

- How operators plan to make 5G pay
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- Why CSPs must automate to boost revenues in 2020

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Q4 2019 Volume 12 Number 4

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#### **EDITORIAL:**

| Editor:                               | Robert Shepherd |  |  |  |
|---------------------------------------|-----------------|--|--|--|
| Designer:                             | Sean McNamara   |  |  |  |
| Sub editor:                           | Gerry Moynihan  |  |  |  |
| Contributors:                         | Martin Jarrold, |  |  |  |
| Jon Howell, Smita Sarkar, Stephen     |                 |  |  |  |
| Krajewski, Paul Ward, Caroline De Vos |                 |  |  |  |

Editorial enquiries: roberts@kadiumpublishing.com Tel: +44 (0) 1932 481729 ISSN No: 2052-739X

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ADVERTISEMENT SALES:

Sales: **Kathy Moynihan** kathym@kadiumpublishing.com +44 (0) 1932 481731

Production & circulation: **Suzanne Thomas** suzannet@kadiumpublishing.com Tel: +44 (0) 1932 481728

Publishing director: **Kathy Moynihan** kathym@kadiumpublishing.com +44 (0) 1932 481730

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# Malaysian cops can search phones

Malaysian police can now search mobile phones to ensure that they do not contain anything obscene, offensive or threatening to the security of the people and nation.

Deputy home minister Azis Jamman, speaking in parliament, added that individuals should also be aware of their rights during a random check of their phones, including requesting the identity of the police officer conducting the search.

This is in the event "there is a breach of the standard operating procedures", Jamman said in response to a question from Alor Setar MP Chan Ming Kai.

The latter had asked if there were any reports of police violating standard operating procedures during mobile phone inspections.

Additionally, the deputy home minister said in response to a question about the tapping of phones that the police will use any



The deputy home minister also said in response to a question about the tapping of phones that the police will use any means necessary to ensure that investigations are carried out in cases involving security

means necessary to ensure that investigations are carried out in cases involving security. "It does not matter if the person

is a politician, a businessman or

just anyone who is suspected of having the potential to breach security issues... I believe the police will take the appropriate action," he said. If there are breaches, members of the public should report the matter to the nearest police station or to the police headquarters at Bukit Aman in Kuala Lumpur.

### Japan's NTT sinks to new depths in Singapore

Japanese telecom business NTT has launched a submarine cable unit in Singapore to capitalise on the growing demand for connectivity in southeast Asia.

The London-based firm in charge of the group's overseas businesses, launched Orient Link Pte with two partners in October, with plans to start laying an undersea cable in December, Hajime Miyazaki, director of the London unit, told the media.

It will connect Singapore, southeast Asia's financial hub, with other Asian countries and is scheduled to start running in two years.

Orient Link was set up with a capital of \$119 million together with Tokyo-backed Fund Corporation for the Overseas Development of Japan's ICT and Postal Services, plus Singapore-based Wen Capital Pte.

NTT currently holds a 42% stake in the venture, with the telecom infrastructure fund also known as Japan ICT Fund taking a 38% holding and Wen Capital owning the remaining 20%.

The government fund, which assists Japanese telecom firms to grow overseas, plans to inject up to US\$78m into Orient Link.

In southeast Asia, Singapore boasts the highest number of submarine cables installed as well as data centres operated by global information technology giants.

The Singapore unit will undertake the cable construction to help achieve speedy decision-making, flexible fundraising and timely service launch.

# India behind Nepal, Pakistan in mobile net speed

India ranked behind neighbours Sri Lanka, Pakistan and Nepal in 128th spot for mobile broadband speed in September 2019, according to a report by broadband speed analysis firm Ookla.

Nevertheless, the country ranked far ahead of those south Asian



While India lagged in download, the 4G network availability in the country was far higher at 87.9 per cent compared to Pakistan and Bangladesh

countries at 72nd place in fixedline broadband speed during the reported month.

Ookla's Speedtest Global Index found global average download speed of 29.5 megabit per second and upload speed of 11.34Mbps. It also reported a download speed of 11.18Mbps and upload speed of 4.38Mbps in India.

While the country lagged in download, 4G network availability was far higher at 87.9% compared to Pakistan and Bangladesh with 58.9% and 58.7% 4G availability in the

second and third quarters of 2019. "Airtel was the fastest mobile oper-

"Airtel was the fastest mobile operator in 11 of India's largest cities and tied with Jio in 12th during second and third quarters 2019. Airtel's highest Speed Score was measured in Nagpur. Vodafone was the fastest mobile operator in two cities and Idea in one," the report said.

Sri Lanka led the South Asian countries in 81st spot in mobile network with a download speed of 22.53Mbps and upload speed of 10.59Mbps. Pakistan was ranked 112th with a download speed of 14.38Mbps and upload speed of 10.32Mbps. Elsewhere, Nepal was ranked 119th.

South Korea topped the global chart with download speed of 95.11Mbps and upload speed of 17.55Mbps in mobile networks.

# Myanmar gets first bamboo constructed telecom tower

Myanmar's first telecom tower constructed from bamboo has been installed in the port city of Thanlyin.

The structure was built by telecommunications infrastructure services company edotco in partnership with Yangon Technological University (YTU). The former described it as an extension to its continued commitment to a sustainable telecommunications infrastructure.

"A lot of research went into identifying the right local bamboo to be used for constructing these structures," said Vijendran Watson, chief regional office, Bay of Bengal, edotco Group. "The usage of bamboo in constructing towers is set to reduce our dependence on steel by 80% and decrease 70% of

the carbon footprint per site."

Bamboo is readily available in Myanmar, which makes it an ideal material for a load-bearing telecom structure. Studies have indicated that untreated bamboo is capable of bearing the weight of concrete while possessing rigidity and tensile strength. It can also withstand gusts of up to 195km/h and is a great deal lighter than steel structures, easing deployment and reducing the load to buildings.

Furthermore, the structure has the potential capacity to house up to two tenants at a time. With proper maintenance, bamboo has a life expectancy of approximately 10 years.

With a regional portfolio of over 29,900 towers across its core markets of Malaysia, Myanmar,



The structure was built by telecom infrastructure services company edotco in partnership with Yangon Technological University (YTU) PHOTO: EDOTCO

Bangladesh, Cambodia, Sri Lanka, Pakistan, the Philippines and Laos, edotco deployed the world's first bamboo tower in Dhaka, Bangladesh in 2017 and has since deployed a total of 16 bamboo structures.

# Asia-Pacifc countries to share satellite data

Space agencies in the Asia-Pacific region have agreed to create a system to share observational data of Earth for agriculture and disaster prevention.

Officials from over 30 countries and regions took part in the 4-day meeting of the Asia-Pacific Regional Space Agency Forum in the Japanese city of Nagoya in late November.

Representatives discussed inter-agency cooperation as more member countries start to operate satellites to observe Earth.

They agreed to create a multinational framework to exchange satellite data, which would include such data as the growth of crops, damage from natural disasters and environmental changes in nature.

Thailand, India and Vietnam and others operate satellites.

The exchange will be designed to take advantage of the specific superior data each satellite can assemble to better understand the conditions of rice-producing areas in the region and cope with worsening weather conditions.

Hiroshi Yamakawa, president of Japan's JAXA, the organiser of the meeting, said his agency wants to expand its activities to tackle problems such as food and water shortages, using data and tools obtained from space.

# Indian cable link due for completion in 2020

The Chennai-Andaman and Nicobar Islands (CANI) submarine cable systems project is expected to be completed next year.

Work to install the 2,300-km undersea optical submarine cable system for high-speed internet, connecting the Andaman and Nicobar Islands to mainland India via Chennai, will start in December and be completed by the close of 2020.

Chennai is located on the Coromandel Coast off the Bay of Bengal in south India and is the capital of Tamil Nadu. The union territory of Andaman & Nicobar Islands (A&N Islands) is in the Bay of Bengal.

Japanese firm NEC has been

contracted by India's state-owned telecommunications company Bharat Sanchar Nigam Limited (BSNL) to design, engineer, supply, install, test and implement the cable system.

Telecom services in the Andaman & Nicobar Islands (ANI) are dependent on satellite connectivity and have access to limited bandwidth. It has been suggested that the cable system will provide the islands with enough bandwidth to support voice and data connectivity and the potential implementation of e-governance initiatives.

NEC will manufacture the optical submarine cable at its facility in Japan and provide technical assistance during the turnkey implementation.

# 5G in India available in 2022, says Ericsson

Next generation mobile services on 5G technology will become available in India for subscription in 2022, according to the *Ericsson Mobility Report* released in late November.

The Swedish firm projected that 5G connections will account for 11% of total subscription in India by 2025. Furthermore, the report

estimates 5G to have 2.6 billion subscriptions covering up to 65% of the world's population and generating 45% of the world's total mobile data traffic by 2025.

"As the transformation toward more advanced technologies continues in India, LTE is forecast to represent 80 per cent of mobile subscriptions by the end of 2025," the EMR said. "5G subscriptions are expected to become available in 2022 and will represent 11 per cent of mobile subscriptions at the end of 2025."

However, according to the report, the mass-market adoption of advanced use cases fuelled by 5G is expected later in India than in other regions.

"Nevertheless, the average monthly traffic per smartphone is expected to increase to around 24GB in 2025 (in India)," the report added.

The EMR said average consumption in India, Nepal and Bhutan per smartphone was at 13.6GB.

# Indonesia working on 5G airwaves auction

Indonesia is readying itself to auction additional airwaves to telecom operators to allow them to offer 5G services and will ensure parity for suppliers including Huawei Technologies

The government is taking steps to guarantee adequate spectrum will be available for mobile-phone carriers before deciding on a schedule for the sale, according to minister Johnny G. Plate while some carriers have been conducting trials of 5G services, there's no deadline for them to begin commercial services, he said. Indonesia, southeast Asia's largest market for telecom services, will be guided only by "its national interest" in deciding on technology and equipment vendors for 5G services, Plate added. The minister dismissed concerns of Huawei equipment being used to snoop on China's behalf, a charge levelled by the US in the blacklisting of the firm, saying "everyone is spying on each other these days".

Huawei has repeatedly denied allegations that it's aiding Beijing in spying. Furthermore, the US has curbed sales of technology that Huawei has used in some of its phones and telecom equipment, creating the risk that customers of the company won't be able to update software in its devices.

"For the interest of Indonesians, we're open to everyone and committed to providing a level-playing field," said Plate, who was appointed to the job last month by president Joko Widodo. "The US must have its reasons for not liking Huawei," he added. "Indonesia may not share similar concerns with the US, as well as with China. We are open to anyone, both bilaterally and multilaterally."

#### Malaysian operators agree to collaborate for 5G boost

Malaysian operators Celcom Axiata and Maxis have agreed to explore a potential collaboration for the deployment of the country's 5G infrastructure.

They will look at business opportunities in relation to 5G strategic areas to deliver nextgeneration services in the southeast Asia country as soon as the required spectrum is made available. Both firms will focus on the joint deployment of 5G infrastructure which will cover selected areas. Maxis and Celcom will still maintain their own networks and remain competitive in other areas.

Maxis earlier selected Huawei for the deployment of its 5G network across the country. Under the terms of the deal, Huawei will supply 4G and 5G radio equipment and services for Maxis. In July this year, Celcom deployed a 5G Live Cluster Field Trial, at its @Celcom headquarters. The sixmonth 5G field trial will be conducted at Celcom and within the surrounding areas of Petaling Jaya Sentral, with the objective to test and observe the use cases and behaviour of 5G coverage within real-life environments.

Competitor U Mobile recently partnered with Huawei for the development of 5G services on the local market. The agreement will support U Mobile's planned 5G services launch next year. The deal includes 5G live trials that will be rolled out in Malaysia in 2020.

# Telenor's Bangladesh unit hit with fine

Telenor ASA's Bangladesh unit must pay BDT20bn (US\$235.6mn) to the nation's regulator, after a ruling by the country's Supreme Court.

The latest step in a long-running dispute does not resolve the case, which involves Bangladesh Telecom-

munication Regulatory Commission (BTRC) seeking BDT125.8bn from the unit Grameenphone according to one of the company's lawyers, Sharif Bhuiyan.

A panel of judges asked BTRC to refrain from issuing demands



The Supreme Court of Bangladesh is the highest court of law in the country

to the telecom operator. Still, it said that the moratorium would be lifted if Grameenphone failed to pay the 20bn fine within the stipulated three-month period.

Dhaka-based Grameenphone, one of Norwegian phone company Telenor's Asian businesses, said in April it had received a notice with claims that it owes 84.94 billion taka to BTRC and 40.86 billion taka to the National Board of Revenue. Shares of Bangladesh's most valuable company have slid about a fifth since then.

The company contested the claims, made on the basis of audit findings from 1997 to 2014.

"The audit report is incorrect and any attempt to collect money on the basis of such audit should stop," Grameenphone said in a statement on November 14th.

# Thai government calls for 5G deployment

Thailand's deputy prime minister has called on the country's operators to launch commercial 5G by mid-2020.

Somkid Jatusripitak said that 5G networks were necessary for Thailand to stay competitive with its regional neighbours in terms of innovation and economic prosperity.

"Thailand is battling to become the digital innovation hub of ASEAN, competing with Vietnam, Malaysia and the Philippines, which all plan to launch commercial 5G services in 2020", he told the Bangkok Post.

Jatusripitak also said that the government must not see 5G spectrum auctions as an opportunity to generate money from "exorbitant winning prices". In October, Thailand's regulator NBTC (National Broadcasting and Telecommunications Commission) outlined the 5G spectrum auction process scheduled for February 2020, with deployments expected to begin in March.

Spectrum will be made available in four bands – initially 2600MHz and 26GHz will be available, then later 700MHz and 1800MHz.



Maxis earlier selected Huawei for the deployment of its 5G network across the country

# Vietnamese telecom firms target 5G chipsets and network devices

Experts alongside leading telecom and IT firms shared experiences and discussed the possibility of co-operation in manufacturing 5G chipsets and network infrastructure devices during a seminar in Hanoi.

The event, which was chaired by the deputy minister of information and communications (MIC) in Hanoi in late November, saw companies and industry luminaries discuss plans to produce chips for 5G core networks and IoT devices. They also said they planned to research and develop mobile phones and 5G telecommunications devices. Earlier this year, the Vietnamese prime minister, Nguyen Xuan Phuc, urged the development of domestic technology firms and made-in-Vietnam products.

Resolution No.52-NQ/TW recently issued by the politburo and the draft for Vietnam's socio-economic development strategy towards 2030 emphasised the significance of expanding tech companies. This will be vital to helping Vietnam escape the middle-income trap and build a developed and independent economy, according to the deputy minister. Additionally, the MIC has licensed operators to start testing 5G technology in some major cities.

The deputy director-general of the telecom military-run group Viettel said it had been developing 5G technology and network infrastructure devices since 2015. This includes base-transceiver stations, core networks, and terminal equipment.

He said the group planned to complete manufacturing the first version of its 5G stations and network next year before it went into commercial operation in 2021.

A representative from the VinSmart Research and

Manufacture JSC said the company was focused on researching and producing 5G and IoT devices. The company is also building labs to support research and development for 5G mobile phones and telecommunications devices.

The first 5G mobile phones are expected to hit the market in July next year and testing for 5G devices is scheduled to start in August.

Only ten countries commercialised 5G as of September this year: South Korea, Japan, China, the US, Australia, the UK, Spain, Sweden, Norway and Russia.

## Sri Lanka MoD starts SMS service

Sri Lanka's Ministry of Defence (MOD) has commenced a SMS service to provide the public with up-to-date information on national security and emergency management situations.

'MOD ALERTS' SMS Service will provide news on national security issues and disaster management emergencies, with the help of all service providers, encompassing the whole country and also news clarifications of national security concern.

The new service was launched by the secretary to the MoD, general (Retd) SHS Kottegoda during a ceremony on November 13.

It is the result of the corporation between the MoD, Telecommunications Regulatory Commission and all telecom service providers.

The service will be channelled through the MoD's media centre in consultation with the office of the chief of national intelligence.

Military spokesman and director of the media centre, major general Sumith Atapattu thanked all the partner service providers for their cooperation and support for a national cause and expressed confidence that this new service will prove to be a success.

# Myanmar to upgrade infrastructure

Myanmar has announced plans to upgrade communications infrastructure connecting the capital Nay Pyi Taw, plus major cities Yangon and Mandalay, along with the Thilawa Special Economic Zone (SEZ).

The project, under an official order from Myanmar Posts and Telecommunications, the country's largest telecommunications operator, will be carried out by four partners.

Sojitz, the principal contractor of the project, has worked in infrastructure development projects worldwide. NTT Communications Corporation will be involved in upgrading international internet connection facilities. NEC will provide optical communication equipment for core communication networks to expand transmission capacity to 1Tbps, more than three times the current level. It will also collaborate with its subsidiary NESIC (Thailand) to install dense wavelength division multiplexing equipment, carry out design, civil work and installation works of outside plant, and supply and install power supply equipment and air conditioning equipment.

Due to rapid economic growth in Myanmar since it opened its doors to tourism and foreign investment in the last decade, the strengthening of communications infrastructure is now an urgently required task. The four participating companies plan to construct international internet connection facilities and communications infrastructure connecting the three cities and the Thilawa SEZ by 2021. Communications capacity be more than tripled and significantly upgraded and the project will also support 5G services expected to be introduced in the near future.

Known as the Communication Network Improvement Project and valued at about US\$62 million, this will be the first ODA loan project in Myanmar's communications field carried out under the auspices of the Japanese government.



Due to rapid economic growth in Myanmar since it opened its doors to tourism and foreign investment in the last decade, the strengthening of communications infrastructure is now an urgently required task

# 5G in Bangkok airports by May 2020

Commercial 5G wireless broadband will be launched at Suvarnabhumi and Don Mueang airports in Bangkok by May 2020, making them first sites for ultra-fast wireless internet adoption in Thailand.

Regulator the National Broadcasting and Telecommunications Commission (NBTC) will sign a memorandum of understanding with Airports of Thailand on November 27 for collaboration to facilitate infrastructure preparation for mobile operators to deploy 5G networks at the airports.

NBTC secretary-general Takorn Tantasith said the 5G spectrum bidders will be pushed to consider the two airports as a first priority for 5G adoption, rather than the Eastern Economic Corridor (EEC), which is not ready for 5G service among vertical industries.

"The two international airports will serve as national gateways for 5G tech adoption in Thailand, which will provide ultra-fast wireless broadband service to visitors once they arrive," he said.

He added that several use cases for 5G tech will be developed at the two airports, particularly in airport operations, ranging from facerecognition tech to smart security, from smart logistics to a smart hospital, as well as transport

The NBTC plans to auction the 700MHz, 1800MHz, 2600MHz and

26-28GHz ranges meant for 5G networks in February 2020.

NFWS

It is also in talks with the Digital Economy and Society Ministry to recall the 3400-3700MHz range for the second batch of 5G licence auctions by 2020.

The 3400-3700MHz range, currently held by satellite service provider Thaicom PIc, is seen as the most compatible mid-range for global 5G adoption.

## India calls for more public WiFi

Three telecom industry associations have urged the Indian government to bring more meaningful internet users online by setting up public Wi-Fi and hotspots.

Cellular Operators Association of India (COAI), Internet Service Providers Association of India (ISPAI) and Virtual Network Operators Association of India (VNOAI) have submitted a joint proposal to the telecom department asking for a "seamless and interoperable internet and broadband services through public Wi-Fi hotspots".

Parliament was informed about the request on November 28 and in a written response to the proposal, minister of state for communications Sanjay Dhotre said that these services are being proposed to be provided through a common platform, which will be owned and operated by the three players.

The Narendra Modi-led government planned to deploy five million public Wi-Fi hotspots by 2020 and expand to 10 million by 2022, under the National Digital Communications Policy of 2018. In October last year, the then union communications minister, Manoj Sinha, said that the Indian telecom industry will set up a million hotspots in the country by December 2019.

An official statement noted that "Bharat WiFi, a country-wide common inter-operable platform of one million WiFi Hotspots, owned and operated by telecom service providers, internet service providers, and virtual network operators will be rolled out across the country".

# Nepal Telecom warns of code-sharing

Nepal Telecom has asked its customers to keep safe and not share the details of several codes with others, in a bid to protect personal privacy and the usage of telecom services.

There are several codes for NTC customers like activation code, OTP (one time password), security code, PIN, which are used by the operator to authenticate the user either once or for life. Some of these codes will also enable others to get access to your private account.

The consequences of sharing/losing



such codes include potentially losing the balance or having it terminated.

For example, if an OTP for the mobile app is intercepted, criminals can transfer the balance from the cusThere are several codes for NTC customers which are used by the operator to authenticate the user either once or for life

tomer's account to others. This is not the first time Nepal Telecom has had to notify its customers of potential fraud. Previously, it warned people of one ring faked missed call called Wangiri scam.

# Poland ready to invest in Pakistan

Poland wants to further enhance its bilateral trade relationship with Pakistan by investing in its telecom sector.

Speaking to the business community during his visit to the Islamabad Chamber of Commerce and Industry (ICCI), the Polish ambassador to Pakistan Piotr A Opalinski said both countries had good potential to cooperate in the IT sector as Polish companies wanted to contribute to the growth of 5G and telecom infrastructure in Pakistan.

The envoy said Poland's location in

central Europe could help it become a hub for Pakistan's exports to the EU.

He also highlighted that Polish companies had been doing business in Pakistan's oil and gas sector for the past 20 years and more could invest, particularly in the telecom space.

# Telecom towers destroyed in eight months, says Afghan regulator

The Afghanistan Telecom Regulatory Authority (ATRA) said 220 telecom towers have been destroyed by "the Taliban and some other groups" over the past eight months, inflicting a US\$33m- US\$50m loss to telecom companies who must repair pylons.

ATRA also said security threats have decreased telecom service by 30% across the country.

Kunduz, Farah, Ghazni, Zabul, Baghlan and Balkh are among the provinces which according to ATRA have witnessed the highest number of attacks by militants on telecom towers.

"These 220 telecom towers mean that people in 220 areas in the country were deprived of telecommunication services temporarily or continuously," said Sayed Haris Mir, head of ATRA services monitoring department.

In many parts of the country, telecom services are turned off

during nights due to security threats by militants.

Some MPs, meanwhile, said there is a need for addressing the problem by security agencies.

"This has created many problems for the people who all want these challenges to be addressed," MP Nilofar Jalali told the media. "The government is responsible for preventing threats against telecom companies countrywide," said Raihana Azad, another MP.

## Telkomsel makes '3T' progress

Telkomsel, the mobile unit of Telkom Indonesia, has made major progress by delivering connectivity to disadvantaged areas of the fourth most populous country in the world.

The company said that close to 15,000 base transceiver stations (BTS) had been deployed by the end of September in the country's so-called 3T regions. The term 3T refers to frontier, outermost and disadvantaged areas.

This effort to deliver connectivity to border areas in particular was carried out as part of the country's Universal Service Obligation (USO).

A spokesperson for Telkomsel said that 5,300 BTS are in 3T border areas and 7,800 are broadband BTS. Some 892 USO BTS are now serving 841 villages which were previously without telecommunications. A number of BTS are 4G-enabled.

Telkomsel, alongside telecoms accessibility agency BAKTI, plans to significantly expand the number of 2G and 4G BTS in many villages by the end of this year.

Coverage now reaches over 97% of Indonesia. The spokesperson said that Telkomsel hoped to reach 95% by the end of 2019.

# Nepal Telecom wins underground cable tender

The Nepalese government has awarded the tender to manage and lay underground cables in Kathmandu Valley as a pilot project to Nepal Telecom (NT).

Nepal Telecommunications Authority (NTA) chose the operator to manage the overhead telecom cables and cables installed by television and internet service providers. The company has also been charged with managing the overhead cables that have been hanging perilously from the electricity poles installed by Nepal Electricity Authority (NEA).

KPMG India had studied and suggested the necessary measurements to lay the cables underground. Around 15 areas have been identified where they need to be laid underground immediately.

"After NT prepares the necessary infrastructure, works related to laying cables underground will start," said Purushottam Khanal, chairman of NTA, adding that it has become necessary to lay cables underground to better manage them and also to make the city more beautiful. "The haphazard



In the pilot project, Nepal Telecom will manage an area along 70 kilometres in Kathmandu Valley

way in which cables have been installed have become an eye-sore. The project is being taken as a pilot scheme in the first phase, but we will gradually expand it across the country and will formulate necessary laws for the purpose." In the pilot project, NT will manage an area along 70 kilometres in Kathmandu Valley. Earlier, NEA had also started to lay underground electricity cables in areas covered by its Ratnapark and Maharajgunj distribution centres as a pilot project.

# Vietnam moves up in Huawei's connectivity rankings

Vietnam has edged up three places to 57th out of 79 economies in a global ranking of digital transformation and connectivity published by Chinese telecom equipment and services giant Huawei.

The southeast Asian nation scored 37 out of 120, up from 35 in 2019 and was classed in the group of starters, in the annual global connectivity index (GCI).

Huawei's report ranks 79 countries and territories based on information and communications technology (ICT) investment, ICT maturity and digital economic performance. It groups economies into three clusters: starters, adopters and frontrunners.

"Vietnam is still in the early stages of ICT infrastructure development,"

the report said. "The internet is commonly used in Vietnam for basic needs such as business emails and online searches by consumers. The lack of content in Vietnamese and fragmented information sources are hindering this country as it tries to take the next step up."

Vietnamese telecom companies are keen to get a head start in the 5G race

as the country expects to become an early adopter of the technology.

Telecom giant Viettel broadcast from its network of 5G base transceiver stations in Ho Chi Minh City last September for the first time.

The list was topped by the US with 85 points followed by Switzerland and Sweden with 83 and 81 respectively.

# Thai operators change minds on 2G

Thai regulator NBTC (National Broadcasting and Telecommunications Commission) has ditched plans to decommission the country's 2G networks following a U-turn from the major operators.

AIS, True Move and dtac had previously called for permission to

drop their 2G networks in order to free up the spectrum for other services. They were granted this in January 2019 and were expected to shut down their 2G networks by 31st October. However, the operators have

decided not to inconvenience existing 2G subscribers at this juncture.

"Operators have agreed to continue providing 2G service for remaining users, even though they earlier urged the NBTC to enact the resolution," said NBTC secretarygeneral Takorn Tantasith.

AIS delivers 2G over the 900MHz band, with dtac and True Move both

using 1800MHz spectrum. While re-jigging this spectrum would provide the operators with more efficient capacity and allow them to prepare effectively for 5G broadband, they all face less pressure to relinquish the spectrum after acquiring two 10MHz blocks of 700MHz spectrum in June's auction.

#### NEWS

#### Lao Telecom launches eSIM service

Lao Telecom has launched its digital eSIM activation service using 10T Tech's GSMA Consumer eSIM Cloud platform. It allows Lao smartphone owners with the latest Apple iPhones and iPads and Google Pixel 3a and 4 devices to sign up for both the operator's prepay and post-paid mobile plans by visiting their local service centre to download and activate the eSIM Profile. Lao Telecom now includes an eSIM QR code in the packing of an all-new iPhone 11 and 11Pros sold by 10T Tech.

## SEE acquires Selecom

SEE Critical Comms Group has acquired Selecom, a French manufacturer of active and passive equipment used in confined and harsh environment markets for mobile, radio, critical communications and broadcasting. "This acquisition will strengthen and extend the group's capabilities and will double both products and customers' portfolios, and will allow the group to offer a complete set of solutions and services,"

## Myanmar's biometrics storm

People in Myanmar will be required to give their biometric data, including thumbprints, when buying mobile phone services under controversial government plans to store private information on a central database. A tender document issued in November invites bids for a "national database to store and manage biometric mobile subscriber registration information from all mobile network operators in Myanmar". The biometric information includes at least a person's name, both thumbprints, identity type, identity number and scan of identity card.

#### 🚫 Talking satellite

#### Satellite and a Digital Ecosystem for the Planet

During October 2019 I spoke at an event for information technology security professionals in Riga, Latvia, although my theme was a little off the mainstream of topics addressed during the several tracks of the programme. My choice of title? *A "Network* of Networks" for Digitally Driven Sustainability: A Cyber Secure Satellite-5G World. An alternative title might have been "Triangles". What follows explains this cryptic alternative.

The train of thought which led to my choice of the actual title and theme relates to all the available evidence suggesting that we are not on track to avert two existential environment challenges: the nature crisis; and, climate change. Some scientists believe that the acknowledged biodiversity crisis is, in actuality, the beginning of the sixth mass extinction in geological history; and, over 98 per cent of the scientific community acknowledge climate change as a fact. It is equally acknowledged that across south and south-east Asia the impact of both challenges is already clearly evident.

What has this to do with satellite communications? The link is all to do with data, information, knowledge. Whilst across Asia there continues an obvious digital divide, there is another digital deficit that is apparent, one made evident by the fact that of the 17 Sustainable Development Goals (SDGs) adopted by the United Nations in 2015 – part of the Agenda 2030 to achieve a better future for all humanity – 68 per cent of the 93 environmental SDG indicators cannot, according to the UN Development Programme (UNDP), currently be measured due to lack of data.

This additional digital divide must also be bridged. Spanning this gap will enable us to acquire and deploy data sets to build a digital ecosystem for the entire planet which will allow data flows to be eventually transformed into insights for sustainable decision-making. Radio communications, including satellites and, therefore the related areas of the forthcoming "network of networks" with integrated **satellite** and **5G**, and of cyber security (see below) – have a key supporting role in achieving the 17 SDGs. The UNDP is working with partners on a digital ecosystem for the entire planet, as detailed in a UN paper authored by

Jillian Campbell and David E. Jensen. Requiring various "frontier

technologies" – cloud and edge computing; artificial intelligence and machine learning; the Internet of Things/ Industrial Internet of Things; social media platforms; blockchain and distributed databases; software; mobile apps; augmented reality and virtual reality – as well as satellite communications, and related Earth observation technologies, as well as terrestrial communications, the building of such an ecosystem will, as I see it, have its foundations in a series of parallel relationship "triangles".

The three vertices of the first conceptual "triangle" are Socio-Economy, Development, and Environment - all elements of the 17 UN SDGs. The integrity and robustness of a digital ecosystem which will support each vertex and the relationship between the vertices will depend on the inter-relationships between the vertices of two other conceptual "triangles". The first of these features - satellite, 5G (and, to some extent, previous generations of broadband mobile), and cyber security; and the second features the characterization of **5G** itself, divided between the three major use case groups (the vertices?) of:

[1] enhanced Mobile Broadband (eMBB) = Web browsing, video streaming and virtual reality, together generating 10,000 times more traffic than over 4G networks, with greater than 10 Gbps peak data rates and providing 100 Mbps whenever needed;

[2] massive M2M Communications (mMTC) = Narrowband Internet access for sensing, metering, and monitoring devices, i.e., the Internet of Things/Industrial Internet of Things (IoT/IIoT) connecting billions of devices without human intervention;

[3] Ultra Reliable Low Latency **Communications (URLLC)** = Services for latency sensitive devices requiring sub-millisecond latency with error rates that are lower than 1 packet loss in 10 packets. The satellite-cyber security interrelationships have been well-addressed by GVF on behalf of the satellite industry (the Joint Statement on the Satellite Industry's Commitment to Cyber Security and a Secure Supply Chain), as well as by, for example, the European Space Agency (ESA) in calling for proposed solutions to determine the viability of satellite-based services in support of cyber security and to assess technical feasibility and commercial viability for diverse, current

#### mme development, GVF n. and future,

Martin Jarrold, chief of international

and ruture, vertical sector users of satellite. Potential solutions will be enabled by space

as a means to mitigate the cyber security risks and to enhance cyber resistance and the resilience of existing infrastructures, services and operations, and contribute to enhancing the end-to-end cyber security of space-based applications.

The 3GPP – the 3rd Generation Partnership Project (which produces the Reports and Specifications that define 3GPP technologies, including 5G) – has said the incorporation of satellite networks will help enable 5G service rollouts in unserved and under-served areas, enhance reliability and increase service availability everywhere to the benefit of critical communications and mobile applications.

Governments, telecoms network companies and technology groups are working on heightened security standards for 5G and the IoT/IIoT. Whilst there are apparent flaws in 5G security – such as the use of fake mobile base stations to steal information – 5G data encryption and network user verification mechanisms have improved on 4G, but the 5G weak link is in communication of IoT/IIoT devices connected to 5G networks, particularly when manufacturing default passwords on such devices are not upgraded.

Building a global digital ecosystem is firstly dependent on the gathering and accumulation of RAW DATA from multiple sources – economic, environmental and social – reflecting the conceptual "triangle" vertices of Socio-Economy, Development, and Environment, elements of the 17 UN SDGs. Secondly, the storage and processing of this data, and the connection of multiple databases with improved metadata, is dependent on an information and communications **INFRASTRUCTURE**. Thirdly, cloud computing and AI ALGORITHMS & ANALYTICS extract actionable, intelligence, INSIGHTS & APPLICATIONS – from multiple and integrated information streams – as metrics & 'performance dashboards' which are comprehensible to decision-makers.

All this must happen with a much elevated and broader understanding of the long-term models and incentives that will sustain these efforts. What is needed is to determine how such efforts can protect data security, achieve interoperability, and maintain high standards, whilst answering the question "Will governance be voluntary and collaborative, or regulated and mandated?"



# 2019, A wonderful year for Integrasys



he past year has proven to be an exciting one for Integrasys, with important changes occurring — there is a new CEO for the firm, and with that change, new business units and positions have been acquired.

The company bases its success in innovative products that make satellite technology simpler to use — the company launched multiple new technologies during 2019 and developed highly effective new partnerships.

Following our strategy of "Win-Win" with our partners and to never compete with them, Integrasys has accomplished several superlative achievements. In 2019, we obtained partnerships with Spacebridge and UHP with new projects and numerous opportunities afforded the firm.

Alusat was awarded with the most innovative technology at a trade show by the WTA (World Teleport Association); thanks to the product's massive OPEX savings that predictive maintenance delivers to the satellite networks. Additionally, the industry recognized Integrasys as one of today's most innovative companies with four awards over the last four years. This year, we grew our staff by 180 percent and gained far more traction within the USA through the hiring of new employees. Additionally, significant staff was added in Madrid and then, following closely, the company;s Seville, Spain, unit added a new Customer Success Business Unit. Currently, the company is expanding into Asia.

Last year, company profits grew 300 percent and this year appears to also experience strong growth in profitability, thanks to the industry trusting the firm's technologies and the great support across the globe. This year, before the end of Q3, Integrasys will have exceeded the 2018 revenue.

After 28 years of being a very stable business, it is a pleasure to experience how a dynamic company can strengthen their product lines through innovation and then, subsequently, win significant market share by differentiating their technology from competitors.

Satellite operators today need to consider the acquisition of tools that add value to support the increased capacity needs of customers and to provide a better value proposition to their VNOs. Integrasys offerings are ideal for this proposition, allowing service providers and telcos to save significant OPEX.

Integrasys is fully engaged with our customers. The firm's support team is staffed by the same engineers who develop the product, which helps with instant connectivity resolution, providing support anytime, anywhere — Integrasys has received a 99 percent Customer Support Satisfaction via customer support surveys.

Integrasys is global company with partners ranging from New Zealand to Alaska and is opening new offices across the globe. The company is providing new solutions day by day, with the goal being to facilitate the needs of our customers. Integrasys would not be the success that it is today without the dedication of our partners. The company is proud to bef working with most of the leading Satellite Operators and Service Providers in the industry. For us, a total commitment to quality and service is an absolute must.

The company's R&D team has more than 25 years of experience and the Integrasys engineering team in Seville has been developing ad-hoc projects to solve a variety of customer challenges to ensure their success. We strongly believe that product innovation and understanding the needs of customers and the market are the keys to success.

In 2019, Integrasys expects to experience important growth in various regions across the world, with new offices to support a growing customer base. The company commits to provide them with simpler and faster solutions for monitoring their carriers, as well as designing, deploying and maintaining their networks.

For further information, please visit https://www.linkedin.com/in/integrasys-sa-and-llc/



#### WIRELESS BUSINESS

# India faces major mobile data hike

Indian consumers may no longer enjoy the cheapest mobile data rates in the world after three of the country's operators announced up to a 40% rise in tariffs.

Vodafone Idea, Bharti Airtel and Reliance Jio together account for 90% of India's over a billion mobile subscribers.

The hike follows big second-quarter losses by the first two and have been slated for early December.

Analysts said it is unlikely that these price increases will drastically affect data prices, especially given that India is a price sensitive market.

With India's mobile and data tariffs among the lowest in the world, and the average revenue per user below \$2 a month, operators have been grappling with high government fees, and equipment and operating costs.

In November, Vodafone Idea and Airtel announced that they would increase prices after declaring second-quarter losses of US\$10bn.

All the hikes were in the prepaid segment, which accounts for 95% of India's mobile subscribers. A premium post-paid segment, where users are

sent a monthly bill, was unaffected.

Airtel and Vodafone Idea have raised tariffs by 15 to 50% across different offerings. Both have kept their prepaid voice and data packs largely unchanged, other than raising their cost.

Reliance Jio did not announce details, beyond saying that its new plans would be 40% higher

but would provide "300% more benefits".

The new prices come into effect between 3 and 6 December for the different operators.

Jio gains most from the hikes because almost all of its subscriber base is pre-paid, while Airtel and Vodafone Idea have nearly 30% of their users in the post-paid segment.



With India's mobile and data tariffs among the lowest in the world, and the average revenue per user below \$2 a month, operators have been grappling with high government fees and equipment and operating costs

# Sri Lanka Telecom Group operating profit up 37%

Sri Lanka Telecom (SLT) announced its financial results for the first nine months of 2019, which saw operating profit rise by 37%.

Profit after tax (PAT) for the period was Rs.5bn with a 25% year-on-year growth compared with the same period the year before.

SLT revenue was Rs.63.9bn with a 6% growth to 2018 with a minimum escalation of 3.4% in operating cost at Rs.56.8bn.

Despite the challenges on voice revenue due to the boom in the internet consumption, all other segments of SLT positively contributed for the revenue growth. The increase in revenue coupled with the SLT cost management strategies resulted a 19% year-on-year growth in EBITDA to Rs.22.3bn and improvement in EBITDA margin to 35% from 31% in 2018, was welcome reading against a backdrop of industry challenges.

Operating profit was Rs.7bn, a 37% year-on-year growth. Profit before tax (PBT) stood at Rs.7bn, 26% up compared to the same period the year before.

"Our nine months results marked a remarkable financial performance despite heavy competition and other industry challenges," said SLT chairman Kumarasinghe Sirisena. "The unprecedented speed and magnitude of change today in the telecommunication industry demands the courage to challenge convention and explore new directions, spot opportunities and take calculated risks to reach business objectives. SLT's transformational journey towards a SMART Sri Lanka, has expanded our reason for being in business. As a team, we continuously strive for excellence, always accomplishing better than yesterday."

Global Telecommunications Holdings N.V. of Netherlands currently owns 44.98% stake in SLT whilst 50.50% is owned by the government and the balance shares remain with the general public.

| LATEST COMPANY RESULTS |                            |           |        |          |            |               |                |   |  |  |
|------------------------|----------------------------|-----------|--------|----------|------------|---------------|----------------|---|--|--|
| Date                   | Company                    | Country   | Period | Currency | Sales (m)  | EBITDA<br>(m) | EPS<br>(units) | Notes   |  |  |
| 14/11/19               | Bharti Airtel              | India     | Q2     | INR      | INR230.4bn | N/A           | N/A            | 230.4bn rupees refers to losses   |  |  |
| 14/11/19               | Singtel                    | Singapore | Q2     | \$\$     | S\$737m    | N/A           | N/A            | Sales refers to profit. The company posted a second-quarter<br>loss of \$\$668m (US\$491.29m) wounded by a one-time<br>charge recorded by India's Bharti Airtel |  |  |
| 18/11/19               | Sri Lanka Telecom<br>(SLT) | Sri Lanka | Sep 30 | Rs       | Rs.63.9bn  | N/A           | N/A            | SLT revenue a 6% growth compared with 2018  |  |  |
| 28/11/19               | Axiata                     | Malaysia  | Q3     | RM       | RM119.7m   | N/A           | N/A            | Sales refers to profit, which was down from RM132.07m year-on-year.   |  |  |

| PEOPLE MOVES & CHANGES |                                |                  |                               |                         |                   |  |  |  |  |
|------------------------|--------------------------------|------------------|-------------------------------|-------------------------|-------------------|--|--|--|--|
| Date                   | Name                           | New employer     | New position                  | Previous employer       | Previous position |  |  |  |  |
| 30/10/19               | Suresh Kalpathi<br>Chidambaram | Ooredoo Maldives | Chief financial officer (CFO) | Ooredoo Global Services | CFO               |  |  |  |  |

#### Axiata profits nosedive

Axiata Group Bhd's net profit for the third quarter ended September 30, 2019 dropped 9.4% to RM119.7m from RM132.07m year-onyear due to the absence of contributions from Singapore telecom business M1 following its disposal, as well as higher taxes in Bangladesh.

The lower net profit came despite 3.5% higher revenue of RM6.21bn achieved during the quarter under review, from RM6bn a year ago.

There was higher revenue thanks to better performance by most of its operating companies, except for mobile operations in Malaysia, Sri Lanka and Nepal.

For the first nine months, Axiata posted a net profit of RM1.03bn compared with a net loss of RM3.37bn in the corresponding period last year, against 3.96% higher revenue of RM18.32bn from RM17.62bn.

In a statement, the group attributed its higher revenue to strong data revenue

## Indian telecom giants post heavy losses

Indian telecom giants Bharti Airtel and Vodafone Idea reported a combined US\$10bn in quarterly net losses after making provisions to cover a recent Supreme Court ruling ordering them to pay huge fees and penalties within three months.

Singapore Telecommunications-backed Bharti Airtel's loss was 230.4bn rupees (\$3.2bn) for the quarter, while Vodafone Idea recorded a loss of 509.2bn rupees. It is thought that Vodafone Idea's loss is the highest-ever for an Indian company.

"It is to be noted that our ability to continue as a going concern is dependent on obtaining the reliefs from the government as discussed above and positive outcome of the proposed legal remedy," the firm said in a statement.

Bharti Airtel said it is hopeful that the government will provide some relief to the sector "given the

growth and its return to profitability to better underlying performance across most of its operating companies, foreign exchange gain, discontinuation of losses related to its investment in India, gain on disposal of non-strategic investments and disposal of investment rights in the country, which reflected its portfolio rebalancing strategy.

"The strong set of financial results recorded by Axiata this quarter is a testimony to the group's disciplined and rigorous execution of operational and cost excellence initiatives aimed at steadying the group and mitigating our geography's complex, uncertain and competitive business and regulatory environment," said its chairman Tan Sri Ghazzali Sheikh Abdul Khalid. "As Axiata transforms to realise its digital vision, staying focused on profit and cash in the short

term to strengthen our financial footing will be a key enabler for sustainable growth. In this regard, the board is encouraged by the achievements in this third quarter."

fragile state of still set aside to cover the to engage with and are evaluating available to us," director and chief

the industry," but 280 billion rupees penalty. "We continue the government various options said managing executive of

India and south Asia operations Gopal Vittal. The court ruling in October ended a longstanding dispute between the government's telecom department and the companies, with the government arguing the companies had underpaid by billions of dollars on license fees and spectrum-use charges.

Under the ruling, Bharti Airtel will have to pay 420bn rupees in unpaid dues, while Vodafone Idea owes 400bn rupees.

## **Ooredoo Maldives appoints CFO**

Ooredoo Maldives has appointed Suresh Kalpathi Chidambaram as its new chief financial officer (CFO) and executive director to the board.

The company said Chidambaram was appointed to the board of directors in the capacity of a nominee of Wataniya International FZ-LLC, effective from September 17th.

With over 30 years of finance experience in various industries, including manufacturing, retail and telecommunications, Chidambaran

joined the Ooredoo Group in 2008, where he held the position of Senior Director, Investment Management until 2013.

He also served as the CFO at Ooredoo Global Services prior to his latest appointment.

Chidambaram achieved a Master of Management Studies from Birla Institute of Science and Technology (B.I.T.S Pilani) and is a member of the Institute of the Chartered Accountants of India.

# Sterlite launches dTelco platform

Digital specialist Sterlite Technologies has launched a digital telco platform 'dTelco', which will allow telecom companies to automate customer management and operations while providing new customer insights.

The Indian firm said that the platform will increase the scope of enhancing personalisation, generate more revenue and drive innovation. The dTelco platform helps move away from traditional siloed model to agile, scalable, customer-centric and data-driven business model.

It also reduces the cost of traditional operational functions by automating customer management and operations and providing new customer insights by data driven analysis capability, powered by Intellza – an AI offering by STL. "A modern telco is a technology company. With new technologies such as 5G, IoT, IIoT, edge computing, data analytics, ML, Al becoming mainstream, telecom companies are expected to play a pivotal role in acceleration of 'digital' for individuals and enterprises," said Anshoo Gaur, CEO, Network Software, STL. The firm had recorded a 22% rise in consolidated net profit to Rs160 crore during the second quarter ended September 30.

# Ooredoo may reduce stake

Qatari operator Ooredoo QPSC is considering reducing its stake in its Myanmar unit amid fierce competition in one of the world's newest mobile-phone markets.

According to reports, Ooredoo has been courting interest from potential investors including state-owned China Telecommunications about a deal that could value the unit at as much as \$4bn, according to sources.

A transaction could involve a partner investing in Ooredoo's Myanmar business in return for a stake of around 40%, the people said. Ooredoo would lower its exposure to a country where it faces steep price competition from Mytel SA, a new player backed by Vietnam's Viettel Global Investment JSC, and Norway's Telenor ASA.

Ooredoo Myanmar's revenue in the first nine months of the year dropped 19% to 807 million riyals (\$220 million) . Earnings before interest, tax, depreciation and amortization for the period rose 30% to 226 million riyals and its customer base reached 10 million customers at the end of September.

The business has had a presence in Myanmar since 2013, when the country opened up its telecom industry.

## US operator adds Singapore's highperforming start-up to its arsenal

US firm DHI Telecom has completed the acquisition of Singapore-based Yogofi, a highperforming start-up in advanced mobile Wi-Fi for global business and leisure travel.

Founded in January 2018, Yogofi operates virtual SIM platforms for more than 16,000 mobile devices. Customers include travel agencies, co-working spaces and global MNCs. Its top five mobile data markets are Europe, Japan, Singapore, South Korea and the US and South Korea.

The acquisition allows DHI to gain instant growth in Asia and the technology space.

"We picked Yogofi for their incredible growth in the Asian mobile data market and their cloud-based virtual SIM platform," said DHI chief executive officer (CEO) Wallace Davis. "Yogofi's B2C travel agency network in Asia is an ideal fit for our portfolio."

Yogofi president Kelvin See praised the DHI team, culture, technology, and customer focus in his statement following the announcement.  $\searrow$ 

# Singtel posts heavy Q2 loss

Singtel posted a second-quarter loss of S\$668m (US\$491.29m) wounded by a one-time charge recorded by India's Bharti Airtel.

The latter said it made a provision of (US\$3.99bn) after India's Supreme Court recently upheld a demand by the telecom department that wireless carriers pay INR920bn in overdue levies and interest.

Singtel, or Singapore Telecommunications, southeast Asia's largest telecom operator, reported a 3% rise in underlying net profit to \$737m for the quarter.

"Notwithstanding the court ruling, Airtel has made positive strides in the wake of the recent industry consolidation, gaining market share, and increasing mobile service revenue for a third straight quarter," said Chua Sock Koong, Singtel Group chief executive officer (CEO).

Chua added that the weak global economic environment has affected the industry "although on a positive note, our diversified earnings base and our cost management have lifted our performance". Chua continued: "We remain focused on delivering better customer experience and deepening customer engagement. While we expect current challenging conditions to continue into 2020, we will invest to strengthen our market position, enhance our core networks and build strategic capabilities to capture growth, and be 5G-ready."

Singtel, or Singapore Telecommunications, is also the biggest shareholder in Bharti Airtel, with an effective stake of about 35%. "In addition to our common passion for global, mobile Wi-Fi technologies, our companies also share a commitment to employee and customer satisfaction, which will enable us to transform internet connectivity around the world," See said.

Yogofi is DHI's fourth strategic acquisition in 12 months. The first being London-based Tep Wireless in Q4 2018, which immediately expanded DHI's market with US and UK business and leisure travellers. In June 2019, the Houstonbased firm acquired French business Travel Wi-Fi, which provides travellers to France and Europe with rentals of portable Wi-Fi with free pickup at Paris-area airports and retail locations. In July

2019, DHI bought Trinus, a Wi-Fi and SIM card telecom company based in Chile with a growing commercial travel business model.

# Telecom Malaysia goes back to black

Telekom Malaysia Bhd (TM) returned to the black in the third quarter ended Sept 30, 2019, with a net profit of RM261.31m compared with a net loss of RM175.59m year-on-year, on the back of lower operating cost from the group's various cost optimisation initiatives.

Revenue for the quarter, however, fell 3.2% to RM2.85bn from RM2.95bn this time last year.

For the cumulative nine months, TM's net profit surged 718.9% to RM683.77m from RM83.5m a year ago. Stripping off non-operational items, normalised net profit stood at RM810.9 million, up 53.7% against the same period last year.

This was despite a 3.8% decline in revenue for the period to RM8.4 billion from RM8.73 billion in 9MFY18, mainly due to lower contribution from all lines of products except data and nontelecommunication related services.

In a bourse filing, TM said total capital expenditure (capex) was within guidance at 8.8% of revenue or RM736 million. "Out of the amount spent, 16% was made for core network, 58% for access and the balance 26% was made for support system." it added.

Reviewing its quarterly results, TM group chief executive officer Datuk Noor Kamarul Anuar Nuruddin said overall, the firm saw continued improvements in its fundamentals in the third quarter. "We have managed to keep a closer eye on our operational efficiencies to deliver sustained profitability with lower year-to-date opex (operating expenditure)/ revenue," he said in a separate statement.

# Nokia signs IoT deal with Hutchison 3

Nokia has signed a deal with telecom service provider Hutchison 3 Indonesia (3ID) to provide IoT coverage to enterprises across the country.

Utilising the fully virtualised Nokia Worldwide IoT Network Grid (WING) managed service offer, 3ID and its Indonesian enterprise customers across various sectors will be able to launch end-to-end IoT solutions quickly, reliably and affordably.

As part of the contract, enterprise customers will be able to manage their IoT devices realtime, using the cloudified IoT core network, a single global connectivity management platform and 24/7 IoT command centre capabilities. This will enable agile and secure operations, comprehensive service level agreements, in addition to providing real-time insights, allowing enterprise customers to manage and adjust the connectivity according to their specific needs.

The deal follows the Indonesian government setting out its vision to become a regional technology hub in southeast Asia by 2020. Indonesia's "Making Industry 4.0" provides a roadmap for major innovations in the digital technology economy, aiming to increase the global competitiveness and productivity of Indonesian businesses. The deal with Finnish giant Nokia will enable 3ID to play a key role in this process, whilst also building up a substantial enterprise business as a new revenue stream.

3ID will be able to leverage new business models to address opportunities in various industries, with pre-packaged offer solutions available for agriculture, livestock management, asset management and logistics. 3ID will also be able to cooperate with other WING operators around the world to better provide the delivery of IoT services for global enterprises in Indonesia, as well as benefitting from IoT services originating from other WING operators and carried on the 3ID network.

"The Nokia WING service will help us unlock the potential of IoT for our enterprise customers," said M. Danny Buldansyah, vice president director, Hutchison 3 Indonesia.

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## MoneyGram and Wing launch mobile wallet service in Cambodia

Money transfer company MoneyGram International has joined forces with Wing (Cambodia Specialised Bank) to offer a service that will allow customers to receive funds directly into their mobile wallets.

Under the terms of the deal, MoneyGram customers will be able to remit and receive money via Wing Money mobile app. Customers will also have the option to cash out using any of 7,000 WING cash Xpress outlets in Cambodia, MoneyGram said.

"With 80% of our online transactions being made on a mobile device, we are looking to provide even more options for our customers using our digital platforms," said Alex Holmes, MoneyGram president and chief executive officer (CEO). "Wing is at the forefront of mobile money and electronic payments, and this mobile wallet tool will serve as a valuable asset for the under-banked in Cambodia, allowing consumers to conveniently and reliably send money across digital boundaries from anywhere."

Manu Rajan, CEO of Wing added that it was the company's commitment to provide every Cambodian with convenient access to mobile financial services relevant to and for the improvement of, their daily lives.

"Our partnership with MoneyGram has allowed us to increase our global presence and keep friends and family from around the world connected," Rajan added.

Funds sent back into the country from Cambodian migrant workers totalled \$1.4bn last year, according to data from the National Bank of Cambodia. It is expected that this number will rise as more money is being sent home from Cambodians expatriates.

## Bharti Airtel readies VoWi-Fi

Bharti Airtel is preparing to commercially roll out its voice over Wi-Fi (VoWi-Fi) service in December across India in a bid to improve indoor voice calling experience for its users.

The firm has just completed having done testing with employees and select customers across various circles. This move will allow the operator to take on over-the-top (OTT) services like WhatsApp and keep them from consuming revenues.

Furthermore, the service will allow Airtel customers using Wi-Fi calling capable handsets to make calls using a Wi-Fi network.

Several handset vendors like Apple, OnePlus, Xiaomi and Samsung have pushed software updates to enable VoWi-Fi on their smartphones in India.

According to reports, Reliance Jio and BSNL have been testing VoWi-Fi in various circles.

## Ooreedoo group sees 3% revenue dip in third quarter

Ooredoo Group revenue dropped 3% to QAR22bn as a result of fewer handset sales, macroeconomic and currency weakness in some of the markets, according to its latest set of results.

EBITDA at the firm rose 4% to QAR9.7bn with EBITDA margin of 44%, which it said was driven by an efficiency programme.

Ooredoo added one million new customers to its network in Q3 taking the total to 116 million – mainly driven by new customers in Indonesia and Iraq.

Indosat Ooredoo, the group's Indonesian business posted a 11% hike in revenues to QAR4.8bn after implementing refreshed commercial strategy to attract longer term, higher value customers and reduce churn. Indosat Ooredoo's customer numbers increased sequentially by two million.

Elsewhere, Ooredoo Myanmar's revenue dropped to QAR807m vs QAR1bn due to price competition in the market, following the entrance of the fourth operator.

The unit increased its customer base by 6% to 10 million customers, driven by the company's strategy to expand its digital distribution network. It also increased its Ooredoo App monthly active users to 1.3 million, while its VIP digital loyalty programme reached 1.6 million users.

Headquartered in Qatar the company is 68% owned by Qatar government related entities, 10% by ADIA (UAE), while remaining 22% is on public market, according to Ooredoo's disclosures in 2016.

# Protelindo secures 1,000 tower acquisition, plus 1,900 new tenancies

Profesional Telekomunikasi Indonesia (Protelindo) said it has completed the acquisition of 1,000 towers from Indosat Ooredoo, with nearly 1,900 tenancies.

The largest tenancies are from the latter, Telkomsel, H3i and XL Axiata, with Indosat Ooredoo serving as the anchor tenant on all 1,000 towers as part of a 10-year lease back agreement. Payment for the acquisition, valued at IDR1.95tn, was made from a combination of cash on hand and additional debt.

Protelindo said that following the completion of the transaction, the additional debt will have

#### limited impact on its reported leverage with net debt to annualized EBITDA being less than 2.5x on a run-rate basis. Furthermore, the addition of close to 1,900 tenancies from the transaction is likely to add nearly IDR280bn to Protelindo's total annualised run-rate revenue, plus nearly IDR2tn in contracted revenues.

Indosat Ooredoo announced in mid-October the sale of 3,100 telecom towers to two Indonesian companies for a sum close to IDR6.39tn (approximately US\$456m). Daya partner Telekomunikasi (Mitratel) will buy 2,100 towers while Protelindo will purchase the remaining 1,000.

# DITO Telecom to invest US\$6bn targeting 30% market share

DITO Telecom, The Philippines' newly-launched third telecom operator, said that it will increase its investment in its mobile network infrastructure to secure US\$6bn, as it looks to capture a 30% share of the market within its first year of operation.

DITO (formerly Mislatel), which was formed earlier this year as a challenger operator to the country's incumbent two operators – Smart and Globe, added that it would aim to launch commercial 5G services across the Philippines in late 2020.

"The DITO Telecommunity resolve has been bolstered by the encouragement they have received especially from the Filipino public that resulted in their commitment to invest more than the initial US\$6bn they have earmarked for the project," DITO said in a statement.

President Rodrigo Duterte has been a longterm advocate of fast tracking the country's 5G rollout, heralding it as a transformative technology that will be the bedrock of the country's fledgling digital economy.

Born out of a partnership between Dennis Uy's Chelsea Logistics and China Telecom, DITO Telecom has set itself some ambitious targets for the first years of its operation. It has pledged to provide minimum speeds of 27Mbps across its networks, dramatically improving connectivity across the nation.

#### WIRELESS SOLUTIONS

## Kenwood's NX-1000 'all-rounder'

Kenwood says its new NX-1000 series of professional two-way radios – for everyday use – is "packing" the latest digital protocol, NXDN or DMR. This One-"K"-Fits-All solution, the firm claims, is "certain to enhance business



efficiency by providing the best match for individual radio requirements".

One added advantage, Kenwood says, is mixed-mode operation to ensure seamless integration with legacy radios and existing systems while smoothing the onward migration path to digital.

Kenwood radios can to be found in many of today's racing cars and the company says that while drawing on these strengths, the NX-1000 series has been conceived as a single, affordable platform that offers the latest digital protocols plus the ability to satisfy the widest range of user requirements. Customers can pick either the NXDN or DMR digital CAI; FM analogue only models are also available.

There's the choice of basic and standard keypad models are available, with the option of a highcontrast backlit LCD for more intuitive operation. RF output is 5W (VHF & UHF). Kenwood reckons operating ease is further enhanced with a 7-color LED indicator that provides useful information at a glance, such as battery level and 'selective call' alert. www.kenwoodsa.com

# Ampleon releases new 12V LDMOS power amplifiers

A new line of 12V laterally diffused metal oxide semiconductor (LDMOS) transistors from Ampleon is aimed at commercial, public safety and defence mobile radio applications.

The 12V LDMOS portfolio will cover ceramic and plastic packages with a minimum longevity commitment of 15 years and the first two products on the market are the BLP9LA25S and the BLP5LA55S. Both devices are designed for 12V nominal mobile operation over the entire VHF and UHF frequency bands from 2 to 941 MHz and deliver 25W and 55W respectively. Ampleon claims they combine ease-of-use and extreme ruggedness without sacrificing performance as they enable over 18 dB gain and over 65% efficiency over the full operating frequency range.

This results in fewer stages, improved stability, simplified cooling and thus smaller systems. Ampleon reckons the linearity makes the solutions ideal for TETRA while their ability to handle extreme mismatch levels over 65:1 voltage standing wave ratio (VSWR) enables highly robust handheld radios that withstand harshest environments possible. In addition, these broadband 12V devices are housed in compact over-molded plastic (OMP) TO270 packages, ensuring smallest footprint and minimising system costs. www.ampleon.com

applications.

# EXFO introduces 'industry first' integrated test solution for DWDM networks

EXFO claims its Optical Wave Expert is the first device to integrate DWDM channel power validation and intelligent OTDR fault-locating capabilities on a single port. Designed to save multiple service operators (MSOs) time and money, the Optical Wave Expert equips field technicians to automatically measure, diagnose and troubleshoot optical fibre links.

"We're delighted to bring an innovation to market that reduces 'time-to-cash KPIs', streamlines operations and empowers cable operators' field operations to get it done right the first time," says said Stéphane Chabot, EXFO's vice president of test and measurement. Even field technicians with no DWDM network



experience become instant experts in diagnostics and troubleshooting. The Optical Wave Expert, which is easy-to-use, compact and portable, fills an existing gap in the market by eliminating the need for multiple instruments and seamlessly isolating problems for quick resolution." checker and OTDR capabilities on a single port means less unnecessary manipulation of the optical fibre and improved field efficiency. Instead of the 'trial and error' process that previously relied on separate, less proficient devices which increased the chance of disabling nodes, EXFO's Optical Wave Expert ensures faster meantime-to-repair and accelerates service turn-up and time to revenue.

EXFO says technicians can now perform real-time channel power readings through an intuitive GUI environment and benefit from tuneable OTDR capabilities. What's more, bar graph and table views are available on a wide touchscreen display for instant visibility. www.exfo.com

The integration of channel

## Siklu unveils EtherHaul 2-foot dual-band antenna

Siklu, a specialist in fixed 5G millimetre wave technology for gigabit wireless access, smart city and security networks has released its new EtherHaul 2-foot (61 cm) dual-band antenna (EH-ANT-2ft-DL5). The company says it's designed to work seamlessly with Siklu's ExtendMM feature on the EtherHaul 8010FX, 2500FX and other Siklu E-Band models.

ExtendMM is a Siklu product suite consisting of the new du-

al-band antenna, software for monitoring and provisioning, a built-in switch in the EtherHaul radios, plus purpose-built accessories. They are all integrated with Siklu SmartHaul Apps – such as LBC for link planning and WiNDE for network design.

The Israeli firm says this system of hardware and software easily and seamlessly combines a high-capacity EtherHaul link with an inexpensive, unlicensed, low capacity and lower frequency link, such as 5, 11, 18 or 23GHz. The net result, Siklu claims, is that "customers can have confidence in engineering and extending their EtherHaul links to distances never considered before".

When the new dual-band antenna is combined with ExtendMM, installation is simplified, as there is now a single cable run to the rooftop or tower, as opposed to two cables for two antennas. Siklu claims this approach is said to save both time and labour costs during installation, as well as recurring payments for hosting fees.

"As the leader in fixed 5G mmWave systems, our customers look to us for innovative solutions, and extending the range covered with our E-Band systems is a request we have heard many times," says Ronen Ben-Hamou, Siklu's CEO. "Siklu continues to deliver the broadest portfolio of mmWave hardware and software solutions in the market with new and exciting 5th generation EtherHaul products on the horizon." www.siklu.com

# Icom introduces LTE/POC mobile radio terminal for commercial vehicles

Icom's new IP501M, an LTE/PTT over Cellular (PoC) mobile radio, completes its range of LTE radio products. The company says that as the IP501M uses public mobile networks, it offers users nationwide coverage. The IP501M has the same Man Machine Interface (MMI), operating menu and key layout as Icom's IP501H/ IP503H hand portables. It also supports full duplex operation,

allowing users to talk and receive at the same time during individual calls and group calls. As the device uses public mobile networks, it doesn't require a radio licence. What's more, with the optional HM-230HB command microphone connected, users have a display and 10-keypad control handheldlike interface. Furthermore, the IP501M can also be connected via Bluetooth to wireless headsets for



hands-free operation.

"Our LTE radio system is perfect for any transport company providing [an] incredibly simple, secure full duplex solution at a reasonable cost with nationwide coverage," says lan Lockyer, marketing manager at Icom UK. www.icomuk.co.uk

# Antenna Company claims industry first



Antenna Companv claims it has developed the industry's first 5G dielectric resonator phased antenna array designed specifi-

cally for 5G mm-wave applications.

The 64-antenna Dielectric Resonator Antenna (DRA) combines patented SuperShape and DRA technology to achieve wide-band operation over the 24-30 GHz frequency bands.

Antenna Company says the mm-wave DRA array demonstrates reduced scanning losses, lower sidelobe levels and greater maximum scan angle compared to a conventional patch array using the same configuration and inter-element separation.

What's more the firm says the improvements in scanning performance enable better coverage over the usable frequency band.

The design, so the company says, achieves over 40 dBm of peak EIRP, which is suitable for use in customer-premise-equipment (CPE) products. The design is scalable to support 37-40 GHz frequency bands for global band support across the mm-wave spectrum.

The production version of the design, featuring 64 dual-polarization antenna elements, 5G NR radio transceiver, RF front-end, and support for beam-steering and beamforming is planned to be released in 2H-2020. www.antennacompany.com

## Zyxel provides multi-gig experience with new WiFi 6, 10G PON and managed WiFi products

Zyxel Communications expanded its WiFi 6 (11ax) portfolio with a brandnew managed WiFi platform, MPro Mesh and a 10G PON platform. The company said the products are designed to help service providers to unlock the full potential of their networks and deliver multi-gigabit connectivity to their customers.

Its expanded Wi-Fi 6 portfolio offers the choice of DSL, ethernet, active fibre, PON and extender models that can fit a variety of deployment scenarios.

Zyxel's MPro Mesh solution combines the abilities of its

managed Wi-Fi solution with the industry standard, EasyMesh to deliver corner-to-corner, "highperformance" Wi-Fi with even greater mesh hardware compatibility.

"As more devices are falling into the hands of end-users, bandwidth demands are in turn increasing at an exponential rate, meaning service providers' networks must keep pace with their customers' demands," said Allen Lin, vice president at Zyxel broadband EMEA business unit. "Our newest range of solutions have specifically been designed with this in mind; from ultra-fast, whole-home



WiFi coverage to delivering gigabit connectivity to the home or enabling seamless connectivity on the move, we are ensuring service providers can deliver a multi-gigabit experience to their customers - wherever they are."

The products made their debuts at the Broadband World Forum 2019 in Amsterdam. www.zyxel.com

#### O Look out for...

#### Quectel makes 5G data call over mmWave module

China's Ouectel Wireless Solutions completed a data call over its 5G mmWave module, in full compliance with 3GPP Release 15 5G NR standards.

The call on September 25 was made over a Quectel RM510Q-GL 5G module based on Keysight's 5G testing device in a lab. It paves the way for the upcoming 5G mmWave field tests and commercial deployment of 5G internet of things (IoT) projects.

Tailored for IoT/eMBB (enhanced mobile broadband) applications, Quectel RM510Q-GL features the Snapdragon X55 5G modem and supports mmWave and sub-6 GHz frequencies in both 5G standalone (SA) and non-standalone (NSA) operations.

The M.2 module covers almost all the mainstream carriers worldwide. Designed backward compatible with LTE-A and 3G networks, RM510Q-GL integrates multi-constellation GNSS receiver, eSIM, as well as highspeed interfaces such as USB 3.1 and PCIe 3.0. This makes it suitable for globally-deployed mobile devices including Always Connected PCs (ACPC), industrial PDAs, mobile gateways amongst others.

Taipei-based AsusTek Computer is planning to use RM5100-GL for its next-generation 5G mmWave laptops, according to Quectel. Leveraging its 5G modules and local technical support, Quectel says it will accelerate the time-to-market for AsusTek to enhance its competitiveness in the 5G era.

Quectel, which is headquartered in Shanghai, also showcased commercial 5G modules at the Qualcomm 5G Summit in Barcelona and Mobile World Congress Los Angeles in October.



features the Snapdragon modem and supports mmWave and sub-6 GHz frequencies in both 5G standalone

non-standalone (NSA) operations

#### FEATURE: 5G



# Making 5G pay

The full-blown commercial launch of 5G in southern Asia, indeed the world at large, is drawing closer. One question remains and that is how will operators and other stakeholders finance this exciting new technology? Robert Shepherd, Jon Howell and Smita Sarkar investigate

#### FEATURE: 5G

ooking back on 2019, one would be hard pushed to find a topic more spoken about than 5G (unless you are a keen follower of the European Union, in which case Brexit would certainly take some beating).

Whether it's which country would roll it out first commercially, the opportunities it will present us with, what infrastructure will be needed to make it a success or why we are even talking about it when much of the world is still struggling with 3G-4G migration, talk of 5G is inescapable.

That said, the yards of newsprint dedicated to 5G does make sense, because it's a technology like nothing we've seen before. To put this into context, 3G networks had or have (depending on where you live) a typical response time of 100 milliseconds, while 4G is around 30 milliseconds. Now 5G is promising to offer as low as one millisecond. Another way of looking at it from a technology point of view is the speeds will be 100 times faster, the capacity 1,000 times higher (billions of simultaneous device connections) and latency much lower.

This is virtually instantaneous, opening up a new world of connected applications and great news for consumers and businesses across every industry.

Although 5G has begun deployment in 2019 – four million Koreans had 5G phones in October, with five million expected by year end, while China has deployed over 100,000 base stations – most of us will have to wait until well into 2020 to get a taste of this technological advancement.

David Peters, SVP and head of SEA & ANZ region at mobile solutions business Comviva, says: "Operators globally are investing in 5G to offer a huge lead forward from today's 4G mobile technology."

However, this moves us on nicely to cost, because when commercial 5G does finally arrive, operators and other key stakeholders will have to find ways to monetise it. In other words, if they are providing it, who is paying for it?

Asia is arguably ahead of the rest of the world when it comes to 5G. China and South Korea are both very quick to announce a 5G global first whenever the opportunity arises. However, look a little further south at a map of the continent and you'll find that there are some smaller economies talking a good game.

For example, Thailand is expecting 5G to be a staple in 2020 with the two major Bangkok airports having the service ready by May. Then there's Vietnam, which is unashamedly keen to say it wants to be the first southeast Asian country to have commercial 5G in place.

Rémy Pascal, senior analyst, research at Analysys Mason says there's a clear distinction between countries such as China and South Korea which are 5G leaders, other developed Asia Pacific countries such as Japan and Singapore that are "fast-followers" and emerging Asia Pacific countries, which are also followers.

However, when it comes to funding 5G, Pascal says monetisation of the service will also be challenging, as is the case in advanced countries. "Early launches indicate that 5G is not necessarily priced at a premium compared



to equivalent 4G, however 5G tariffs are usually positioned at the high end which means that 5G tariffs will be as unaffordable as premium 4G tariffs are for many in these countries," he says. "5G will be first reserved to high end consumers and it will take time for it to reach the mid-end and ultimately low-end segments of consumers." "This change in attitude is key to customers using more digital services supplied from their operators, which in turn augurs well for uptake of 5G"

Biju Nair, president and chief executive officer (CEO) of HYLA Mobile, which provides lifecycle management for used mobile devices, concurs. He also believes that some southern Asian countries are better positioned than others when it comes to monetising 5G. "Take India as an example - there is a huge population and there



are corporations like Reliance which wants to get into the opportunity gap left by insufficient infrastructure in mobile telecommunications," he adds. Nair gives an example of how Reliance launched Jio with a huge vision, in that it wanted to build the first 4G LTE network in the country and make voice and text a commodity "Jio then made a range of digital services available, such as watching cricket on a mobile phone," he continues "This completely changed the landscape in India. Today India is the largest mobile data consumer in the world and at the same time they have the lowest tariffs in the world, at about 26¢ (US) per gigabyte that they are consuming. The Asian telco market is a combination of political stability, R&D investment and larger corporations taking advantage of the opportunity to offer new digital services."

Africa, in contrast, will have to wait till 2022 to be introduced to the new generation of 5G cellular mobile technology, poised to offer reliable delivery of much higher data speeds than current data networks, a theoretical 20Gbps download and 10Gbps upload along with enhanced coverage.

"5G rollout in Africa will be much slower than Asia and Europe," says Kim Craven, managing director of Lifecycle Software. "There is less demand for highspeed, higher-cost bandwidth, more need for lower cost and accessible mobile services."

Back to southern Asia then and Martin Morgan, VP marketing at Openet, a supplier of digital and 5G BSS to mobile operators, says there is a strong move by operators in the region to get customers using increasingly more digital services directly through digital channels such as an operator app.

"Recently in Indonesia, the leading operator

Telkomsel launched a new digital first mobile service called by.U," he adds. "This is aimed at the Gen Z market which have grown up with the internet and are digital natives. Getting more customers to use a wider range of digital services (from music, to TV and e-sports) as part of their mobile offering will help with the uptake of 5G."

Indeed, Morgan believes that "as 5G gets rolled out and operators launch an increasing number of digital services" that are enabled by high speed networks, having a strong base of customers who see their mobile operator as a digital services company – "not just a traditional telecoms company" – will make a difference. "This will increase uptake of 5G services as the operators will not just be selling 5G data services," he says. "They will be selling the services enabled by 5G. For example, in South Korea 5G has been very successfully rolled out as the operators are providing a large range of services that people want to buy."

Paul Hodges, senior vice president, Asia Pacific at Syniverse, which provides telecoms and enterprises worldwide with mobile connectivity services, says most of the advanced mobile operators in Asia have planned to invest in 5G to enable the future of the IoT and business applications, which usually require high-speed data transmission and ultra-low latency. He says that from a technical viewpoint, with mobile operators, local breakout for 5G will be critical for the support of those business applications. "In this area, though, Syniverse sees that operators will still need an interim solution during the transition to the emerging 5G network," he continues. "From a commercial perspective, based on lessons learned from the 3G-4G migration, operators may decide to offer different usage



There is a strong move by operators in the southern Asia to get customers using increasingly more digital services directly through digital channels such as an operator app

Biju Nair, president, CEO, HYLA Mobile

"Take India as an example - there is a huge population and there are corporations like Reliance which wants to get into the opportunity gap left by insufficient infrastructure in mobile telecommunications"

plans – such as a special entry price or unlimited data plan – and wait for the further adoption of new applications in 5G that they could monetise and help offset the cost of 5G technology implementation as far as network usage, subscriber base growth, and services needed."

Morgan names "innovative operators" like Telkomsel and Globe as examples of businesses rolling out a range of digital offerings. "This increases data usage, and perhaps more importantly helps their customers see them as a digital services company rather than a traditional telecoms company," he says. "This change in attitude is key to customers using more digital services supplied from their operators, which in turn augurs well for uptake of 5G. The message for operators is get customers using operator supplied digital services on 3G and 4G, as this will pave the way for increased use of digital services on 5G."

Although Asia has four of the strongest economies in the world, with a handful of notable exceptions, southern Asian nations are nowhere near that level – so how do you monetise a service in nations with high levels of poverty?

"In Asia, developing countries that have recently migrated to 4G won't monetise 5G quickly," says Hodges. "Operators will monetise 5G once the ecosystem matures, once an increase in 5G devices and applications occurs. The developing 5G ecosystem will probably be shaped by those applications that have the most impact on people's daily life."

Hodges says operators target businesses and the IoT instead because both have a strong demand for applications with high-speed data transmission and minimal latency. If that's the case, is the business user marketplace ready to pay for this?

"No, the business user marketplace is satisfied overall with 4G now," says Hodges. "Business users won't be ready to pay for 5G unless a specific 5G-powered service or tool emerges as a game-changer and delivers exceptional value." Then, of course, there are many who remain unconvinced about the viability of 5G - at least at this stage – and Kevin Brown, senior vice president of innovