with the significant support from the increase in stc's customer base which has reached 2.3 million customers by the end of December 2022, representing a rise of 14.4% compared to December 2021. Accordingly, EBITDA witnessed a growth of 3.1% to reach KD 82 mn in 2022 which resulted in a net profit of KD 33.2 mn (earnings per share 33 fils) during 2022, driven by the increased revenue and the efficiency of stc's operational expenditure."



Syniverse Introduces Evolved Mobility for Outbound Roaming to Reduce OpEx for Mobile Operators Retiring 3G Networks

Syniverse, "the world's most connected company," today announced the availability of a new key feature of Evolved Mobility, the company's Voice over LTE (VoLTE) roaming solution. The new Outbound Roaming feature, a first-of-its-kind solution, connects outbound roamers traveling from operators that have retired their 3G networks. This adds to the existing Inbound Roaming feature already available through Evolved Mobility to help mobile operators sunset legacy networks without sacrificing subscriber experience. With the continued growth of 5G, mobile operators are looking to reallocate spectrum resources and realize OpEx benefits associated with the retirement of their 3G networks. Retiring these networks has become a challenge for operators looking to maintain best-in-class roaming experiences for their subscribers when they travel and must rely on operator

networks that have not deployed VoLTE roaming. “Operators need a clearly defined strategy to retire these networks, especially as travel has increased among consumers,” said Andrew Davies, Chief Executive Officer of Syniverse. “Syniverse has been at the forefront of guiding operators through network transformations for more than 30 years, and our Evolved Mobility solution has been successfully adopted by leading operators such as AT&T and Verizon. With this latest Outbound Roaming feature, we will now also help operators free up millions of dollars associated with maintaining this legacy infrastructure without degrading the customer experience for their own users roaming abroad.” Syniverse’s Evolved Mobility for Outbound Roaming is a cloud-based feature that recognizes the importance of ensuring reliable outbound roaming connectivity for operators retiring their own 3G networks. Evolved Mobility for Outbound Roaming helps mobile operators transition from their legacy network equipment without sacrificing a subscriber’s ability to outbound roam to non-VoLTE markets. With this feature, 4G and 5G mobile devices can roam onto visited operators that do not have VoLTE roaming in place. This unique feature enables the subscriber to connect when they otherwise could not and delivers a multitude of benefits for the operators and their subscribers, including significant OpEx savings on retirement of legacy network elements and a superior customer experience that drives subscriber loyalty and revenue retention for mobile operators. Evolved Mobility for Inbound and Evolved Mobility for Outbound are available for mobile operators today.

Syniverse Appoints Harry Patz, Jr. as President of its Enterprise Business Unit

Syniverse, “the world’s most connected company”, has appointed Harry Patz, Jr. President of its Enterprise Business Unit. In this role, Mr. Patz will lead business strategy, product management, solutions engineering, customer success, and sales and marketing. “Harry is a dynamic leader with a proven track record for entering new market sectors, reinventing business models, and transforming organizations for growth,” said Andrew Davies, CEO of Syniverse. “His bold vision for our Enterprise business will further position us as an industry leader that powers leading brands to provide exceptional employee and customer experiences through Syniverse’s omni-channel communications platform.” Patz brings more than 25 years of experience as a general manager and global business growth executive in the technology, telecommunications, and media industries. Most recently, he served as Senior Vice President & General Manager for the Display Division at Samsung Electronics America. In that role, Patz oversaw sales, customer and product marketing, business development and channel for a wide range of products across industries and verticals. Patz also spent 20 years at Microsoft, most recently as a Partner and Vice President of the Communications Sector North America for mobile, media, video, cloud, and enterprise. He has a Bachelor of Science in Management and Marketing from Boston College and a Master of Business Administration from Cornell University. "Syniverse has uniquely secured its place at the forefront of innovation by seamlessly connecting the world’s networks and devices," Patz said. "My focus is to ensure that our customers have access to best-in-class communications technology solutions, allowing them to stay ahead of their competition in this rapidly changing digital age. I'm committed to delivering value and innovation for all our customers and driving growth for the organization.”

Tech Mahindra and Mahindra Lifespaces Partner to Drive Innovation in PropTech

Tech Mahindra, a leading provider of digital transformation, consulting, and business re-engineering services and solutions, and Mahindra Lifespace Developers Ltd., the real estate and infrastructure development arm of the Mahindra Group, announced the launch of a platform to provide 3D immersive experiences to customers, that will redefine their home-buying experience. This platform is built with the aim to generate images of homes and a complete home environment, in near real manner using photo realism features and capabilities provided by Epic Games’ Unreal Engine Tech Mahindra's platform will provide customers with an immersive 3D experience of Mahindra Lifespaces' newly designed real estate properties. The platform will allow several hundreds of concurrent users to experience the projects in the Metaverse, where they will be able to teleport themselves into their future homes, collaborate remotely with family members and communicate with them to speed up their purchase decisions. Rajesh Dhuddu, Global Head, Emerging Technologies, Tech Mahindra, said, “For buying new apartment homes, the traditional process has been that customers will visit the project site, look at models of the project and visit/show apartments. With the advancements in Prop Tech, it’s time we disrupted these traditional buying approaches. Metaverse offers an opportunity where potential home buyers can be teleported to their future homes, experience their homes and surroundings fully, even before they are built in the physical world. This makes customers completely sense and

experience their new homes, without leaving anything to imagination. The platform built by Tech Mahindra for Mahindra Lifespaces, will provide a first-of-its-kind near-real experience of apartments to end customers, using Epic Games' Unreal Engine capabilities." To support over several hundreds of concurrent users experiencing this remotely and that too in a multiparty environment, Tech Mahindra will leverage its extensive network and infrastructure to build high-fidelity 3D environments using Epic Games' Unreal Engine 5. This will further be combined with cutting-edge technologies such as Conversational AI (Artificial Intelligence), and NFTs (Non-Fungible Tokens) to enable buying of digital artifacts pertaining to homes. As part of NXT.NOWTM framework, which aims to enhance 'Human Centric Experience', Tech Mahindra focuses on investing in emerging technologies and solutions that enable digital transformation and satisfy the underserviced and unaddressed needs of customers.

Tech Mahindra Unveils Generative AI Studio to Help Enterprises Bootstrap Generative AI

Tech Mahindra, a leading provider of digital transformation, consulting, and business re-engineering services and solutions, has announced the launch of its new Generative AI Studio under its amplifAI0->∞ suite of AI offerings and solutions. The studio will enable enterprises to produce high-quality content outputs faster than ever before by providing them with the structured and customized aspects of Generative AI. It will act as a one-stop central which provides a comprehensive view to generate, enhance, and complete various forms of digital content. The studio will enable enterprises to see and explore the world of Generative AI possibilities by bringing six aspects of content generation under one umbrella which include - Code, Document/Text, Image, Video, Audio and Data. The Generative AI Studio provides enterprises with a user-friendly interface and a range of features to customize their content. Users can select their preferred content type, customize their options, and then let the studio handle the rest of the process. The studio is also scalable, making it ideal for businesses of all sizes, from startups to large enterprises. Hasit Trivedi, CTO – Digital Technologies and Global Head-AI, Tech Mahindra, said, "Until now, AI has demonstrated its capabilities in predicting, detecting, recommending, and observing. With Generative AI, now it can create as well, thus making AI further disruptive. Such an unprecedented power in technology comes with a huge amount of responsibility for its usage. We are constantly expanding our range of solutions and offerings within the amplifAI0->∞ suite to facilitate our customers' adoption of AI in a responsible and expedient manner. The addition of the Generative AI Studio bolsters our progression with amplifAI0->∞ and we intend to continue on this journey." With its Generative AI studio and Tech Mahindra XaaS (Xperiment as a service), Tech Mahindra will help enterprises to adapt Generative AI in mainstream AI projects faster. Responsible AI framework of Tech Mahindra will ensure this disruptive technology is carefully adopted within enterprises in controlled manner with "Human in loop" philosophy. Enterprises across industries can leverage Tech Mahindra's on-premises and cloud-based, one-stop solution to bootstrap their Generative AI journey.

Zain KSA and Nokia Sign MoU to Accelerate Sustainability Efforts

Zain KSA, has signed a Memorandum of Understanding (MoU) with Nokia, a B2B technology innovation leader, to maximize efficiency and accelerate its sustainability efforts, in line with Saudi Vision 2030 and Saudi Green and Middle East Green Initiatives. The MoU was signed during Mobile World Congress (MWC23) in Barcelona. As part of the MoU, Zain KSA and Nokia will collaborate on innovative solutions to address environmental as well as societal issues. The companies will evolve Nokia Self-Organizing Network (SON) use cases to boost energy savings. Through this collaboration, the two parties will make efforts to continue the digitalization journey in the Kingdom, bridging the digital divide and ensuring inclusive access to opportunities. To reduce their carbon footprint, Zain KSA and Nokia will explore initiatives to modernize the legacy components of the network and introduce more energy-efficient platforms within responsible business standards. They will accelerate digital transformation across industries and drive the evolution of the 5G network and deployment of sustainable technology across various sectors. Commenting on this milestone, Zain KSA Chief Technology Officer, Eng. Abdulrahman Al-Mufadda said, "At Zain KSA, we are fully committed to providing meaningful connectivity to empower our communities and contribute to the national sustainability goals. Zain KSA is proud to collaborate with Nokia as part of our strategic priority to maintain a responsible supply chain and drive sustainable business practices, especially as we continue to expand our networks across new sectors. Together we will leverage our expertise to exceed customers' expectations and find a balance between efficiency and resource optimization. To help address environmental issues, we are creating long-term sustainable value and digital solutions that bring us closer to our net-zero target, in line with Saudi Vision 2030." "We believe that digitalization and connectivity are crucial in resolving environmental, social and economic challenges," said Eng. Mohammed Al-Keridy, Head of Zain KSA Customer Team at Nokia. "This positions energy efficiency at the core of our solutions, as we are committed to helping service providers adopt sustainable practices without impacting the quality of their services. Our partnership with Zain KSA will boost our contribution to Saudi Vision 2030 and accelerate the adoption of sustainable practices in the region." Zain achieved a carbon disclosure rating of (A-), a classification for companies by CDP that disclose information on the environmental impact of their initiatives and operations combating climate change, Zain KSA continues in adopting sustainable practices, including the recently launched the Um Al Shogog reforestation and rehabilitation campaign, in cooperation with the Environmental Green Horizons Society, to increase biodiversity and conserve natural resources. With its first electric vehicles charging station at Granada Business Center in Riyadh, Zain KSA reinforces its pivotal role as a key enabler of world- class sustainable services across the Kingdom. Nokia's approach to sustainability centers around its purpose, creating technology that helps the world act together. The company focuses on the impact of its technology and digitalization on the world. Nokia maximizes its positive impact on society, people and the planet – its handprint. But the company also ensures it works continually to minimize its potential negative impact – its footprint. This approach is built on a foundation of responsible, ethical business practices. Nokia is recognized for its transparent ESG disclosure, practices and achievements by leading ratings and ranking organizations and other international initiatives. Recent examples include the achievement of A- by CDP, as well as a rating of AAA (on a scale of AAA-CCC) in the MSCI ESG Ratings assessment in December 2022. In September 2022, Nokia was awarded as the best newcomer by RE100 for its work on renewable energy.

solutions by stc

solutions.com.kw

#1 complete one-stop business and connectivity solutions

solutions by stc is a pioneer in digital transformation empowering businesses to go further into the future with the most advanced business solutions.

solutions by stc offers a wide range of different technologies and a comprehensive suite of world-class industry leading brands and solutions that allow customers to choose the exact solution required to meet their business needs.

ARTICLE

stc Aims to LEAD the Kuwait Telco and ICT Market

The Kuwaiti telecom market, known for its pioneering and highly developed 5G infrastructure market, boasts 100% coverage in populated areas, substantial data consumption exceeding 60 GB per user per month, and a developing digital ecosystem encompassing both consumer (devices, fintech, gaming, video, insurance) and enterprise ICT services (cloud, IoT, security and managed services).

Kuwait is considered the most competitive telecom market in the GCC region, featuring three global players, each contending for around 1/3 of the market, along with a new MVNO that has been operational since 2022. This highly competitive scenario results in a challenging market characterized by intensive price competition and inflationary cost pressures that influence profitability for all players.

> *Throughout the past couple of years, stc successfully optimized its operations, invested in developing the largest 5G network in Kuwait and enhanced its digital customer journeys by revamping the frontend BSS system and the digital touchpoints to provide its customers with an unrivalled experience. stc was also the first operator in Kuwait to launch the full 5G (standalone 5G), offering improved customer experience in terms of download speed and latency, and enabling a broader range of use cases.*

There has been a surge in demand for telecom and digital services in Kuwait, further accelerated with the Covid-19 pandemic. This demand includes competitively priced voice and internet plans, connectivity solutions, and innovative products that focus on digitally transforming business cultures. There is a massive wave of demand primarily focused on accelerating the path towards digital transformation for most companies, providing the telecom and digital solutions sector with an opportunity to utilize their resources to meet the needs of corporate customers.

Miguel Rodriguez
General Manager - Corporate Strategy & Planning
stc Kuwait

In this highly penetrated and challenging market, the digital ecosystem is gaining momentum through partnerships between the Kuwaiti Government and telco operators to collaborate with hyperscalers such as Google Cloud. The Kuwaiti Government formed its strategic alliance with Google Cloud to roll out a comprehensive digital transformation roadmap across governmental entities and key state-owned enterprises. More recently, the Kuwaiti Government partnered with Apple to launch its Apple Pay service in Kuwait, in line with the country's strategy.

stc is focused on capturing this opportunity and leading the digital transformation in Kuwait. By completing a transformation journey that started in 2019 with the strategy AHEAD, in 2022 stc has defined a new 3 year Corporate Strategy "LEAD" with the ambition of propelling the company on its path to market leadership in Kuwait. The acquisition of e-Portal, top local player in ICT services, in 2022 has meant a major milestone on achieving this leadership position and since Q3 2022 stc is the telco leader in revenue share in Kuwait.

Throughout the past couple of years, stc successfully optimized its operations, invested in developing the largest 5G network in Kuwait and enhanced its digital customer journeys by revamping the frontend BSS system and the digital touchpoints to provide its customers with an unrivalled experience. stc was also the first operator in Kuwait to launch the full

5G (standalone 5G), offering improved customer experience in terms of download speed and latency, and enabling a broader range of use cases.

stc aims to LEAD the Kuwait telco and ICT market by offering innovative services, growing priority segments and deploying an efficient and digital operating model.

LEAD strategy is built upon 4 strategic pillars:

Lift the core by capturing growth opportunities across youth, high-value expat and SME segments. This strategy is based on a more granular end enriched customer segmentation that allows stc to better serve their customer needs and identify the buckets of growth within the core business.

Expand ICT business in scale and scope and position stc as professional services provider by capturing the potential of the Enterprise market across sectors by offering integrated communications and IT solutions. The acquisition of e-Portal has meant a major milestone and boosted stc capabilities to capture this growth opportunity.

Accelerate innovation by leveraging stc Group capabilities, non-telco partners and Kuwait startup ecosystem. Going beyond the core by relying on the stc Group new operating model, specialized subsidiaries and their capabilities, enlarging the partnership ecosystem and exploring nascent ideas will allow stc to enrich the product portfolio, excel the customer experience and differentiate from the competitors.

Deploy an efficient and digital operating model that is fit for a sustainable growth

Moving forward with a nimble and digital operating model with a relentless focus on improving customer experience, delivering cost efficiency and profitability. A revamped operating model aimed at developing stc employee's potential, attracting top talent while preserving the culture, all aligned with the best corporate sustainability practices.

> *stc aims to LEAD the Kuwait telco and ICT market by offering innovative services, growing priority segments and deploying an efficient and digital operating model.*

REGIONAL NEWS

CST Announces that the ICT Market in the Kingdom Has Reached 154 billion SAR

Under the patronage of H.E. the Minister of Communications and Information Technology, Chairman of the CST's Board of Directors, Eng. Abdullah Alsawaha, The Communications, Space and Technology Commission (CST) held the "ICT Indicators Forum 2023", with the presence of H.E. the Governor of the CST, Dr. Muhammad Altamimi, as well as a number of their highnesses, excellencies, and local and international experts. During the forum, CST announced that the value of the ICT market in Saudi Arabia reached 154 billion SAR in 2022, making it the largest and fastest-growing digital economy in the MENA region. Dr. Altamimi revealed that Saudi Arabia's total capital investment in digital infrastructure has reached more than 93 billion SAR over the past six years, noting that this expansion led to a rise in the quality of the provided services, by doubling the mobile Internet speeds to 11 times, exceeding 181 Mbps, which is double the global average, making the Kingdom maintain its place among the top 10 countries in terms of mobile internet speed. In addition, Dr. Altamimi pointed out that CST was able to launch high-speed internet service in 21 thousand villages and immigration in various regions of the Kingdom to ensure the continuity of communications services for more than 5 million people, confirming the development of the communications and technology system in the Kingdom. In the Kingdom, 5G coverage has increased to 53%; in Riyadh, it has exceeded 94%. Additionally, 3.7 million Saudi homes are under fiber optics coverage. Altamimi also stated that Internet service usage has significantly increased in Saudi Arabia, where the subscription rate for mobile communications has reached 172% of the population, while the average daily mobile internet data consumption per individual in the Kingdom has reached over 1200MB, which is three times the global average. CST also contributed to strengthening national participatory efforts through collaboration with the Transport General Authority and the National Regulations Committee to issue 12 approvals for 26 brands that provide connected vehicle services. In addition to launching the experimental regulatory environment for emerging technologies in support of entrepreneurs and innovators, and creating a flexible environment that balances innovation and regulation. The ICT Indicators Forum focused in this edition on the efforts and trends in enhancing the efficiency of digital infrastructure, and the importance of expanding the scope of digital business

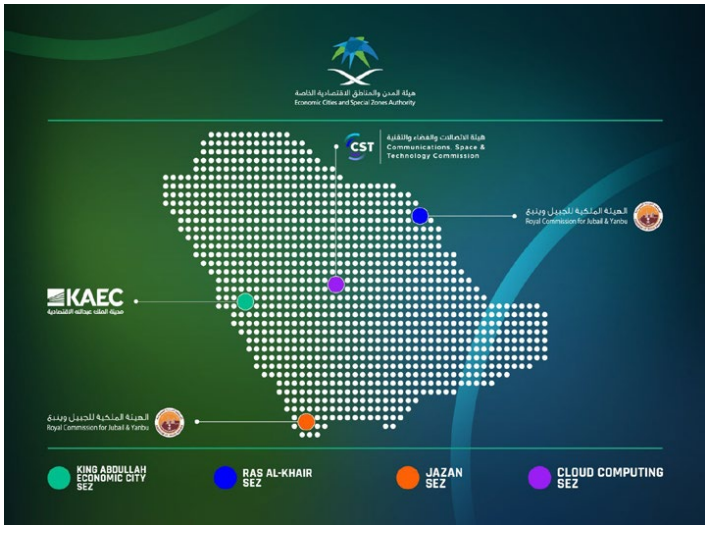
to support the aspirations of the digital economy in Saudi Arabia, as well as exploring the future of communications and technology markets and their most important trends.

Saudi Arabia Top 2 In G20 for Digital Systems Preparedness

The Kingdom of Saudi Arabia has ranked second among the G20 members and fourth globally in the preparedness of digital systems, according to the latest report released by the International Telecommunication Union (ITU), a specialized agency of United Nations responsible for all matters related to information and communication technologies. This comes following the kingdom's success in building a sustainable regulatory framework and shifting towards digital collaborative regulation to empower the digital economy. Speaking on the occasion, Governor of the Communications and Information Technology Commission (CITC) Dr. Mohammed bin Saud Al Tamimi said the kingdom's new global achievement was the result of the endless support of King Salman bin Abdulaziz Al Saud and His Royal Highness Prince Mohammed bin Salman bin Abdulaziz Al Saud, Crown Prince and Prime Minister." Al Tamimi pointed out that the Saudi Vision 2030 has laid down the foundations of a strong and efficient telecommunications and information technology sector that led to the development of an ambitious strategy for digital transformation in line with global trends. CITC, he stated, has launched several initiatives to upgrade the telecommunications and IT sector to the highest levels, including the establishment of the national academy for digital systems, as a strategic step towards attracting investments and accelerating the digital transformation endeavor. The commission has enhanced KSA's competitiveness by focusing on cooperative regulating and including all stakeholders in its enterprises,

added Al Tamimi, indicating that the ITU report has highlighted several challenges facing regulating agencies, including primarily monitoring competence and sustainable growth.

Four New Special Economic Zones Launched in Saudi Arabia



The Kingdom of Saudi Arabia (KSA) announced the launch of four new Special Economic Zone(s) (SEZ(s)). The Economic Cities and Special Zones Authority (ECZA) is the enabler and umbrella regulator of KSA's Economic Cities (ECs) and SEZs. ECZA was originally formed in 2010 to oversee the development of ECs. In 2019, ECZA's mandate was expanded to include the supervision of SEZs and the creation of the right regulatory environment to attract businesses. The key goals of the ECZA are to raise KSA's global competitiveness through the launch and enablement of an ECs and SEZs ecosystem that provides:

- an investor friendly regulatory environment, competitive sector specific incentives and enablers;
- highly efficient integrated government services; and
- an inspiring living experience with global quality of life standards.

A "Special Economic Zone" has been defined under the Statute of the Economic Cities and Special Zones Authority (the ECZA Statute) as a KSA special economic zone established under the ECZA Statue. SEZs are geographically delineated areas that support specific activities such as investment, trade and employment by providing competitive advantages and legislative frameworks that differ from the base economy.

Launch of four new SEZs

On 31 October 2022, the General Authority of Civil Aviation (GACA) had launched the Integrated Logistics Bonded Zone (ILBZ), a SEZ located adjacent to the Riyadh International Airport, as part of KSA's plans to boost cargo capacity, bolster supply chains and become a global logistics hub. ECZA has now announced the launch of four new SEZs to capitalize on KSA's potential as a global business hub. These new SEZs have been built upon previous free zone initiatives in KSA. The launch of the new SEZs is in line with Saudi Vision 2030 and represents the initial phase of a long-term program focused

on fostering foreign direct investment, attracting global talent, and encouraging entrepreneurship/economic development in KSA. The establishment of the SEZs is in line with KSA's aim to become a global investment destination and a hub for global supply chains by capitalizing on its unique position in global trade routes. The four new SEZs focus on key growth sectors of advanced manufacturing, maritime activities, metal conversion/logistics and cloud computing respectively. They are:

- King Abdullah Economic City (KAEC) SEZ;
- Ras Al-Khair SEZ;
- Jazan SEZ; and
- Cloud Computing SEZ.

Accordingly, with the launch of the four new SEZs, KSA will have a total of five SEZs, noting that as per the ECZA this is the first wave of the SEZs in KSA. In launching these SEZs, which support a wide range of industry sectors and business activities, KSA offers a platform for investors to accelerate their regional and international growth through a globally connected market.

Oman's Telecommunications Sector in For a Major Leap

Oman's IT infrastructure and telecommunications sectors are in for a major leap by 2026 as the ICT spending in the Sultanate of Oman is set to reach $3.23 billion in 2023 and $3.49 billion by 2026. According to the predictions released by International Data Corporation (IDC), ICT spending in the Sultanate is to grow from $1.30 billion in 2023 to $1.42 billion in 2026. This prediction further aligns Oman's endeavor to build ICT infrastructure to reduce the digital divide through its National Broadband Strategy, which envisions providing broadband service to more than 90 per cent of urban areas by 2030. "In order for the organizations in Oman to succeed in new market environments, they will need to invest in strengthening their digital resiliency so they are better positioned as conditions continue to change and this will help them navigate storms of disruption," says Jyoti Lalchandani, IDC's group vice-president and regional managing director for the META region. International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. Announcing the regional forecasts, the report further says that regardless of what the economy would be over the coming 12 months, the implementation of further digitalization in critical areas such as customer experience, operations and financial management, together with a more rapid shift to a 'digital business' approach will be key to separating the thrivers from the survivors. The report further elucidates that spending on Enterprise IT in Oman will reach $0.55 billion and consumer spending will reach $0.70 billion in 2023. "In a digital-first economy, where an enterprise's competitiveness is tied to its digital business model, leaders will avoid wholesale cutbacks in tech. Further, new tactics will be employed as tech leaders seek to realize maximum business value from their tech investments," the report substantiates.

Dubai is Proactively Developing Plans to Accelerate Digital Growth

Dubai is proactively developing plans to accelerate its ambition to become one of the world's leading digital economies, according to Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince and Chairman of The Executive Council of Dubai. "Dubai is steadily reinforcing its position as a global hub for cutting-edge technologies and a major center for digital business models and transformational initiatives," Hamdan said at the second meeting of the Higher Committee for Future Technology and Digital Economy. "Dubai is proactively developing plans to accelerate digital growth and adopt new technologies." Hamdan said part of the plan to transform Dubai into a "leading global digital economy hub" is to adopt new technologies through collaborative partnerships between government entities, international businesses and the broader private sector. "Our directives are aimed at accelerating our plans to achieve this goal and make Dubai one of the top 10 digital economies in the world, aligning with the Dubai Economic Agenda D33," Hamdan also said on Twitter. In April 2022, Dubai launched the "Digital Economy Strategy", which seeks to double

the contribution of the digital economy to the UAE's gross domestic product (GDP) to nearly 20% within 10 years. The country's digital economy is forecast to grow to more than $140 billion in 2031, up from $38 billion in January 2023, according to a Dubai Chamber of Digital Economy report.

UAE Spending on Digital Technology to Hit U$20 billion by 2026, BCG Says

Spending on digital technology, including IT, telecoms and emerging tech such as artificial intelligence, Internet of Things, blockchain and robotics, in the UAE over the next three years is expected to reach $20 billion, according to a new report by the Boston Consulting Group. Digital technology is projected to have accounted for more than two thirds of productivity growth over the past decade, and will account for 25 per cent to 30 per cent of global gross domestic product (GDP) over the next decade, the report said. The UAE is well positioned to double the contribution of its digital economy to GDP to 19.4 per cent from 9.7 per cent within the next 10 years, according to BCG. "We the UAE 2031 strategy", the government's vision for the next decade, will further support the country's digital economy strategy, the global consultancy added. The UAE's digital economy is expected to grow to more than $140 billion in 2031, up from nearly $38 billion at present, according to a recent report by the Dubai Chamber of Digital Economy. The UAE Cabinet also approved the formation of the Higher Committee for Government Digital Transformation last year. Advances expected from the use of automation, robotics and a "historic explosion of data and intelligence in the coming years" present significant opportunity for unprecedented disruption and wealth creation in the UAE, according to the BCG report. "For government decision makers, the digital economy's expansion carries major strategic implications," it said. "Positioning economies appropriately can help them remain competitive, overcome productivity lags and maintain resilience against internal and exogenous shocks." Dubai, which is seeking to cement its position as a global capital of the digital economy, recently launched the ambitious Dubai Economic Agenda (D33) plan. The strategy aims to catapult the city into the world's top cities by economic strength in the next 10 years and envisages a program to support 30 private companies to achieve unicorn status — worth more than $1 billion (about Dh3.67 billion). The D33 plan also unveiled "Sandbox Dubai" to harness the testing and commercialization of new technologies and promote Dubai as a market-leading innovation hub, BCG said. "In a rapidly transforming world, new agile governance structures are required to prioritize considerations around how digital ecosystems can help various sectors grow," Faisal Hamady, managing director and partner at BCG and co-author of the report, said. "The digital sector's multi-trillion-dollar expansion leaves leaders and decision-makers with only two options: adapt to its accelerating pace or be left behind. "Thus, by considering how systems can change at the same pace as technology, governments can recalibrate the regulatory framework for a digital-first world." This approach can help lead to the "right investments" in infrastructure, specifically in emerging value pools, to spur innovation and economic opportunity, Mr. Hamady added. Policies that encourage investments in digital infrastructure and research and development into frontier technologies, such as AI and robotics, and create an environment for innovation that trains or attracts highly skilled and specialized talent must be emphasized, the report said. By collaborating with other public entities to align strategic priorities, governments can help address wide-ranging issues that are gaining prominence such as digital inclusion, social prosperity and questions around digital ethics. "For governments, the digital economy is not an elective. It marks a profound departure from the way that economies have historically been organized and regulated," Mr. Hamady said. "Tackling this brave new world head-on will prove essential to remaining competitive and relevant on the global scene."

The Dubai Economic Agenda D33 includes 100 transformational projects. The first package of transformational projects for the next decade includes:

1. doubling the size of Dubai's Foreign trade and adding 400 cities to Dubai's foreign trade map
2. launching Dubai's plan for green and sustainable manufacturing
3. launching Dubai's Future Economic Corridors 2033 with Africa, Latin America, South East Asia
4. launching a scale-up programme for 30 companies to become global unicorns in new economic sectors
5. integrating 65,000 young Emiratis into the job market
6. launching Dubai Traders project to empower the new generation of traders in key sectors
7. launching Dubai's unified licence as a unique commercial identity for all companies all over Dubai
8. launching 'Sandbox Dubai' to allow testing and commercialisation of new technologies and making Dubai a major innovation hub
9. launching a programme to attract the world's best universities, making Dubai a global pioneering hub for higher education
10. developing a Small and Medium Enterprises scale-up programme by identifying 400 high-potential companies, supporting their capacity building, and supporting them to grow globally.

ARTICLE

5.5G Era, a Key Milestone for the Intelligent World

The implementation of 5G technology in the Middle East region has been ongoing for over four years, resulting in the launch of 17 commercial networks with over 20 million 5G users, including 2.3 million home mobile broadband users and 57,000 business users. The introduction of 5G has provided significant benefits to the carriers, as new services and scenarios targeting consumers, homes, and businesses have continued to emerge. Also, as the industry's digitalization accelerates, the networks will face a growing array of new requirements for diverse sets of industry-specific digital use cases, leading to demands for new features to bridge the functionality gaps in an immersive experience, industry capability, and all-scenario IoT connections. Therefore, the telco industry stakeholders have already agreed to the 5G evolution.

> *Huawei refers to the combination of wireless, fixed and IP network evolution, ADN Level 4 and green development as the 5.5G era.*

To ensure ubiquitous superior experience and efficiency in operating a complex network while meeting the ICT low carbon target, Huawei believes that aligning technology evolution in other network domains, further developing the Autonomous Driving Network (ADN) to a higher level, and fully adopting green ICT development are essential. Huawei refers to the combination of wireless, fixed and IP network evolution, ADN Level 4 and green development as the 5.5G era.

The 5.5G wireless technology concept was first introduced by Huawei in 2020, and 3GPP officially launched 5G-Advanced in 2021. 5.5G is now defined as the next evolution of 5G, and Huawei is working with 3GPP and partners to drive the 5.5G standards development. In 5.5G, new features, such as functions for better uplink traffic, true real-time communication, and more harmonized communication, will be introduced, enabling many digital use cases, such as transmitting a large volume of high-resolution video images in real-time without any quality degradation, making holographic communication a reality, using wireless sensing technology for road-Vehicle communication, and deploying passive-IoT devices managing smart warehouse and logistic tracking, which will open up new business opportunities for the carriers.

An Jian
President of Huawei Carrier Business Group in the Middle East and Central Asia Region

HUAWEI

In addition, within the optical network (fixed network), to meet network connection requirements for higher-than-gigabit bandwidth, ETSI released the F5G Advanced and Beyond White Paper in 2022, and WBBA (World Broadband Association) released the next-generation broadband development roadmap. The evolution from 1Gbps to 10Gbps has gradually become a consensus in the industry. Huawei has also raised the concept of F5.5G in 2022. The F5.5G aims to enable fibre everywhere to provide a 10Gbps fibre experience, industry-level RRL, all-optical architecture, and high-precision optical sensing. New features, such as a greener agile fibre optical network and optical sensing and visualization, will be added onto existing features, including enhanced fixed broadband experience, full fibre connections, and guaranteed reliable experience.

The evolution of IP networks will go hand in hand with both wireless and fixed network technologies. Huawei has been working with World Broadband Association(WBBA) and Network Innovation and Develop Alliance(NIDA) to formulate Net5.5G, which will be the first official technical specification for all IP-related features. The key features will include WiFi7, 800GE to enable 10Gbps experience, End-to-End SRv6, and network slicing as part of IPv6 Enhanced feature, and AI fabric DCN to fully release AI computing power. The Autonomous Driving Networks (ADN) L4 will include digital map, intelligent on-call construction, and fault self-healing. Cloud-based security-as-a-Service with intelligent detection will ensure ubiquitous security across the whole network.

As a part of the 5.5G Era, our objective is to provide support to carriers in achieving Autonomous Driving Network (ADN) Level 4. This will be accomplished by introducing a range of AI and big data-powered digital operation applications. These innovative network/ICT services will be designed to automate processes with zero wait time, zero-touch, and zero trouble. This will benefit both vertical industries' users and consumers by supporting self-configuration, self-healing, self-optimizing, and self-evolving telecom network infrastructures. The autonomous driving network at level 4 will make decisions based on various factors such as cost, energy efficiency, and network availability. For instance, if there is a sudden surge in network traffic, it will automatically adjust its resources to ensure uninterrupted service.

In 2022, Huawei collaborated with leading carriers and industry partners in Europe, the Middle East, and Asia Pacific to innovate on 5.5G, F5.5G, and Net5.5G. During this process, we explored various business scenarios and verified key technologies such as Passive-IoT, U6GHz & mmWave spectrum, 400G and 50GPON. In addition, several carriers have also started working with Huawei on the design of use cases for ADN L4 and green ICT solutions.

We are also aware of the increasing need for sustainable growth and environmental impact awareness among ICT service providers. Hence, we will introduce a green ICT development program as an integral part of the 5.5G era. This program will enable operators to manage both active and idle scenarios through site, network, and operation, using a green indicator system, and deploy three layers of solution deployment to reduce carbon emissions while ensuring zero impacts on customer experience.

In 2022, Huawei collaborated with leading carriers and industry partners in Europe, the Middle East, and Asia Pacific to innovate on 5.5G, F5.5G, and Net5.5G. During this process, we explored various business scenarios and verified key technologies such as Passive-IoT, U6GHz & mmWave spectrum, 400G and 50GPON. In addition, several carriers have also started working with Huawei on the design of use cases for ADN L4 and green ICT solutions.

We believe that working together with carriers and industry partners worldwide is essential to evolve ICT infrastructure, lay the foundation for the 5.5G era, which will enhance the user experience by tenfold, extend carriers business from connectivity to sensing, support all scenario IoT connectivity, achieve L4 high autonomy network with full stack AI native ADN transformation, and meet carriers' sustainability objectives with green development solutions. In the Middle East, Huawei is committed to supporting countries in achieving their visions of digitization and sustainable development, while also helping them become leaders in 5.5G deployment. We are dedicated to creating new value and driving innovation in the ICT industry through collaboration with our partners.

ARTICLE

The Backbone of Digital Ecosystem: Exploring the Vital Role of Telecoms in the Digital Ecosystem and the Importance of Data Management

Tarinder Pal Singh
Senior Director, Protiviti Member Firm
for the Middle East Region

protiviti®
Global Business Consulting

The digital economy and digital ecosystem have become integral to the modern world. The rise of digital technologies has revolutionized how businesses operate, and telecom companies have played a crucial role in this transformation. In this article, we will explore the impact of digital technologies on the economy, the concept of digital ecosystems, and the role of telecom companies in shaping the digital economy.

The Digital Economy

The digital economy encompasses many activities that rely on digital technologies, such as the internet, mobile devices, and other digital platforms. It encompasses all economic activities that use digital technologies to create, distribute, and consume goods and services. This includes producing, distributing, and consuming goods and services delivered through digital channels.

> *The digital economy has become an essential driver of growth and innovation in recent years. It is estimated to be worth $23 trillion by 2025.*

Digital technologies have significantly impacted the economy by enabling businesses to reach new markets and customers, reducing costs, and improving efficiency. Digital technologies have also transformed the nature of work, created new job opportunities, and changed how people work. The digital economy has become an essential driver of growth and innovation in recent years. It is estimated to be worth $23 trillion by 2025.

The Digital Ecosystem

A digital ecosystem refers to the interconnected network of digital services, products, and platforms that enable businesses to operate in the digital economy. Digital ecosystems comprise various components, such as cloud services, mobile apps, social media platforms, and e-commerce websites.

> *Digital ecosystems are essential because they enable businesses to reach new customers and markets, reduce costs, and improve efficiency. By providing access to a range of digital services and platforms, digital ecosystems enable businesses to focus on their core competencies and leverage the capabilities of other companies in the ecosystem.*

Digital ecosystems are essential because they enable businesses to reach new customers and markets, reduce costs, and improve efficiency. By providing access to a range of digital services and platforms, digital ecosystems enable businesses to focus on their core competencies and leverage the capabilities of other companies in the ecosystem.

The Role of Telecom Companies

The telecommunications sector has made significant progress since its inception, back from the days of landline phones and dial-up internet. Today, the industry is not only focusing on delivering high-speed internet access, and mobile connectivity but also building digital services for the ecosystem. One of the most significant changes in the telecom industry has been the shift from traditional voice and messaging services to data-centric services. The growth of cloud computing, big data, and the rapid growth of data usage due to the Internet of Things (IoT) has necessitated that telecom companies adjust their strategies to keep up with the demand. This has resulted in the widespread deployment of high-speed broadband networks, both wired and wireless, to enable the delivery of digital services.

> *Telecommunications companies have a significant role in the growth and evolution of digital ecosystems beyond just providing network connectivity. The companies provide the platforms and services that enable businesses to operate in the digital economy, such as cloud services, mobile apps, and e-commerce platforms.*

Telecommunications companies have a significant role in the growth and evolution of digital ecosystems beyond just providing network connectivity. The companies provide the platforms and services that enable businesses to operate in the digital economy, such as cloud services, mobile apps, and e-commerce platforms.

The role of telecom in the digital economy and ecosystem cannot be overstated. Telecom companies are the backbone of the digital ecosystem, providing the infrastructure and connectivity that enables digital activities. Through bandwidth, connectivity, and data services, telecom companies facilitate digital communication, collaboration, and transactions for individuals and businesses. Looking ahead to 2025, several trends and predictions will shape the digital economy and ecosystem and the role of telecom companies in them.

Here are some of the most noteworthy ones:

1. 5G networks will become widespread: 5G networks will provide faster, more reliable connectivity, enabling new digital experiences and applications, such as virtual and augmented reality, and advanced robotics.
2. The Internet of Things (IoT) will continue to grow: IoT devices, such as smart home appliances, wearables, and industrial sensors, will become more widespread, creating new opportunities for businesses and consumers alike.
3. Artificial intelligence (AI) and machine learning (ML) will become more prevalent: AI and ML will increasingly be used to automate tasks, improve decision-making, and create more personalized customer experiences.
4. Cybersecurity will remain a top priority: As digital activities continue to expand; cybersecurity threats will become more complex and sophisticated. Telecom companies will be crucial in providing secure networks and protecting digital assets. As more data is transferred and stored online, cybersecurity measures will be needed to protect against cyber-attacks and data breaches.

> *As digital activities continue to expand; cybersecurity threats will become more complex and sophisticated. Telecom companies will be crucial in providing secure networks and protecting digital assets. As more data is transferred and stored online, cybersecurity measures will be needed to protect against cyber-attacks and data breaches.*

5. Digital payments and blockchain will become more mainstream: Digital payments will become more common, and blockchain technology will enable new forms of digital transactions and asset management.
6. Increased collaboration between telecom and other industries: The growth of the digital economy and ecosystem will lead to increased collaboration between telecom and other industries such as healthcare, transportation, entertainment, e-commerce, and many more.
7. There will be increasing importance of data and analytics in the digital economy. As more businesses and consumers go online, vast amounts of data are generated daily. Telecom companies are well-positioned to capture and analyze this data and

achieve their digital strategy to enhance customer experience, bring innovations in new product and service development, digital marketing and sales, advanced risk optimization, and enhanced cross-industry collaboration. However, to extract maximum value from this data, telcos need a robust data strategy that is aimed at integrating diverse data sources, integrating diverse types of data, and simplifying the data landscape supported by data management and governance practices across the data lifecycle right from data ingestion, data processing, data storage, and data consumption.

A Telcom company's path to becoming a data-driven organization:

The journey to becoming a Data -Driven organization has 6 key elements as mentioned below:

1. Data Strategy that has a vision, mission, goals, and measurable KPIs.
2. Locating and Governing data across the telco, assigning ownership and setting up a data management office, and defining data governance framework.
3. Data Quality & Enrichment – Assessing the quality of data domains and sub-domains and having a program thereafter to cleanse and enrich the data.
4. Master Data Management – Having business and IT stakeholders collaborating to ensure accuracy, stewardship, consistency, and accountability of master domains relevant to the Telecom company – Customer, Product, Channel and Partners, Network, Employees, Inventory, etc.
5. Architect and Implement Platform – Understanding current reporting requirements and data ambitions of the telco to define the data architecture and implement the data platform.
6. To create value, companies can enhance their capabilities by developing data proficiency, recruiting, and training personnel, implementing effective data management protocols, and instituting a change management program that prioritizes superior data quality, infrastructure, monitoring and operations, insights, and adoption.

Conclusion

In conclusion, the digital economy and ecosystem are rapidly evolving, and telecom companies are at the forefront of this transformation. As we look ahead, we can expect to see continued growth and innovation in the digital space, driven by innovative technologies, applications, and business models and telecom companies would play a crucial role in this transformation by providing network connectivity, developing digital platforms, and services, and investing in research and development, telecom companies are driving innovation and shaping the digital economy. However, telcos need to realize that data is the bedrock of digital enablement and that to realize the true potential of this gold mine of data, a robust data strategy supported by a data governance program that is an integral part of business processes and thought processes will be well-positioned to thrive in the digital economy of the future.

As we look ahead, we can expect to see continued growth and innovation in the digital space, driven by innovative technologies, applications, and business models and telecom companies would play a crucial role in this transformation by providing network connectivity, developing digital platforms, and services, and investing in research and development, telecom companies are driving innovation and shaping the digital economy.

SATELLITE NEWS

Inmarsat and MediaTek Expedite the 5G Phone's Route to Satellite

Comms specialist Inmarsat and chip maker MediaTek have upped the ante in their joint mission to connect the world's phones, IoTs and all things 5G to satellite services so they can network over the air, land and sea. In this latest initiative the comms collaborators have signed a Memorandum of Understanding (MoU) over joint inventions and the commercial use of satellite-enabled devices. This follows on from three years of joint ventures where they have conducted a succession of fruitful live, in-orbit trials of two-way communications. These have proved how effective their combined technologies and space assets are in real-life applications, they claimed. According to MediaTek the pair have expedited the convergence of cellular and satellite networks for the 5G era, along the guidelines of 3GPP standards, inventing new options by fine tuning the data connections needed for vertical markets such as the internet of Things (IoT). The latest progress report from the duo claims that Inmarsat's L-band satellite network and MediaTek's chipsets are on trial with major network operators and device manufacturers for direct-to-device, two-way satellite connectivity. Ultimately they want to set up mobile operators, smartphone makers and the broader IoT ecosystem to offer satellite services, including two-way text messaging, emergency communications, device tracking and monitoring, without the need for pointing on most devices. Jat Brainch, pictured above, the chief commercial and digital officer at Inmarsat said MediaTek is helping to set up simple, pain-free two-way communications between satellites and devices, whether they are to smart phones or smart homes. "Our network holds real potential to support a revolution in direct-to-device, IoT and car connectivity and we are delighted to be partnering with MediaTek, a recognized world-leading innovator in 5G NTN technology," said Brainch, "jointly we can bring 5G satellite services to consumer and professional users across the world." MediaTek is the standard bearer for 3GPP NTN standards, according to JC Hsu, corporate vice president of MediaTek. "The unique qualities of Inmarsat's narrowband satellite network and the spectrum capacity will support a multitude of new devices and services," said Hsu.

Viasat Connects 5 Earth Stations to Microsoft Azure

The global Viasat Real-Time Earth (RTE) ground service is now accessible through the Azure marketplace, providing high-speed connectivity directly to the Azure cloud platform. Viasat is equipping five RTE sites with Azure. Viasat RTE provides Ground-Station-as-a-Service (GSaaS) capabilities to connect commercial and government customers with their satellites on a pay-per-use basis. It is a fully-managed, cost-effective ground network that enables operators with geosynchronous orbit (GEO), medium earth orbit (MEO) and low earth orbit (LEO) satellites using the S-, X- and Ka-bands, to meet increasing data requirements. Satellite operators are able to schedule passes on RTE antenna systems and will soon be able to rely on secure end-to-end connectivity with Azure over the private Microsoft WAN. This solution is ideal for commercial satellite operators seeking high throughput, low latency connectivity with their spacecraft, coupled with the security and resiliency of the cloud. "Viasat Real-Time Earth is enabling remote sensing satellite operators who are pushing the envelope of high-rate downlinks," said John Williams, vice president Viasat Real-Time Earth. "Our strong relationship with Microsoft enables those same customers, through increased access to our ground service, Azure Orbital, and a dependable, high-speed terrestrial network, to reduce the time it takes to downlink and deliver massive amounts of data." "The new capabilities Microsoft Azure Orbital brings together with Viasat RTE are transformational for ground stations and customers pushing for rapid innovation like True Anomaly," said Stephen Kitay, senior director, Azure Space at Microsoft. "This collaboration plays a role in increasing resiliency and reducing latency with real-time streaming across the space community."

Astrocast and Yahsat's Thuraya Strengthen Collaboration Through a Strategic Investment in LEO IoT

Astrocast, a leading global nanosatellite IoT network operator announced that the company has concluded Heads of Terms for an investment agreement with Thuraya Telecommunications Company, the mobile satellite services subsidiary of the UAE's flagship satellite solutions provider, Al Yah Satellite Communications Company PJSC, the UAE's flagship satellite solutions provider listed on the Abu Dhabi Securities Exchange. The transaction will be in the form of a convertible loan valued at US$17.5 million and marks Thuraya's first investment in a LEO satellite constellation. As part of the agreement, both parties will also look to extend a technical cooperation agreement for another four years that was originally entered between Astrocast and Thuraya in 2019. Astrocast operates a leading global nanosatellite IoT network with a focus on enabling low power wide area connectivity solutions across core industries including Transportation & logistics, Oil & Gas, Utilities, Mining, Forestry, Agriculture, and Maritime. The agreement with Astrocast aims to strengthen Thuraya's positioning in the IoT market and help expedite the execution of its strategy for satellite-enabled IoT. The overall IoT market is projected to grow at a CAGR of 22% over the next four years to US$ 525 billion and the satellite IoT business is forecasted to generate cumulative revenues of US$ 6 billion over the same period. The strategic transaction with Astrocast represents a compelling opportunity for Thuraya to increase its exposure to a fast-growing sector that is still significantly under-penetrated and has a long runway for growth. "We look forward to working together with Astrocast to execute this strategic investment which highlights our continued belief in the outsized impact of the IoT sector for the space and satellite industries. We are pleased to further strengthen our relationship with Astrocast as we mutually explore ways to expand our service offering across GEO and LEO assets to unlock greater growth potential. Through this agreement, we are committed to enabling innovative solutions in the Maritime, Energy, Logistics, Transportation, Mining and Agriculture industries," said Ali Al Hashemi, Group Chief Executive Officer of Yahsat. "We are delighted to have secured this agreement with Thuraya, as we anticipate their support and expertise in guaranteeing Astrocast's success in the low-power narrowband IoT market in the future. Our partnership with Thuraya has been solid for the past four years, and their continuous support is incredibly important to us. In addition, collaborating on creating new products and applications and leveraging the Thuraya distribution network will expedite the expansion of our customer ecosystem," added Fabien Jordan, Founder & Chief Executive Officer at Astrocast.

New Satellite Constellation for Moon-to-Earth Comms to Launch by 2025

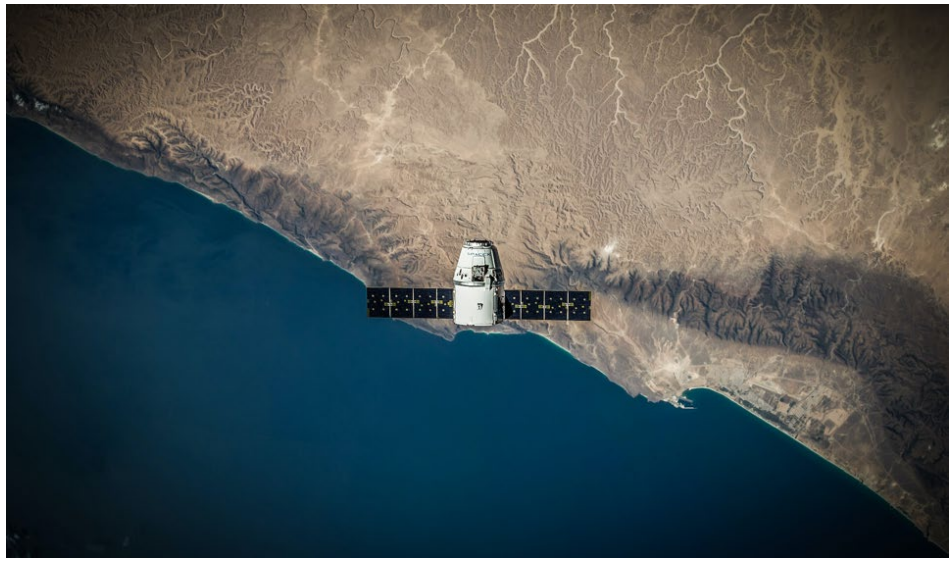
With NASA aiming to establish a permanent colony on the Moon with its upcoming Artemis missions, it will need a robust communication network linking it to Earth. Lockheed Martin has just announced that it believes it has the solution to NASA's communications requirements with its new Parsec Moon-to-Earth satellite network. The new network is in development by the Lockheed Martin spinoff Crescent Space. The Parsec network will utilize a constellation of small lunar satellites to provide 24/7 connectivity and navigation capabilities for astronauts, their equipment, and mission control on Earth. Lockheed Martin explains in a press statement that the new technology could prove to be vital for future lunar explorers as it could provide a form of lunar GPS. It would essentially allow astronauts to know their exact position and the direction back to base. Lockheed Martin said it will provide the satellites and that Crescent Space's first Parcec nodes should be operational by 2025. Improving navigation on the Moon Crescent Space is looking to secure important customers for its network, with CEO Joe Landon, formerly of Lockheed Martin, stating the firm is "well positioned" to support NASA's Artemis Moon landings. The company isn't the only one building a GPS-like system for the Moon, however. Surrey Satellite Technology Ltd is also developing a satnav satellite for the Moon. Private firm Draper, meanwhile, the first company to secure a private contract with NASA for its historic Apollo missions, is also developing a navigation system that will track an astronaut's route through the harsh terrain of the lunar south pole, allowing them to pinpoint their location. The key difference is that that system will not rely on satellites. NASA will, of course, slowly build up to that permanent presence on the Moon. The space agency will perform a crewed lunar flyby with its Artemis II mission next year before aiming to finally send humans back to the lunar surface with its Artemis III mission in 2025. Artemis III will send the first woman and the first person of color to the lunar surface, and it will be the first mission to land humans on the Moon since Apollo 17 in 1972.

Intelsat 40e Enters Geosynchronous Orbit

Intelsat 40e (IS-40e), a geosynchronous satellite that relies on spot-beam technology to provide a large amount of capacity over North America for Intelsat's commercial aviation, mobility and network service customers, was successfully launched aboard SpaceX's Falcon 9 rocket from Cape Canaveral Space Force Station in Florida at 12:30 a.m. "The IS-40e high-throughput technology serves as a significant commitment to our North American commercial aviation, mobility and network customers," said Dave Wajsgras, CEO at Intelsat. "As we continue to refresh our fleet of satellites and add capacity, Intelsat is focused on providing the best value and service for our customers and their end users. The satellite also includes a NASA payload that will be the first instrument to monitor air pollution across North America from geostationary orbit." The Maxar-manufactured IS-40e satellite will be positioned at 91 degrees West and deliver a wide range of services and coverage. In addition, IS-40e hosts NASA's, "Tropospheric Emissions: Monitoring Pollution" or TEMPO payload. Operated by Intelsat, the TEMPO instrument will monitor and track air pollution across North America on an hourly basis with the ability to stay over a region of interest during a natural disaster like a major fire or volcano eruption.

China to Develop Satellite Constellation for Deep Space Exploration

China will develop a satellite constellation named Queqiao, or Magpie Bridge, to provide communications, navigation and remote-sensing services for deep space exploration, according to a senior Chinese space expert. Speaking at the First International Deep Space Exploration Conference held in Hefei, the capital of east China's Anhui Province, Wu Yanhua, chief designer of the major project on deep space exploration, said that China plans to build the satellite constellation in three phases. A pilot of the constellation will be built around 2030 to support the fourth phase of China's lunar exploration program and the construction of the International Lunar Research Station. And a basic constellation will be built around 2040 to realize regional navigation and provide services for manned lunar exploration and deep space exploration for planets such as Mars and Venus, Wu said. The satellite constellation is expected to be built into an expanded model around 2050 to provide services for exploring Mars, Venus, giant planets, as well as the edge of the solar system, Wu added. As a part of the constellation, Queqiao-2, or Magpie Bridge-2, a relay satellite for communications between the far side of the moon and Earth, is planned to be launched in 2024, according to the China National Space Administration (CNSA). The satellite will serve as a relay platform for the fourth phase of China's lunar exploration program, providing communications services for Chang'e-4, Chang'e-6, Chang'e-7, and Chang'e-8 missions. According to Yu Dengyun, an academician with the Chinese Academy of Sciences (CAS), the future Magpie Bridge constellation will be a space infrastructure and public service platform built and operated in deep space. It will feature the capability of efficient communications, navigation, in-orbit computing, and information storage, etc. During the conference, China's Deep Space Exploration Laboratory launched a global call for proposals for the design of the Magpie Bridge constellation in a bid to gather new ideas and solutions for the future satellite constellation. The International Deep Space Exploration Conference, hosted by the Deep Space Exploration Laboratory, is one of the major activities held to celebrate the Space Day of China, which falls on April 24. The two-day event invited more than 500 guests from 14 countries and regions.



TMRW FOUNDATION: INSIGHTS FOR SAMENA TRENDS

Developing a Human-centric Future

Cevat Yerli
Founder, Chairman & CEO
TMRW Foundation

THE TMRW FOUNDATION

The TMRW Foundation's Cevat Yerli Leads Transformation from Web 2.0 to 3D Next- Generation Internet Solutions with "Internet Of Life™"

Yerli leads The TMRW Foundation, steering 300+ patents on a mission to develop a human- centric future for Web3 — The Internet of Life — unlocking the unlimited potential of human communication for the next generation of the internet. Cevat is the founding CEO of ROOM 3D, the lifelike 3D video communication software powered by new cinematic communications 3D engine platform RealityOS™.

> *We're a hybrid tech company that's steadfastly focused on developing technologies, products and services that combine gamification, digitalization and urbanization — ensuring that humanity's relationship with the Internet of the future is one that makes their lives better, that we unlock unlimited potential for togetherness and human communication with this great opportunity — responsibility — we've been given.*

Yerli is set to deliver a keynote speech at SAMENA Leaders' Summit 2023 and in advance of the engagement SAMENA Council sat with him to offer an exclusive interview on the rapidly evolving landscape facing telecommunications with the onset of the Internet's third generation, Smart Cites and Digital Twins.

SAMENA TRENDS:
Let's begin by exploring The TMRW Foundation's background: How has the foundation's mission and vision evolved?

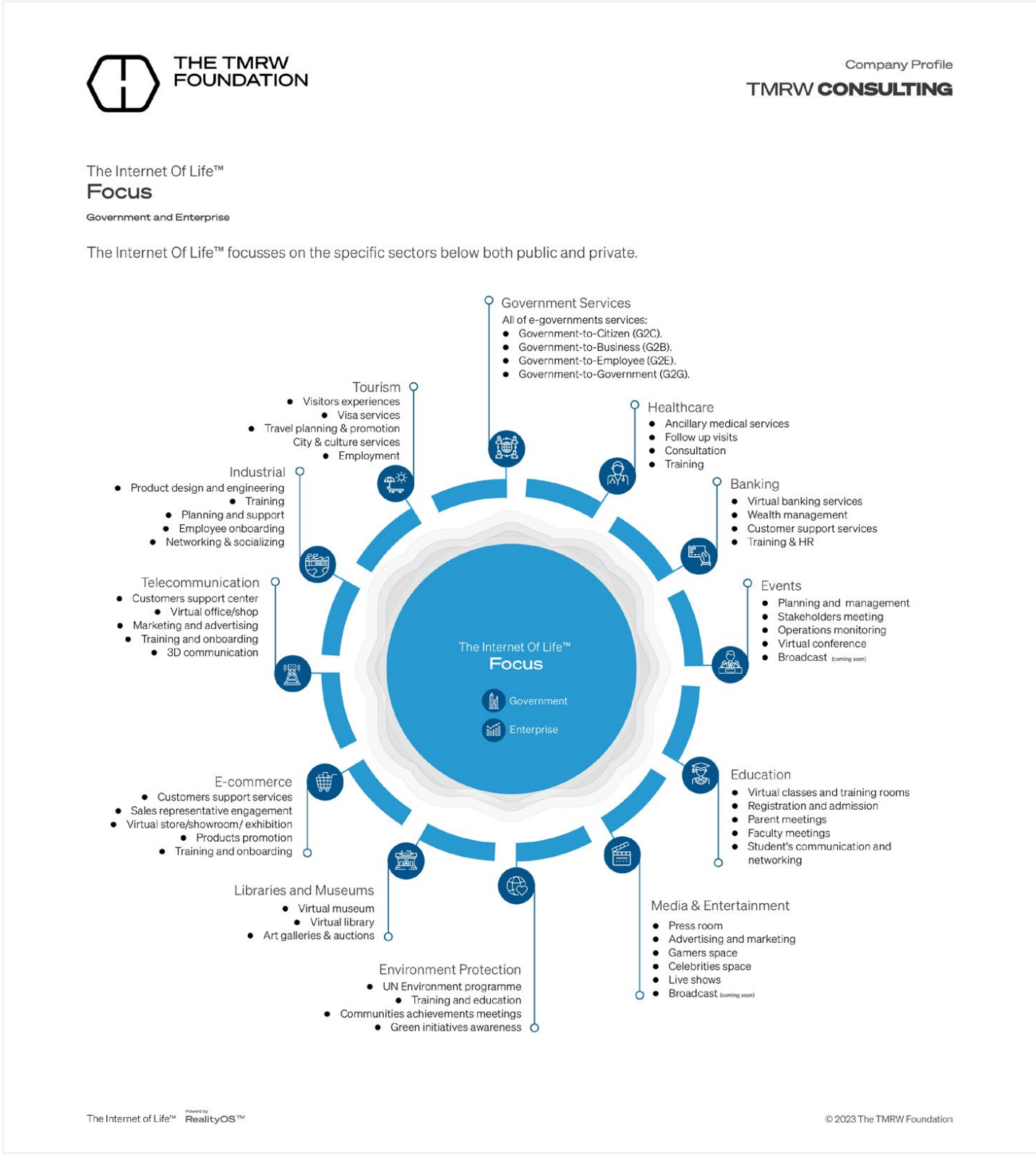
Cevat Yerli, Founder, Chairman & CEO The TMRW Foundation:
Because of our responsibility to coming generations — I have a responsibility to my kids — we built a business that actually creates benefit for planet and people and makes sustainable profits in the process. Those were the founding parameters of the TMRW Foundation. Our vision is to build foundational technology that can empower future generations — and ours of course — with solutions to ensure that they can live a life where they thrive in the digital frontier as opposed to falling prey to interests that that exploit tech prowess for profit at the cost of human benefit.

SAMENA TRENDS:
Let's talk about the transition from the 2D informational web to the 3D immersive future of Web3, digital twins and smart cities. What is a digital twin and, does it have anything to do with the Metaverse?

Yerli:
We're looking at three major disruptions that are going to happen:

First, it's entertainment's evolution as influenced by gaming and different siloed escapisms transforming into a much more seamless, interoperable and asset ownership-based entertainment world. This is where the future of entertainment lies in the metaverse. Second, we have realities extending from physical realities

to smart realities, smart cities and further afield to super-realities: intelligent realties with AI empowerment, digital twins as the infrastructure element and augmented reality to enhance experiences farther — a virtual-twin reality. The third disruptive layer is humanity's rapidly evolving relationship with the next generation of the Internet — and most importantly, how our human relationships can be made better through thoughtful and sustainable development of the next web's new frontier, one benefiting people and planet while supporting sustainable profit— our vision for this better future is called The Internet of Life. It's time to bring people together in a real-time digital way, just like in real life.



SAMENA TRENDS:
What are some of the ways that cities are using digital twins to enable intelligent services?

Yerli:
When you look at cities, major opportunity lies in building an infrastructure based on the digital twin paradigm, what we call the virtual twin reality. These cities have the opportunity to build entire operations as an operating system atop a virtual twin reality, connected to the physical city itself, as a platform. The city can lay out zones for certain things and say, OK, here you can do advertisements, here you can do gaming, here you can create, then developers can

THE TMRW FOUNDATION

Company Profile
TMRW **CONSULTING**

The Internet Of Life™
Benefits

The Internet Of Life™ will benefit people, enterprises, and governments worldwide since they can experience a rich digital life grounded in getting results and solving major challenges.

For People

Experience:

- Communication without geographical restrictions.
- Education and training.
- Unique marketing experiences.
- Simplified transactions.
- Specialized services.

New job categories and skills:

- New jobs enabling the virtual economy.
- New audiences & communication skills.
- New Marketing & advertising tool sets.

New income:

- Broadcast content on social media
- 3D assets development
- Leverage multiple features for project management, coaching, and teaching.
- Higher audiences reach.

For Enterprise

New revenue streams and business models:

- Building an engaging customer experiences.
- Launching new sales channels such as virtual stores.
- A remarkable model for marketing and advertising campaigns.

New ways of working:

- Access to global talent.
- Practice new ways to communicate and collaborate remotely.
- Introducing new methods of training/preparation.
- Increase talent retention.

Improve operation:

- Improve operation and efficiency.
- Reduce overhead.
- Cooperative empowerment.

For Government

New channel of public services:

- Lifelike citizen services, such as health care and customer service.
- Facilitate ministry, consular and embassy transactions.
- Promoting tourism and hosting cultural events.
- Improving the quality of life of citizens.

Urban planning:

- Improve city planning and design such as traffic management and green spaces.
- Reduce emissions and plan how to achieve climate change targets.

Future skills development:

- Capacity-building for government service employees.
- Collaboration with the community.
- Improved administrative efficiencies.
- Humanized digital experience.

Virtual experience adoption

Metaverse initiatives implemented to date, by industry,[1] % of senior executives in each industry

Adoption level
High (>70%) Medium (40–70%) Low (<40%)

Industry	Marketing campaign or initiatives	Learning and development for employees	Meetings in the metaverse	Events or conferences	Product design or digital twinning	Recruiting or onboarding new employees
Technology	68	64	54	64	54	39
Media and telecommunications	82	36	36	43	54	18
Advanced industries	64	55	36	64	64	36
Financial sector and insurance	67	63	56	49	56	25
Consumer, AF&L, and retail	95	56	59	41	50	41
Energy and materials	54	85	69	46	69	31
Healthcare and public sector	10	59	79	72	59	38
Tourism, transport, and logistics	56	78	56	78	56	44
Total sample	67	63	53	52	52	31

Q: What metaverse features or capabilities have you implemented in your company to date? (n = 258).
Source: McKinsey & Company Senior Executive Survey, April 2022

The metaverse will significantly impact our commercial and personal lives

$120b+
in investment has flowed into the metaverse so far in 2022

97%
of consumers active on the metaverse have made a purchase

>15%
of corporate revenue is expected to come from the metaverse in the next 5 years according to 25% of senior executives

https://www.mckinsey.com/capabilities/growth-marketing-and-sales/our-insights/value-creation-in-the-metaverse

The Internet of Life™ Powered by RealityOS™

use those twins in a guided way — a safe way — to launch AR applications.

SAMENA TRENDS:
So if I'm a constituent in a supercity powered by digital twins, what can I expect life to look like? Why should I be excited?

Yerli:
I think it's going to be amazing. I look at everything through the lens of my kids. It's all about responsibility to the next generations and we have to do the right thing for the right reasons, this future should be about empowerment of citizens. If you want to empower, you have to engage citizens in every stage of civic life: and the way to engage them is to speak their language. Right now, we have 3 billion gamers. In ten years we're going to be 6 billion, and in another ten years, maybe the whole planet will be full of gamers. So if you want to harness that potential, cities have to become sort of a game-like experience,

It starts with the city developing itself. For example, if I'm a city council and I want to launch a park, I might launch a park as a virtual twin, and first show the consequences of the development and let the citizens really experience it. Bring in the individual into the reality and let them play with it and then ask them, to not only vote for it but co-create it. Tell us what we should improve about the park. Like they might put a trash can here or there, maybe some more lights, here maybe a playground for the kids, so they can co-create. In this way citizen engagement will increase and happiness will also increase.

> *I look at everything through the lens of my kids. It's all about responsibility to the next generations and we have to do the right thing for the right reasons, this future should be about empowerment of citizens.*

The implications for the telecommunications industry are thrilling. On top of it all — an engine will be working for you, every second of your life — to improve the efficiency of your life, with really native AR. Twins provide the infrastructure for AR and AI and also for VR, meaning that now also you might invite friends to tag along with you from all over the world. They can teleport to your virtual twin reality as a ghost next to you, so you can walk around in a park in London with a ghost teleportation from Riyadh, for example, and in other projects you could have visitors coming from all over the world and have an experience with you in the Saudi kingdom.

SAMENA TRENDS:
Can you discuss The TMRW Foundation's plans for the future and how it's expanding its impact?

Yerli:
We're a hybrid tech company that's steadfastly focused on developing technologies, products and services that combine gamification, digitalization and urbanization — ensuring that humanity's relationship with the Internet of the future is one that makes their lives better, that we unlock unlimited potential for togetherness and human communication with this great opportunity — responsibility — we've been given. Our cinematic communications 3D engine platform RealityOS™ is already at work delivering solutions down this path.

That's the eventual path of life — The Internet of Life: Empowering people to connect and get together in a new way while making sure that this potential exists irrespective of socio-economic backgrounds, irrespective of religion and color. It's all focused on bringing people together to make the world a better place.

> *Yerli is set to deliver a keynote speech at SAMENA Leaders' Summit 2023 and in advance of the engagement SAMENA Council sat with him to offer an exclusive interview on the rapidly evolving landscape facing telecommunications with the onset of the Internet's third generation, Smart Cites and Digital Twins.*

WHOLESALE NEWS

TRA Oman to Regulate International Roaming in IoT Devices

The Telecommunications Regulatory Authority (TRA) has issued a directive for international roaming SIMs used in (Internet of Things) devices after consulting with relevant parties in the telecommunications sector. The IOT devices include sensors, lights, alarms, and cameras (all of which can be controlled from a smartphone) that are connected via IoT to provide 24x7 security. It also includes activity trackers or sensor devices that can monitor and transmit key health indicators in real time. The most popular IOT devices are Google Home, Amazon Echo, remote door cams, and Footbot which can measure indoor pollution. The TRA directive is aimed at licensees or service providers as part of the efforts to regulate international roaming for IoT devices, enhance the security level provided to beneficiaries, and protect their personal data. The directive states that the provider or importer can provide IoT devices with international roaming services or through local networks, provided that international roaming works on a temporary basis according to a number of obligations, provided they work using the subscriber identification card (SIM/E-SIM) from the licensee The subscriber will be allowed to use the international roaming SIM cards for these devices for a period not exceeding 90 days in local networks. Providers or importers of IoT devices operating in international roaming, in the event of a desire to extend it for more than 90 days, can apply to the authority to request an exception through the authority's website www.tra.gov.om.

China Mobile, KT Showcase 5G VoNR+ Call Service and VoNR Roaming

China Mobile and South Korea's KT Corp claimed a 'world first' by demonstrating 5G Voice-over-New Radio (VoNR) international roaming with 'VoNR+' call services at the China-Japan-Korea Tripartite Strategic Cooperation Framework Agreement (SCFA) Summit. China Mobile and KT connected their respective commercial 5G Standalone (SA) networks via IPX and 5G base stations at conference venues in Beijing and Seoul facilitating high-definition video roaming calls based on in-development VoNR+ specifications. To support migration 'from audio-visual communications to full-sensory communications', China Mobile Research Institute has proposed the VoNR+ architecture based on the 3GPP IMS data channel standard, aiming to give users a 'richer, interactive and high-definition video service experience.' According to the group: 'VoNR+ will bring enhancements to real-time communications at all fronts, transforming the communication from high-definition video calls to zero-trust and fully interactive real-time communications. Mobile devices will also expand from smartphones to a wide range of equipment such as wearable devices, appliances, automobiles, robots and more.' VoNR+ supports various new 5G voice service scenarios, with China Mobile demonstrating the following examples:

- Intelligent translation service featuring real-time communication between users of different languages
- 5G video customer service supporting users to manage activities through visual menus
- AR remote guidance service together with AR annotation functions in video calls 'enabling industry users to improve service efficiency'
- 'fun call' features enabling virtual avatar changes, animated gesture effects and emoji functions during video calls.

China Mobile introduced its commercial VoNR services ('5G New Calling') for Chinese smartphone users in April 2022, following extensive research, development and piloting in 2021.

Ukraine Starts Harmonization Of Legislation To Join EU Free Roaming Zone

The Ukraine-EU Association Committee in Trade Configuration has completed official procedures for amending the Association Agreement to enable Ukraine to join the EU mobile 'roam like home' zone, Ukraine's National Commission for State Regulation of Electronic Communications, Radio Frequency Spectrum & Postal Services (NCEC) announced. The next step is harmonization of Ukrainian laws with EU legislation on international roaming, with the country expected to join the roaming zone in 2024.

Vodafone and MTN Expand Roaming Partnership

Vodafone Ghana has announced an expansion of its national roaming service partnership with MTN to improve connectivity for customers throughout the country. The initiative, which initially began with a pilot program last year covering the Volta Region, has now been extended to cover the entire nation. The agreement is part of a wider plan by the Ghanaian government to facilitate universal access and accelerate the country's digital transformation by implementing a full national roaming regime among all operators in the country. Glo, the country's smallest mobile network operator by subscriptions, entered a nationwide roaming agreement with rival AirtelTigo in April 2022 in a bid to provide wider coverage and a faster mobile broadband experience for its customers. Welcoming the expanded agreement, Vodafone Ghana CEO Patricia Obo-Nai said: 'National roaming offers customers a greater choice of network providers. In 2022, we successfully collaborated with the government, the regulator, and MTN Ghana to pilot the national roaming service in the Volta Region. We are excited that this partnership has extended to other regions.'

Senegal Reveals National Roaming Plan

Senegal's telecoms regulator announced plans to introduce national roaming between operators to bolster coverage in the country. Karim Sall, Director General of L'Autorite de Regulation des Telecommunications et des Postes, ARTP) told news agency APS, talks are underway between Orange, Free and Expresso Telecom to lay the necessary framework for the agreements. The Director General also revealed an assessment would take place at the end of April to determine whether operators have achieved prior coverage targets, stipulated in mobile licenses. Sall said: "We will measure obligation by obligation the level of achievement or the level of respect of these obligations by the operators". The announcement follows President Macky Sall calling on the Ministry of Telecommunications and Digital Economy to bolster efforts to achieve nationwide coverage sooner, reported CommsUpdate.

IFT Permits CFE to Offer Wholesale Services

The Federal Telecommunications Institute (Instituto Federal de Telecomunicaciones, IFT) has granted state utility firm the Federal Electricity Commission (Comision Federal de Electricidad, CFE) permission to lease network capacity, infrastructure and telecommunications services to authorized companies as a wholesale operator. As per the 3 March 2023 decision, the CFE may not directly offer services to end users. Further, conditions have been established for the CFE to comply with the principle of neutrality to competition and non-discriminatory treatment. The watchdog hopes the measure will encourage operators to leverage the infrastructure to extend coverage to underserved locations across Mexico.

ARTICLE

Tailored Approach to Digital Economy Development

Rajesh Duneja
Partner

Vidhitha Kankamedala
Principal

Arthur D Little

As policy makers consider different options and practices aimed at maximizing benefits from the digital economy, they ***need to recognize that "one size does not fit all" when it comes to digital policies***

Digital transformation can result in long-lasting benefits for economies

Transitioning to digital economies can enable countries to boost industry growth and productivity, improve societal well-being and benefit consumers via cost or time savings. Digitalization will help bring about new opportunities for businesses and/ or improve productivity in industries such as manufacturing, agriculture and energy & utilities. It provides new tools for tackling persistent development and social challenges and improving access to healthcare, education and other public services. Consumers also benefit through faster access to better products and services at lower costs. Consequently, the transition to a digital economy is a major policy priority for all countries.

All of the Gulf Arab countries possess digital transformation agendas – a political and financial commitment to create knowledge-based economies. Many contain the right ingredients, combining boldness and long-term vision, while giving attention to quick win short term initiatives. However, there is now a need to accelerate implementation to realize the benefits in a much-changed world.

> *All of the Gulf Arab countries possess digital transformation agendas – a political and financial commitment to create knowledge-based economies. Many contain the right ingredients, combining boldness and long-term vision, while giving attention to quick win short term initiatives.*

Identifying digital economy archetypes for Middle East countries

Depending on a country's level of digital evolution and economic advancement, there are different drivers that are primarily responsible for digital momentum. This has different implications for what advanced economies and developing economies ought to prioritize: innovation for the former and institutions for the latter. The least digitally advanced countries must allocate limited resources wisely.

From the digital perspective, the majority of the Middle East countries are Digital Novices or Digital Patrons, apart from the United Arab Emirates which is a Business Hub and aspires to become an Innovation Hub.

Based on an analysis of the digital value chain that includes detailed benchmarking of beneficial policies and capabilities in 20+ countries, discussions with experts in national digital transformation, and a literature review and leveraging Arthur D. Little's project repository of national digital strategies and industry experience, seven digital economy archetypes were identified. This enables nations to take a tailored and independent approach to aligning their digital economy policies and objectives

The seven digital economy archetypes are: Innovation Hubs (IH), Efficient Prosumers (EP), Service Powerhouses (SP), Global Factories (GF), Business Hubs (BH), Digital Patrons (DP), and Digital Novices (DN). The archetypes differ in their presence or dominance in the digital value-chain step, as illustrated in Figure 1. However, archetypes are not limited to specific steps in the value chain – instead, their position marks the focal domain in the overall value chain. They can be further differentiated through other underlying characteristics, such as economic status, population size,

Figure 1: Digital economy archetypes with country examples

Source: Arthur D. Little analysis
Note * Digital Patrons can produce and consume as well
1) Value captured as a share of total value created across the value chain

political stability, geographical advantage and technology penetration. In addition, country archetypes guide policy priorities.

From the digital perspective, the majority of the Middle East countries are Digital Novices or Digital Patrons, apart from the United Arab Emirates which is a Business Hub and aspires to become an Innovation Hub.

Afghanistan, Iraq, Jordan, Lebanon, Pakistan, Syria and Yemen are classified as Digital Novice economies, as they have limited core nationwide infrastructure to provide secure, continuous and widespread telecommunications, resulting in limited digital adoption and consequently limited value creation and jobs from a nascent digital economy. These countries have the most to gain as digital infrastructure/ technologies is an enabler for economic development.

Bahrain, Kuwait, Oman, Saudi Arabia and Qatar are classified in a second group, Digital Patrons. Endowed with natural resources, primarily oil based, these countries have supported economic development with exports of energy resources, consuming a high level of digital infrastructure, technology and services. However, there is limited value creation from digital use and consumption.

The United Arab Emirates is classified as a Business Hub, attracting talent and companies from different regions, generating competitive advantages in core areas, such as finance, accounting and administration of regional head offices for many global corporates.

Tailoring digital strategy and public policy

Policy makers need to formulate policies, laws and regulations across four interrelated policy dimensions – technology, capabilities, ecosystem and industry – as these are the driving forces underpinning digital transformation. The criticality of policies, laws and regulations within the dimensions varies depending on the country's archetype,

A best-practice 5G strategy is essential to support the introduction of new applications and services that need higher communication speeds and lower latencies.

- **Technology**

All countries need better connectivity as connectivity is a critical determinant of every country's future growth and prosperity. Irrespective of the national

archetype, governments must address policy and regulatory issues relating to broadband, spectrum, cybersecurity, data protection & privacy, and cloud computing. Hence all countries in the Middle East should emphasize on these further.

A best-practice 5G strategy is essential to support the introduction of new applications and services that need higher communication speeds and lower latencies. This is critical for all archetypes except for Digital Novices, whose primary focus should be on deploying mature communication infrastructure. Similarly, national AI policies, emerging technology development policies, IP rights regimes, science and technology policies focused on cutting-edge technologies, and IP generation and commercialization are all critical for Innovation Hubs.

- **Ecosystem**

Digital business funding support policies and ease-of-doing-business (EoDB) reforms and emerging technology regulation are critical to attract private sector investments, particularly in domains that support their archetype strategies and offer conducive environments for digital businesses to test new technologies and innovate. Many countries in the Middle East have liberalized telecommunications industries in recent years and adopted business friendly policies, but more should be done to support vibrant start-ups and SME businesses that are the engine of growth in digital economies. Opening up to international players can also be a source of much needed private sector investment in infrastructure and can be a valuable source of talent.

- **Capability**

Improving capabilities is the first critical challenge to be addressed if the potential of the digital economy is to be realized by economies in the region.

Policies for developing digital foundational skills, digital higher education, digital workforce education and specialized skills are important for the region as a whole. Digital Novices must first focus their resources on improving digital awareness among both individuals and businesses to meet basic requirements to uplift the digital economy. Priorities should include improving literacy, establishing digital courses within universities and improving access to established technologies. For Digital Patrons, the focus should be on developing the digital skills and capabilities of graduates and employees of businesses to monetize more of the value from the digital economy, whether through digital start-ups, SMEs or established large enterprises.

- **Industry**

Digital Patrons have used e-government strategies to kick-start digital capability building and increase awareness and digitalization in other industry sectors. E-government is also critical for Digital Novices to stimulate digital services demand in the economy by familiarizing society with digital tools and content. Sectoral digitalization policies are important to industry competitiveness and should focus on respective dominant industries.

Conclusion

The importance of digital economy policies vary fundamentally between archetypes. Different combinations of policies should be considered for different countries based on their archetype. This does not mean countries should disregard other policies, but instead they should ensure that policies critical to their archetypes are given due resources, budget and attention first. Tailored "recipes for success" should shape the strategy each country deploys to maximise the value creation from its own digital economy.

In summary, the incentive for digital transformation is clear – and the need to embrace change has never been greater. However, nations will only realize the full benefits of this transformation if their digital strategies are built on their own strengths, and their digital policies are prioritized and focused.

Policies for developing digital foundational skills, digital higher education, digital workforce education and specialized skills are important for the region as a whole. Digital Novices must first focus their resources on improving digital awareness among both individuals and businesses to meet basic requirements to uplift the digital economy.

TECHNOLOGY NEWS

30 Countries to Launch 5G Services in 2023

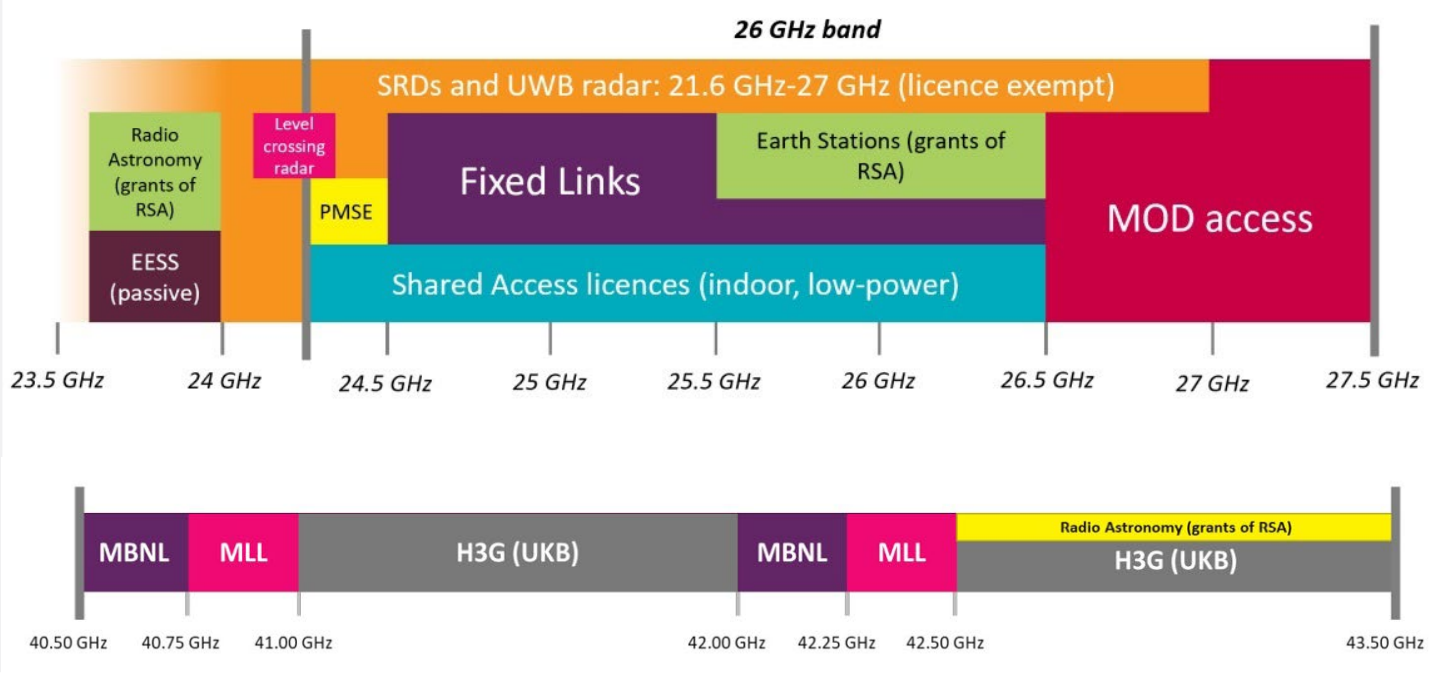
New figures from mobile industry forecaster GSMA Intelligence show 5G connections are expected to double over the next two years, expedited by technological innovations and new 5G network deployments in more than 30 countries in 2023 alone. Of the new networks to be deployed in 2023, it is expected that 15 will be 5G Standalone networks. The forecasts from GSMA Intelligence point to a significant period of growth in terms of mobile subscribers and enterprise adoption. Consumer connections surpassed one billion at the end of 2022 and will increase to around 1.5 billion this year – before reaching two billion by the end 2025. This momentum confirms 5G as the fastest generational roll-out, when compared to 3G and 4G. As of January 2023, there were 229 commercial 5G networks globally and more than 700 5G smartphone models available to users. Growth will also come from key markets within APAC and LATAM, such as Brazil and India, which have recently launched 5G networks. India will be especially significant, with the expansion of services from Airtel and Jio in 2023 expected to be pivotal to the region's ongoing adoption. GSMA Intelligence predicts there will be four 5G networks in India by the end of 2025, accounting for 145 million additional users. Many of the new 5G markets scheduled to launch networks in 2023 are in developing regions across Africa – including Ethiopia and Ghana – and Asia. Today, 5G adoption in the sub-Saharan region sits below 1% but will reach over 4% by 2025 and 16% in 2030, largely thanks to a concerted effort from industry and government organizations to provide connectivity to citizens. "Until now, 5G adoption has been driven by relatively mature markets and consumer use cases like enhanced mobile broadband, but that's changing. We're now entering a second wave for 5G that will see the technology engage a diverse set of new markets and audiences," said Peter Jarich, Head of GSMA Intelligence. "The extension to new use cases and markets will challenge the mobile ecosystem to prove that 5G truly is flexible enough to meet these diverse demands in a way that's both inclusive and innovative." As of January 2023, more than 90 fixed broadband service providers (the vast majority of which are mobile operators) had launched commercial 5G-based fixed wireless services across over 48 countries. This means around 40% of 5G commercial mobile launches worldwide currently include an FWA offering.

IoT eSIM Adoption Tipped to Blow

Juniper Research predicted an explosion in the number of IoT connections delivered using eSIM in the years to 2026, with the logistics industry, and oil and gas extraction sectors tipped to drive growth. In a report, the company forecast the number of IoT connections using eSIM would increase from 22 million this year to 195 million by the end of 2026. The jump will see the proportion of eSIMs employed for enterprise and industrial IoT uses, as opposed to the consumer sector, move from 3 per cent globally to 6 per cent. By 2026, it expects logistics, and the oil and gas industries to lead the way in adoption to account for 75 per cent of all eSIMs in use. This is due to those industries' reliance on LPWA business models which "necessitate the use of mass deployment processes". Juniper Research attributed the anticipated boom to increased popularity of eSIM management systems and other platforms cutting the cost of deploying multiple connections at the same time. It claimed many older systems had "hindered the growth of eSIMs in the IoT market by limiting the number of devices that can be provisioned and managed via a single user interface".

Ofcom to Make Over 6 GHz of mmWave Spectrum Available

Ofcom announced that it will make over 6 GHz of mmWave spectrum available. The spectrum will span the 26 GHz (24.25-27.5 GHz) and 40 GHz (40.5 GHz-43.5 GHz) bands and deliver large increases in speeds and capacity. VP of Marketing said: "Many countries, including the US, are already seeing the clear performance benefits of mmWave. Data from Ookla in the US revealed mmWave is achieving extraordinary speeds – almost 1.6 Gbps median 5G download speed. "However, mmWave does have some known challenges, but can still have a key role in the ongoing roll-out of wireless networks." The main challenge for mmWave is that it has a limited range and can be easily blocked by obstacles. "mmWave networks, therefore, need to be densified to provide reliable coverage, requiring significant investment. Operators are, therefore, likely to want to acquire mmWave spectrum for enterprise private network deployments, to connect high volumes of devices that need high bandwidth connectivity, such as the industrial IoT and smart healthcare across a controlled environment," explains Eigen. "MmWave technology may also be used in high-traffic areas, such as Oxford Street or sports stadiums, which is what some US operators have started to do, to provide high-speed coverage to large numbers of users. In addition, some operators are using mmWave as a last mile alternative to economically extend broadband access to homes or businesses in lieu of deploying fixed network facilities like fiber." Furthermore, the regulator says that making the 26 GHz and 40 GHz bands available for new uses at the same time will "maximize this spectrum's potential" to benefit people and businesses.



MTN Group Holds PoC Trial for 5G SA Core in Microsoft Azure

African mobile operator MTN Group has carried out a proof of concept (PoC) for a 5G Standalone (SA) core which it said had been 'fully deployed in Microsoft Azure' – the cloud computing platform operated by Microsoft that provides access, management, and development of applications and services. The PoC was conducted with all of the 5G SA core elements including control plane, user plane and management nodes, deployed fully in the South Africa Azure Region, and allowed MTN to 'experience the benefits associated with deploying a core network in Azure including fast deployment time (days vs months) and ease of scale'. 'Being one of the first in the world to conduct this proof of concept demonstrates MTN's desire to keep pushing the boundaries of technological innovation that delivers value to our shareholders,' said Amith Maharaj, MTN Group Chief Technology Officer.

e& and E-Space Collaborate to Drive Global Innovation in Advanced Internet of Things (IoT) And Digital Transformation Solutions

e& and E-Space, a global space company focused on bridging Earth and space with the world's most sustainable Low Earth Orbit (LEO) network, announced plans to develop advanced global IoT, Smart-IoT and digital transformation solutions. The collaboration seeks to maximize the end-user value derived from borderless smart connectivity and digital solutions across land, sea and sky applications. The cooperation will focus on the creative development of cloud-native digital and IoT solutions optimized with edge-based Artificial Intelligence (edge AI). By leveraging e&'s terrestrial infrastructure and E-Space's advanced space system, including its global LEO constellation and unique device capabilities, the two organizations will create powerful new business models to elevate IoT and digital transformation agendas of governments and large-scale enterprises worldwide. Mikhail Gerchuk, Chief Executive Officer, e& international, said: "Telecommunications and space technology have a natural synergy, offering enormous opportunities for telco companies to expand their reach and capabilities. From satellite internet to space-based sensors, at e& we see the potential to revolutionize the way we connect, communicate and gather data from space. With our advanced infrastructure and E-Space's next-generation space system, optimized with edge AI, we will offer a multi-technology platform enabling our customers to embrace a digital-first lifestyle more efficiently. We are confident that we can leverage our combined expertise to create seamless global digital IoT experiences to help our customers advance their digital transformation plans." The relationship is expected to facilitate e& customer data to connect directly to private data centers without interference from commercial traffic by using peer-to-peer space-based communications to address security and data protection policies and regulations worldwide. Both parties will jointly develop IoT and digital solutions based on AI at the edge as well as everywhere in-between to enable system-wide intelligent decisions and take automated actions to levels beyond traditional IoT. Gregory Wyler, Chief Executive Officer, E-Space added: "There are tremendous opportunities in the terrestrial domain that can be amplified with the use of newer generation space systems coupled with edge AI. We're bringing real-time information with advanced automation to create entirely new suites of global capabilities to advance humanity, improve the planet and automate business processes for greater operational scale and efficiency with reduced costs. We are excited to work with e& to advance their digital transformation journey and augment the customer experience. Together, we can speed the time required to build a smarter, more connected planet, anywhere and anytime." The collaboration also involves the joint development of global IoT use cases, which will have the potential to create new revenue streams, especially in global tracking and agriculture, using an optimized satellite ecosystem. The portfolio for IoT and digital products can further expand to enable products across land, sea and air environments, anywhere and at any time, with speeds ranging from kilobits per second (Kbps) to megabits per second (Mbps). E-Space expects to offer the most sustainable and affordable satellite-based system in the digital and IoT ecosystem with coverage available everywhere to support uninterrupted, global real-time data services. The Company estimates it can deliver an over 90 percent reduction in overall system and terminal costs compared to second generation LEO networks*, enabling more governments, business, communities and individuals to access the power of space to achieve more on Earth.

syniverse®

Avoid loss of connectivity with 3G sunset

Create a better roaming experiences with VoLTE!
Syniverse Evolved Mobility.

www.syniverse.com/products/evolved-mobility

ARTICLE

Traveling without Connectivity

Revenue opportunities from better subscriber experience

Douwe van der Heij
Senior Director Marketing
Syniverse

syniverse.

Air travel has recovered, reaching pre-pandemic levels for many global destinations, resulting in network operators upgrading their network capacity and benefiting from inbound roaming revenues again.

But how does that relate to your subscribers? Are they traveling again, and if so, do they leave their home country prepared when it comes to their cellular plan?

Do your subscribers activate roaming services before they leave the country?

As international travel increases, wholesale roaming traffic is on the rise. But inexperienced international travelers may leave the country unprepared for their communications needs. It's challenging to predict and anticipate when your customers will need roaming services. So, how do you respond when a subscriber has left your network and it's already too late?

> *As opposed to Wi-Fi, Mobile Networks can satisfy the need for true mobile connectivity. Think of the need for GPS navigation applications or car-ride services when traveling; booking hotels on-the-go; or live sharing their moments on video with people back home as travelers visit the wonders of the world. For travelers, there is nothing better than cellular connectivity!*

If pre-activation of roaming services is required for your customer to roam, some travelers will risk not having access to roaming services upon arrival. If your customer has not met the pre-requisites that would allow them to roam, their phones won't be able to register on any foreign network. This poses a real problem. You, as the home operator, have no direct way to call your customer or reach out to them via SMS. Without roaming services, your customers will look for alternatives, such as purchasing a local SIM card.

This is a missed roaming revenue opportunity for you as their home operator. To make matters worse, there is also a loyalty risk when a frustrated subscriber takes the poor customer experience back home! Without cellular service, most travelers will look for Wi-Fi—at the airport, in a hotel, or wherever they find connectivity first. Is it too little, too late to reach out to them once they have found Wi-Fi and enjoy connectivity? The simple answer is "No".

As opposed to Wi-Fi, Mobile Networks can satisfy the need for true mobile connectivity. Think of the need for GPS navigation applications or car-ride services when traveling; booking hotels on-the-go; or live sharing their moments on video with people back home as travelers visit the wonders of the world. For travelers, there is nothing better than cellular connectivity! So, for a traveler who hadn't requested the roaming service prior to leaving the country, how do you turn a potentially poor customer experience due to lack of connectivity, into an opportunity for customer service excellence and operator revenue?

Network registration error messages will tell you that there is a connectivity problem for subscribers. It is possible for you to identify your subscribers who can't connect to mobile networks abroad and fix the issue for them quickly!

As said, most likely the subscriber will first look for alternative connectivity, and as soon as that subscriber connects to Wi-Fi, you can reach out through over-the-top applications (OTT) and initiate the process of getting roaming services activated. WhatsApp, for example, with more than two billion people using the platform around the world, gives you the power to reconnect with your subscribers with a simple message acknowledging awareness of the issue and offering a solution. That's the start of a customer journey that turns a bad experience into a positive one, leveraging the Wi-Fi connection and using the rich communication methods that OTT services offer.

These few simple steps can help.

1. Explain the situation and offer a solution – Understanding.
2. Provide transparency to cost of roaming – Confidence.
3. Let the subscriber choose a data roaming pack – Convenience.
4. Activate roaming services – Enjoyment.
5. Provide control over data consumption – Trust.

Now you have turned a traveler's connectivity issue into a moment of customer experience excellence! A once invisible and unactionable subscriber issue can be converted into a new revenue opportunity for mobile operators.

Are you curious to understand the extent of this problem further, so that you can get ahead of any issues that may trouble your subscriber base and build a better roaming experience? If so, I invite you to contact Syniverse to learn more about how Syniverse can provide you with insights and an end-to-end cloud-based solution that seamlessly integrates with your network.

ARTICLE

Getting Beyond Connectivity and Monetizing New Services with IoT

Nikolaj Jensen
Head of Business Support Systems Products
Enghouse Networks

The Internet of Things (IoT) is enabling the connectivity of people and devices on a massive scale never before possible.

These changes are happening quickly, and while disruptive, they are also presenting a once-in-a-lifetime opportunity. Communications Service Providers (CSPs) are in a prime position to capitalize with new services that will drive growth for years to come.

To realize this potential, however, CSPs must understand how the IoT business model is fundamentally different from the connectivity services that have long been the corner stone of their growth. Not only is there a complex ecosystem of technology partners to manage for developing new services, but new capabilities will also be needed to monetize IoT more effectively.

> *IoT – Internet of Things - is set to transform businesses, enable the launch of new services, and reshape traditional value chains. The opportunity is especially attractive for CSPs because it extends connectivity beyond people to their devices and everything those devices are connected to.*

These challenges are real, but with a sound strategy and the right partners, IoT represents an unparalleled opportunity for CSPs to provide new value to end customers as they progress on their own digital transformation journey. This eBook has been prepared to help CSPs develop that strategy, better under-stand why IoT is a growth driver, and so move to maximise their commercial opportunity with it.

The Global IoT Market Opportunity

IoT – Internet of Things - is set to transform businesses, enable the launch of new services, and reshape traditional value chains. The opportunity is especially attractive for CSPs because it extends connectivity beyond people to their devices and everything those devices are connected to.

Human connectivity is largely saturated, and it's getting harder to make money selling voice and data services. Most devices, however, remain unconnected, and IoT unlocks this Greenfield opportunity for monetizing new services on a massive, global scale.

> *According to The Internet of Things 2020 report, the IoT market is forecast to grow to over $2.4 trillion annually by 2027, with over 40 billion connected devices.*

According to The Internet of Things 2020 report, the IoT market is forecast to grow to over $2.4 trillion annually by 2027, with over 40 billion connected devices. Projections from the United Nations show the global population approaching nine billion by then, which translates into three or four connected devices for every person. In the developed world, that number will likely be far higher, making IoT orders of magnitude larger than the market served today CSPs, at least in terms of connection points. Given the limited opportunity remaining for human connectivity as a growth driver, the potential for IoT is simply too big for CSPs to ignore.

IoT is...

While CSPs should rightly be drawn to the scale of this opportunity, each of these three elements needs to be understood and addressed for CSPs to have success with IoT.

IoT is New

As connectivity scales both between people and devices, as well as among devices, endpoints and "things", there will be virtually unlimited opportunities to create new forms of utility that represent monetizable value. That potential has yet to be realized by CSPs, but IoT has now reached a critical mass that is attracting entries from across the entire value chain. As providers of the connectivity that enables this opportunity, CSPs are in a prime position to capitalize on IoT, and if they do not, others surely will.

IoT is Different

The CSP business model is largely built around productizing clearly defined services and metrics for driving revenues. This is a classic, linear approach from the analogue world, where CSPs sell services like telephony, conferencing, bandwidth, etc., and bill them increasingly on a flat rate basis per subscriber. This model has been proven over time, but margins are declining as these services become commoditized, and CSPs have limited capabilities to add new services in this realm.

IoT is different by virtue of being a product of the broader digital transformation process that all industries and enterprises are adapting to. The role of CSPs will be different here, since IoT itself is not a product, and nor is it a technology. Rather, IoT is an architecture around which many different technologies will interwork to create new services, applications, and forms of business value. This makes IoT a platform, not a product play, where the platform not only enables these technologies to work together, but also serves as a destination for end customers to access new services as well as discover others not previously considered. In this model, CSPs must become orchestrators to make these elements work together in a way that adds value for end customers and is profitable for the CSP.

IoT is Complex

Rather than selling familiar, discrete services like telephony, CSPs will be providing new services, utilizing digital technologies, and relying on a new ecosystem of partners to create this value. IoT is very much a volume business with low ARPUs, and with the complexity that comes with all of these new pieces, CSPs must have the right approach and the right capabilities to make this a profitable undertaking.

Not only are the new technologies complex, but so is the new value chain that emerges from developing a web of partners spanning many touchpoints that create these new services upon which future revenues will be derived. When this complexity can be effectively managed, IoT platforms will provide sustainable differentiation, as well as a growth engine for tomorrow as 5G and other technologies drive innovation that we have yet to envision. This complexity is well-represented by a recent Deloitte report, Growing IoT Platforms.

Digital Transformation, the Real Driver for IoT

Without commercialization, IoT is little more than a set of technologies extending connectivity, albeit on a massive scale. To effectively monetize IoT, CSPs must understand where the utility lies, and those opportunities are being created by digital transformation.

All sectors of the economy are going through this process, whereby all things analogue – information, products, processes, etc. – are being digitized to better align with today's digital world. This transformation will take years – and may never be finished – and some sectors are transitioning faster than others.

> *The key impact of digital transformation is automation, from which many forms of new value are being created, such as streamlining processes, reducing errors, faster results, lowering costs, etc. These forms of automation are ideal use cases for IoT, and the monetization scenarios are endless. Everyday examples include smart cities, smart homes, and smart cars – as well as smart factories, smart offices, smart hospitals, etc.*

The key impact of digital transformation is automation, from which many forms of new value are being created, such as streamlining processes, reducing errors, faster results, lowering costs, etc. These forms of automation are ideal use cases for IoT, and the monetization scenarios

are endless. Everyday examples include smart cities, smart homes, and smart cars – as well as smart factories, smart offices, smart hospitals, etc.

Regardless of how far along the digital transformation journey end customers are, there is opportunity for CSPs. The key is to identify where the gaps are for them to automate, and then show the benefits that will come when applying IoT. Enterprises have plenty of reasons to automate via digital transformation - but with IoT, CSPs can convert those reasons into tangible benefits.

As CSPs come to better understand the digital transformation gaps and needs of end customers, they will be able to fine-tune the partner ecosystem needed for IoT. Unlike the analogue world, where technologies were largely static, digital transformation is always evolving, which means this ecosystem will be dynamic.

With IoT, CSPs will be on a journey of their own, where the partner mix constantly evolves to address the ever-changing automation opportunities as end customers digitally transform. This symbiotic relationship between IoT and digital transformation is powerful and will be a key success driver for CSPs.

Digital Transformation Drives Automation, and IoT Drives Revenues: Growth Opportunity for CSPs

Excessive hype in the early days of IoT set unrealistic expectations that have held back adoption until enabling technologies became more mature. IoT itself is not a technology, but the goal of hyperconnectivity provides a focus around which these technologies could move towards.

5 Technology Drivers for IoT Adoption

Excessive hype in the early days of IoT set unrealistic expectations that have held back adoption until enabling technologies became more mature. IoT itself is not a technology, but the goal of hyperconnectivity provides a focus around which these technologies could move towards.

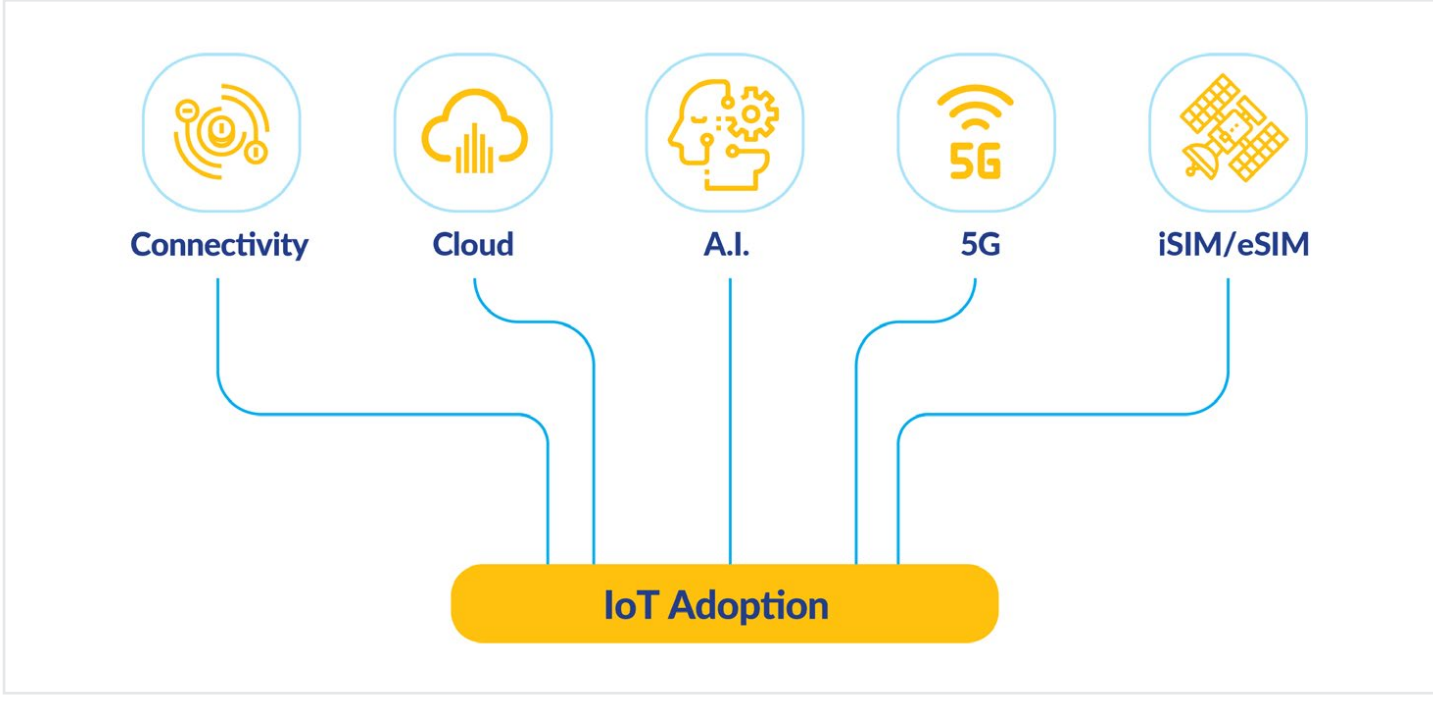
CSPs would be well aware of this history, but they must also recognize that the tipping point has been reached now in terms of how these enabling technologies can drive IoT closer to realizing its potential. Each of the following technologies enable IoT in a distinct way, and collectively build a strong case for CSPs to make this a cornerstone for growth.

Connectivity

The more connected devices and people become, the greater utility IoT will have. Falling cost curves for connectivity, combined with ever-faster broadband networks provides the ideal engine for making IoT ubiquitous, which in turn, will give rise to new use cases as more "things" are connected. These trends are expected to continue, and for CSPs, the time for entry should be now while the market is not saturated. Furthermore, most current IoT applications can be supported by 4G networks, so there's no need for CSPs to wait for 5G.

Cloud

This is the dominant force driving all forms of technology evolution, and it's a key driver for IoT. Cloud provides the scale IoT needs to connect tens of billions of "things", along with economics to support profitable business models. For CSPs, cloud enables agility, which will be essential as end customer needs evolve, and new ecosystem partners are needed to support them.



Artificial Intelligence

As with cloud, AI is a meta-trend that is shaping all forms of technology innovation. Analytics and Machine Learning in particular will be vital to IoT in several ways. One will be for efficiently processing massive volumes of data in real time, and another would be the learning and continuous improvement that will make IoT applications more valuable for enterprise customers. These new value-added applications mean that, for the CSP player, AI could be a key vector of IoT monetization.

> *Supporting faster throughput, lower latency, and high volumes of data, 5G makes IoT attractive across a wide range of sectors that CSPs would not otherwise have anything to offer. 5G can and will easily support industrial automation with IoT—and with the right partner ecosystem.*

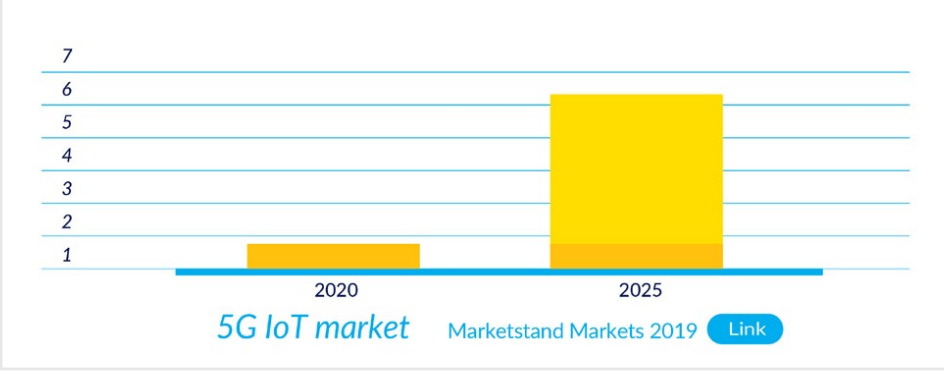
5G

While 5G is not a necessary condition for IoT, the adoption of IoT will drive investment decisions in 5G. While costly to build, these networks will drive the next generation for IoT applications, especially as both businesses and end users become more mobile-centric. As the forecast below from Markets and Markets shows, the 5G IoT market will grow nine-fold from 2020 to 2025, reaching $6.3B US, and to capitalize on that, CSPs will need an IoT strategy.

For CSPs, this growth is going to drive demand from end customers for IoT capabilities. Based on IoT 2020 report, 39% of enterprises plan to support 5G for their IoT projects before 2021. Supporting faster throughput, lower latency, and high volumes of data, 5G makes IoT attractive across a range of sectors that CSPs would not otherwise have anything to offer. 5G can and will easily support industrial automation with IoT—and with the right partner ecosystem, CSPs will soon offer similar solutions in many industrial settings.

iSIM/eSIM

This brings the focus down from large to small, where device-level technology plays a distinct role in driving IoT adoption. These two innovations – Integrated and Embedded SIM - address the shortcomings of legacy SIM technology, at least related to IoT. First is form factor, and being smaller, they can support a broader range of IoT devices, and hence a wider range of applications that CSPs can monetize. Secondly, they are less costly, making it easier to justify large-scale IoT deployments. For CSPs, however, this adds some risk, as this reduces the barriers to churn than with legacy SIMs – all the more reason to differentiate with IoT.



Expanding the Mobile Operator's Role Beyond Connectivity

Shifting from the technologies to the CSPs, the IoT opportunity can only be realized by taking on an expanded role with end customers. We have already established that IoT presents new opportunities for mobile carriers, but the space is rapidly evolving, and so too must their role.

At the early stages of IoT adoption, mobile operators filled the conventional role of connectivity provider by adding LPWA technologies (i.e., NB-IoT, LoRa). With the promise of 5G on the horizon, mobile operators saw new doors opening to take an expanded role within the value chain. This would entail a shift from solely focusing on connectivity to enabling new capabilities such as billing, device management, and providing end-to-end IoT solutions for diverse vertical markets.

Evolving into New Roles

Getting beyond connectivity requires CSPs to take a more strategic approach for the new value chain that comes with IoT. Connectivity is foundational, and supports existing business models, but new revenues will only come by moving up the IoT value chain. Above connectivity are two layers of new value that CSPs could provide, and each would require a distinct strategy.

Horizontal strategy. CSPs would build on top of their connectivity and offer a suite of services, such as handset management, end-to-end application management, data monitoring, analysis and visualization, and convergent billing. Since all IoT customers require these capabilities, this horizontal layer can scale cost-effectively, and help CSPs transition from connectivity providers to service enablers.

Vertical strategy. This takes CSPs to the top of the value chain by offering tailored solutions to support these verticals, such as consultancy services and integration expertise. This is where partner ecosystems drive the new value since CSPs lack vertical market expertise. The requirements at this level are more complex, but the returns will be more lucrative as the CSP takes on yet another role, that of the service creator.

CSP Value Chain Opportunity with IoT

In terms of a broader strategy, CSPs can enter the IoT space backstage, so to speak, and based on each opportunity, decide how much of the value chain they want to own. This largely depends on how far their IoT

ecosystem extends, as well as how many links in the value chain they are willing and able to connect – such as with technology partners, resellers, wholesalers, etc.

IoT Partner Ecosystems

the Critical Link in the Value Chain

IoT was described earlier as an architecture, constituting a system of integrated elements that use Internet technologies to connect "things" at scale, from which new business value can be created. The IoT architecture takes the form of a platform, which has become the model of choice for today's digital businesses.

Platforms are a product of the cloud, which provides unprecedented capabilities to scale exponentially both quickly and at little cost, and to bring buyers and sellers together in completely new ways. IoT is the ultimate platform by virtue of connecting both people and devices, creating orders of magnitude higher points of interaction.
CSPs provide the connectivity that makes all this interaction possible, and that positions them as an ideal platform provider for IoT. Platforms, however, are little more than a marketplace, and only have value when attracting both buyers and sellers.

Understanding IoT Ecosystems

At the heart of any IoT platform is a partner ecosystem, and CSPs need to understand the complexity around building this as well as managing it. The starting point is the need for multi-channel partnerships, which differs from the linear one-to-many model from the analogue world.

One-to-Many Partner Model

- Customers manage relationships between partners
- Access providers provide access only
- Revenue potential and offerings are limited to access

Moving to Many-to-Many with IoT

- Products, services, applications, and content are all linked to create a richer value chain
- Connectivity becomes a means of transportation to deliver high-value, customized IoT services
- Solving a single use case now involves a complex mix of multiple partners

Aside from being complex, IoT ecosystems must be built strategically. With an endless stream of partners to draw from, CSPs need to determine which end customer gaps and needs can be addressed by IoT, and then build around that with the right partners.

Once built, this ecosystem needs to be actively managed, since new customer requirements will arise as IoT evolves. Furthermore, as CSPs become more adept at developing an IoT ecosystem, they may seek to broaden their web of many-to-many partners for a more end-to-end IoT offering.

This could go beyond familiar CSP services to new adjacencies such as financial services, insurance, logistics and third-party connectivity. Not only will this enable CSPs to maximize IoT revenues, but it creates closer ties with end customers, which will help reduce churn. All CSPs can easily aspire for these outcomes, but to achieve them, IoT needs to be viewed as both a platform and an ecosystem play.

Transforming CSP Operations for Monetizing IoT

IoT initiatives can easily fail, as CSPs will face great challenges in revamping or remodeling their operations. This is where digital transformation plays such a key role, and if a CSP is at the early stages of its digital transformational journey, a major shift will be needed. Aside from the technologies being new and complex to manage, CSPs must have the right capabilities in place to effectively monetize IoT.

IoT initiatives can easily fail, as CSPs will face great challenges in revamping or remodeling their operations. This is where digital transformation plays such a key role, and if a CSP is at the early stages of its digital transformational journey, a major shift will be needed. Aside from the technologies being new and complex to manage, CSPs must have the right capabilities in place to effectively monetize IoT.

Given the massive potential ahead with IoT, this is a growth opportunity for CSPs, and should be viewed as a prime driver of future revenues. This focus is critical for CSPs and is very different from deploying IoT defensively for customer retention and expecting little more than break-even returns.

Monetizing IoT may require extensive transformation, especially around developing a partner ecosystem and supporting a new type of supply chain. While this will not be easy to do, CSPs need to keep the demand side of the equation in mind.

Enterprise customers stand to benefit substantially from IoT, and CSPs have a front row seat for enabling them to realize that success. If CSPs execute poorly or pass on the opportunity altogether, others will fill the void, and those customers will no longer be growth drivers.

When considering all of this, keep in mind that efficiency is paramount; IoT ARPUs will be low, and to make money, operations will need to be highly automated. Manual processes can support a linear, one-to-many model, but IoT supply chains are more complex.

Furthermore, all of this complexity must be transparent to both partners and end customers. In essence, CSPs need to orchestrate the complexity around multi-stakeholder ecosystems, and present a singular, unified value proposition to end customers. For all of this to happen, below are five operational capabilities CSPs are going to need.

Five Key Requirements for a Consolidated IoT Platform

Multi-stakeholder billing in a unified view. With IoT, devices come with distinct connection fees, usage fees and recurring charges with different invoice intervals. Add to those various applications like logistics, monitoring, or security, each of which has a distinct profile for pricing and billing.

Monetizing IoT may require extensive transformation, especially around developing a partner ecosystem and supporting a new type of supply chain. While this will not be easy to do, CSPs need to keep the demand side of the equation in mind.

Partner management. Depending on the industry and vertical, there will be different business models, partner agreements, and supply chains to support, including B2C, B2B, B2B2B, and B2B2X.

Data management. This is where both cloud computing and AI-based analytics come into play across the data lifecycle. IoT will generate a constant flow of new types of data that needs to be captured, processed, and allocated, both for consumption and billing – all in real time.

Device management. CSPs need to have a clear view over their connected device fleet, perform an audit and monitor the devices' state, on-board and run the latest software update and bug fixes.

Billing as a Service (BaaS). The complexity of a many-to-many model also creates challenges for ecosystem partners so they can monetize IoT as well. By providing BaaS, CSPs could run billing on behalf for resellers and enterprises and could expand to include needs such as wholesale invoicing or segregating trouble tickets.

Building on over 15 years of industry expertise, Enghouse Networks has developed a new scalable and flexible monetization solution to support the complex IoT supply chain.

Enghouse IoT Monetization

Building on over 15 years of industry expertise, Enghouse Networks has developed a new scalable and flexible monetization solution to support the complex IoT supply chain.

Enghouse's IoT Monetization Solution facilitates channel partner integration and settlement, supports all known contract-based monetization models and licensing agreements, and provides real-time customer and partner insight. CSPs and enterprises can jointly fine-tune product offerings on the fly, and go beyond traditional billing experiences, with highly specific IoT monetization based on customer-defined plans, bundles, and campaigns.

Manages Complexity and Provides Transparency

This reflects the essence of Enghouse's approach and represents the linchpins for successful IoT monetization. The IoT space is highly fragmented with new supply chain models, but Enghouse provides an end-to-end solution to orchestrate that complexity, along with managing the revenue streams that come from new services that flow transparently to end customers.

Enabling New Business Value

Business value for CSPs comes not just from offering new IoT services, but also for bundling them with your core offerings to create stronger customer relationships. Being a fully integrated suite, there's also business value with time-to-market. With Enghouse, CSPs can provision and launch IoT services in eight weeks, and onboard channel partners in under eight hours. Capabilities such as network testing diagnostics, automated billing and AI-driven analytics will help reduce partner disputes by 90%, which is a major improvement over manual methods. When IoT projects are driven by more accurate and timely data, end customers get better results, and CSPs benefit from happier partners, less revenue leakage, and higher margins.

Monetize Your Network

Enghouse provides the tools to ensure you can monetize your network assets. We support fixed and mobile services monetization as well as emerging services like IoT. Services can be delivered in commercial models to suit your needs.

- **MVNE/MVNO**
- **Billing as a Service**
- **IoT Monetization**
- **Broadband and 5G**

Enghouse Networks

Visit our web site to learn more
www.enghousenetworks.com

REGULATORY NEWS

ITU Finalizes Report on Preparatory Studies for the 2023 World Radiocommunication Conference

ITU Member States have approved a major report on the technical, operational, and regulatory materials for the preparation of the World Radiocommunication Conference 2023 (WRC-23). The report summarizes and analyses the results of extensive technical studies conducted by members of the ITU Radiocommunication Sector, as well as possible solutions to satisfy WRC-23 agenda items. The report was approved at the conclusion of the 2nd session of the Conference Preparatory Meeting (CPM23-2) held from 27 March to 6 April 2023 in Geneva Switzerland. "The global management of radio frequency spectrum and associated satellite orbits is at the heart of ITU's strategic goals to achieve universal connectivity and sustainable digital transformation," said ITU Secretary-General Doreen Bogdan-Martin. "With the uptake of innovative digital services accelerating worldwide, it is critical that we ensure they are secure, reliable, affordable and accessible, especially to the 2.7 billion people around the world who remain offline." The CPM Report represents a major step in the preparations for WRC-23 which will be held in Dubai, United Arab Emirates from 20 November to 15 December 2023. Among the key issues highlighted during the two-week meeting include:

- Identification of additional frequency bands for the continued development of International Mobile Telecommunications (IMT), including the use of high-altitude platform stations as IMT base stations for the universal deployment of wireless networks.
- Improvements to the international regulatory framework for geostationary orbit (GSO) and non-geostationary (NGSO) satellites while promoting equitable access for all countries.
- Use of satellite technologies for broadband services to improve connectivity, particularly in remote areas.
- New spectrum to enhance radiocommunications in the aeronautical mobile service, including by satellite, and to facilitate the use of the Space Research and Earth exploration-satellite services for climate monitoring, weather prediction and other scientific missions.
- The modernization of the Global Maritime Distress and Safety System (GMDSS).
- Regulatory framework for the use of earth stations in motion on board aircraft and ships for communication with geostationary orbit (GSO) and non-geostationary (NGSO) satellites.
- The future of the ultra-high frequency (UHF) broadcasting band which has implications for television broadcast, program-making and special events, as well as public protection and disaster relief.

Over 1,900 participants from 125 ITU Member States attended CPM23-2. Also in attendance were representatives from ITU Radiocommunication Sector Members as well as delegates from various United Nations agencies and international organizations. "The discussions and consensus achieved during CPM23-2 will pave the way to a successful world radiocommunication conference," said Mario Maniewicz, Director of the ITU Radiocommunication Bureau. "The outcomes of WRC-23 will have a tremendous impact on the development of innovative, futuristic radiocommunication services that enable secure, faster, and seamless global communications for all."

JCRA Officially Recommends Ofcom Award 5G Spectrum to JT and Sure

Letters recommending the allocation of 5G-suitable spectrum to JT Jersey and Sure Jersey have been sent to Ofcom, the Jersey Competition and Regulatory Authority (JCRA) has confirmed. With the Bailiwick's telecoms watchdog having earlier this year accepted applications from JT and Sure for 'Full Service' 5G spectrum packages, it has now contacted British telecoms regulator Ofcom – which is responsible for managing Jersery's radio spectrum – with detailed recommendations regarding the awarding of frequencies. In the letters sent to Ofcom by the JCRA it recommended that each operator be allocated 2×10MHz of 700MHz spectrum, as well as a contiguous 40MHz block in the 3.4GHz-3.8GHz band. Notably, frequencies in the latter band are expected to be increased incrementally over the duration of the license to eventually reach 100MHz, subject to a number of factors, including: effective defragmentation of spectrum in the 3.4GHz-3.8GHz range; a 5G service launch within a defined period of Ofcom awarding a spectrum license and rollout of a minimum stated number of 5G equipped base stations; and demonstrable evidence presented that spectrum already awarded is being efficiently used. With regards to the JCRA's specific frequency recommendations, meanwhile, it has suggested that JT be allocated the following spectrum blocks: 713MHz-723MHz/768MHz-778MHz and 3.52GHz-3.56GHz. For Sure, meanwhile, the recommendation is that the operator is awarded the following spectrum blocks: 723MHz-733MHz/778MHz-788MHz and 3.67GHz-3.71GHz.

Arcep Reveals 700MHz Spectrum Winners in Three Overseas Territories

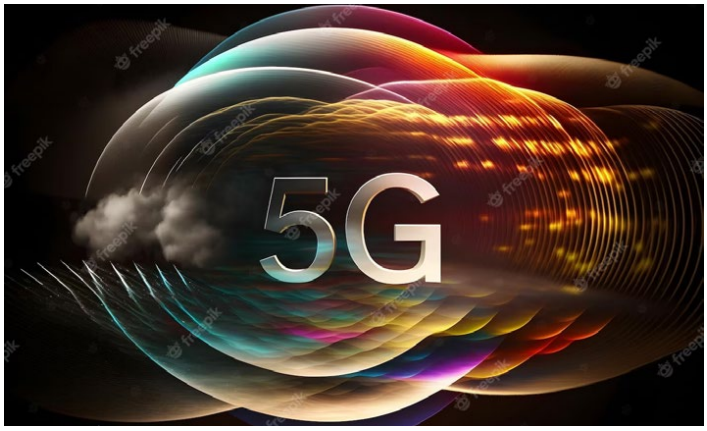
French telecoms regulator Arcep has revealed that the main auction for the allocation of spectrum in the 700MHz band in French Guiana, Saint Barthelemy and Saint-Martin has now been concluded. Regarding French Guiana, four operators participated in the tender, those being Digicel, Free Caraibe, Orange Caraibe and Outremer Telecom (SFR). The four candidates have each been allocated one of the four 2×5MHz blocks in the 700MHz band which will be awarded in return for agreeing to fulfil commitments set out by the procedure. Digicel and Orange also secured an additional 2×5MHz in the band for EUR1.80 million (USD1.98 million) each. A total of four companies bid for 5G-suitable frequencies in the 700MHz band in Saint Barthelemy, namely: Dauphin Telecom, Digicel, Free Mobile and Orange Caraibe. Dauphin Telecom and Free Mobile have each secured 2×5MHz in the band (for EUR24 and EUR2,000 respectively), while Orange walked away with 2×10MHz (EUR11,051). Regarding Saint-Martin, Orange secured 2×10MHz in the 700MHz band (EUR11,051), while Dauphin Telecom and Free were granted 2×5MHz each (EUR24 and EUR2,000 respectively). Digicel failed to secure any 700MHz spectrum in both Saint Barthelemy and Saint-Martin. Further, Arcep revealed that Free Mobile will be allocated 2×4.8MHz in the 900MHz band in Saint Barthelemy; Free Mobile and Orange qualified to participate in an auction for the spectrum in December 2022, but following the latest allocations in the 700MHz band Orange has exceeded the cap on low band spectrum holdings and is therefore excluded. The exact position of the blocks will be subject to an auction, which will take place in Q2 2023.

3.5GHz Spectrum Policy Opposed by Airport, Port

Amsterdam's Schiphol Airport and the Port of Rotterdam Authority have filed legal actions against the government's 5G 3.5GHz spectrum policy, arguing for more bandwidth to be guaranteed for their private/industrial local networks. The plaintiffs disagree with details of the Ministry of Economic Affairs & Climate Policy (MEACP's) plans for distributing the 3.5GHz band to mobile network operators and private/industrial local spectrum users. At the end of February, the MEACP amended the National Frequency Plan to pave the way for 3.5GHz 5G allocations by December 2023, with a 300MHz tranche of national spectrum ringfenced for mobile operators, alongside a 'provisional' allocation of two 50MHz blocks at the lower and upper end of the band (3400MHz-3450MHz and 3750MHz-3800MHz) for local wireless applications. However, as reported by local website Dutch IT Channel, both the Port of Rotterdam and Schiphol fear that the 'first come, first served' policy for distributing the latter spectrum could prevent them from securing their required bandwidth. The Port argues specifically that the frequencies reserved for parties other than telecom companies are of lower quality, which could disrupt its development of 5G facilities to support autonomous ships and data processing via IoT sensors in the port, among other applications.

US 5G Group Pushes for Mid-Band Plan

Chris Pearson, president of 5G Americas, cautioned mid-band spectrum allocation in the US was approaching a critical tipping point due to a lack of a long-term national plan, which could impact the development of services and applications. The industry trade organization released a whitepaper outlining the use of several potential mid-band frequencies for 5G. It noted there are currently no suitable allocation plans in the works. 5G Americas argued this is a concern because it takes several years to identify, allocate and repurpose spectrum. In a blog, Peterson noted mid-band offers a "sweet spot" between coverage and capacity and a long-term national spectrum plan is "paramount for economic and technology leadership". The organization highlighted a need for greater spectrum efficiency and flexibility to meet soaring demand for mobile data. It cited Ericsson Mobility Report data showing global demand at 90 exabytes per month at end-2022 and estimating the figure to be growing 40 per cent each year. Pearson wrote there are specific challenges for each of the current and planned US mid-band deployments for commercial uses spanning 2.5GHz, CBRS, 3.7GHz to 3.98GHz C-band, and 3.45GHz to 3.55GHz. The trade organization argued spectrum plans should prioritize availability of lower frequencies in the mid-band range. It also stated the US Federal Communications Commission and the National Telecommunications and Information Administration should work with the industry to oversee spectrum allocations.



TechM amplifAI 0→∞

TECH mahindra

Arm yourself with AI.
Raise your tech game.

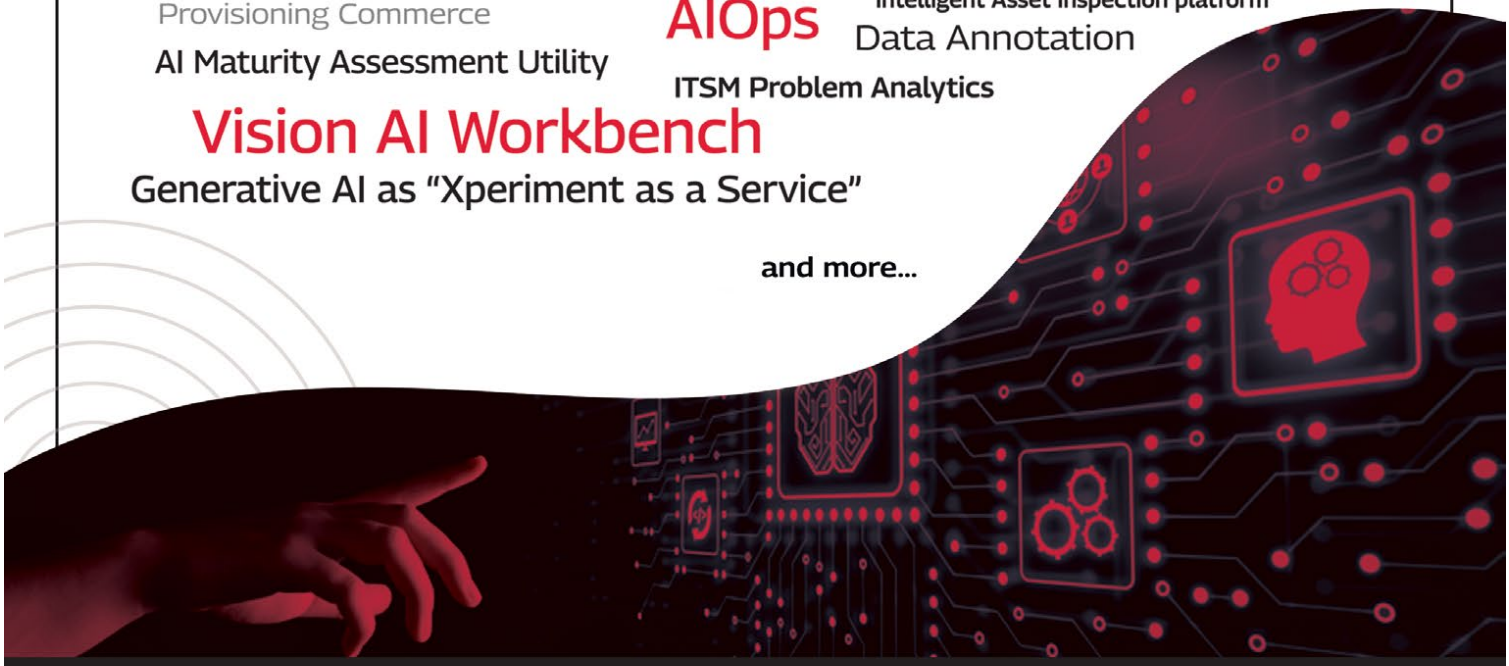
Amplify your business with TechM amplifAI 0→∞

We help businesses achieve game-changing results by infusing "AI" responsibly into every aspect of business to enhance the existing and solve the unsolvable.

We accelerate our client's journey with TechM amplifAI 0→∞, a suite of AI offerings

Complaint Analytics
Edge AI
AI Store
Generative AI Studio
IT Asset Anomaly Detection
Intelligent Alert Noise Management
Document AI
Case Triaging
Conversational AI Analytics
GigWorx solution
MLOps
Forecasting Workbench
Access Commerce
Voice Call Data Analytics
Intelligent Asset Inspection platform
Provisioning Commerce
AIOps
Data Annotation
AI Maturity Assessment Utility
ITSM Problem Analytics
Vision AI Workbench
Generative AI as "Xperiment as a Service"

and more...



Contact us today to know how TechM amplifAI 0→∞ can spark your business!

amplifAI@techmahindra.com

www.techmahindra.com/en-in/artificial-intelligence/

ARTICLE

Generative AI – Potential Game-changer for CME Industry

Hasit Trivedi
CTO – Digital Technologies
and Global Head – AI
Tech Mahindra

Generative AI helps the Communications, Media & Entertainment (CME) industry overcome complex challenges, drive growth, and achieve better outcomes

Until recently, we believed that arts, creativity, and the generation of artifacts were solely within the terrain of human beings, while Artificial Intelligence (AI) remained outside this territory. However, in a short span of time, AI has entered this exclusive club of humans, causing excitement, surprise, and fear altogether. So far, AI has been able to predict, detect, converse, recommend, and observe, but now it can also generate across six elements: code, data, documents/text, audio, video, and images.

> *It is predicted that AI will be worth $320bn in the Middle East by 2030, and in the UAE, AI is expected to make up 13.6 percent of GDP, followed by Saudi Arabia with 12.5 percent, according to an industry report. To intensify research and efforts towards promoting the adoption of futuristic technologies in government work models, the UAE government has recently launched a comprehensive guide on the utilization of generative AI applications.*

In a way, ChatGPT has done for AI what COVID did for digital adoption. Technology companies had long been attempting to teach and influence their clients, but it wasn't until COVID came along that digital adoption took off. ChatGPT has provided a simple and intuitive interface to play with technology, and everyone can see the value in it quickly. Thus, enterprises are now more aspirational with regards to AI technologies, and chatbots, which were widely implemented earlier but less adopted by end-users, are likely to experience a revival in the enterprise.

AI is playing big in the Middle East region

It is predicted that AI will be worth $320bn in the Middle East by 2030, and in the UAE, AI is expected to make up 13.6 percent of GDP, followed by Saudi Arabia with 12.5 percent, according to an industry report. To intensify research and efforts towards promoting the adoption of futuristic technologies in government work models, the UAE government has recently launched a comprehensive guide on the utilization of generative AI applications. For a region normally dependent on oil revenues, these predictions and initiatives are a clear sign that technology could play a significant role in diversifying its economy. However, the region still faces challenges such as a lack of access to data and a shortage of skilled professionals in the field.

Tech Mahindra already has a significant footprint, withlabs in the UAE, Saudi Arabia, Bahrain, and Oman. These labs serve as innovation centers, providing technology solutions to clients in the region and helping companies accelerate their digital transformation journeys. The labs offer a range of services, including digital strategy, cloud computing, artificial intelligence, and cybersecurity. Last year, we inaugurated an Innovation and Technology Development Center, in Muscat, Sultanate of Oman, too. All these will cater to the telecom, media & entertainment, oil and gas, BFSI (Banking, Financial Services, and Insurance), energy & utilities and public sectors by leveraging AI, data & analytics, cloud, and 5G technologies. This is in line with Tech Mahindra's commitment to invest in upskilling and reskilling local talent to take on projects in the Middle East and around the world.

Generative AI for telecom industry

In the telecom industry, providing effective customer service has always been a challenge due to the large customer base. Traditional call centers led by humans were neither efficient nor cost-effective. Self-care and self-diagnosing options created more frustration for end-users, as there was often a lack of smooth context transfer to agents (human or digital). With generative AI, there are possibilities to respond fast and do context-aware dialogues using bots. This potentially plugs the gap in existing chatbot technology, which typically lacks context-aware conversational responses.

By using generative AI, telecom providers can create bots or virtual assistants that offer customers 24/7 support, prompt responses to queries, and personalized experiences. This enhances customer satisfaction while reducing costs for the telecom provider. Virtual assistants can assist customers with inquiries, billing, and account management, while analyzing data on usage patterns, device type, and location to generate personalized recommendations based on customer behavior. This frees up human customer service representatives to focus on more complex issues and provide personalized support.

By using generative AI, telecom providers can create bots or virtual assistants that offer customers 24/7 support, prompt responses to queries, and personalized experiences. This enhances customer satisfaction while reducing costs for the telecom provider. Virtual assistants can assist customers with inquiries, billing, and account management, while analyzing data on usage patterns, device type, and location to generate personalized recommendations based on customer behavior.

In network rollout and troubleshooting area, generative AI can help generate test cases and test data, which, with the help of automation technology, can execute the QA process of the network in autonomous mode, thus reducing rollout or upgrade cost and time. Similarly, code generation capability of generative AI can help resolve networking issues faster, which makes it deskilled work to some extent.

Besides, telecom providers must maintain a vast network of equipment, from cell towers to fiber-optic cables. Keeping track of maintenance timelines for all this equipment can be challenging. Generative AI helps by analyzing data from sensors and other sources, enabling providers to predict when maintenance is required before equipment fails. This reduces downtime, improves network reliability, and ultimately leads to better customer satisfaction.

In addition, generative AI can improve fraud detection and prevention by analyzing patterns and flagging suspicious behavior. Inventory allocation can also be optimized by predicting demand and adjusting stock levels accordingly using generative AI.

Impact of Generative AI in Media and Entertainment Industry

The media and entertainment industry is the most impacted by generative AI, which can handle tasks such as content creation, editing, merging, and style transfer. The television and filmmaking industry has also experienced this new wave of technology, allowing filmmakers to create ideas, plot lines, visuals, characters, and scenes without having to spend countless hours and resources. This opens new

The media and entertainment industry is the most impacted by generative AI, which can handle tasks such as content creation, editing, merging, and style transfer. The television and filmmaking industry has also experienced this new wave of technology, allowing filmmakers to create ideas, plot lines, visuals, characters, and scenes without having to spend countless hours and resources.

possibilities for storytelling and enables filmmakers to explore new genres and styles while focusing on more important aspects of the film.

Likewise, generative AI is bridging cultural gaps and bringing the world closer together by making local media content more accessible to a global audience, resulting in a wider viewership. Subtitles and dubs are crucial in breaking language barriers, and with the help of generative AI, subtitles can be created in multiple languages, ensuring that the message of the tv program or a film is exactly conveyed to viewers who may not understand the original language. AI-based dubbing technology can also create voice overs in different languages, making any media program or film accessible to audiences who prefer to hear the dialogue in their native language.

Ethical and responsible use of generative AI

While a myriad of cool new things are popping up in various industries with the versatility of generative AI, some of these possibilities also pose some of the biggest challenges that mankind will face in the coming years, which is extremely dangerous.

Responsible AI, which has so far been the subject of panel discussions and CXO tasks, needs to play a more significant role at the ground level. While explainability, fairness, and bias were the primary axes of responsible AI, accountability, ethics, and fake detection will need prominent focus for generative AI. Negative use of generative AI can lead to criminal and fraudulent activities and can potentially cause social unrest.

Key considerations while adopting generative AI

On the journey of generative AI adoption, enterprises need to deal with quite a few complex topics with regards to generative AI like -

- Cyber security
- Data Protection
- Accountability
- Legal IP and Copyright issues
- Model transparency and ability to control output
- Cost model – While per unit price is in few cents, but when content ingestion happens at a broad way and multiple users start using it at scale, there can potentially be a surprise element.

Responsible AI, which has so far been the subject of panel discussions and CXO tasks, needs to play a more significant role at the ground level. While explainability, fairness, and bias were the primary axes of responsible AI, accountability, ethics, and fake detection will need prominent focus for generative AI. Negative use of generative AI can lead to criminal and fraudulent activities and can potentially cause social unrest.

Conclusion

With its tremendous capabilities, generative AI has the potential to transform the CME industry by creating new opportunities for content creation and delivery. In the telecom industry, generative models can be used to optimize network performance, predict demand and customer behavior, and automate customer service processes that can help improve network efficiency and customer satisfaction while reducing costs. In the media and entertainment industry, generative AI can be used to generate personalized content recommendations and enhance the creative process by generating new and innovative ideas or content. This can help boost the engagement and loyalty of the audience while reducing production costs. By leveraging generative AI, industry players can gain a competitive advantage in the marketplace while improving the customer experience.

To conclude, those players that adopt generative AI to power their digital touchpoints will be better positioned to succeed in a fast-changing market.

Mobily Digital Hub

Interconnecting international content origins through JED1 IX

State of art international Connectivity

Tier-certified Datacenters

Connect with us: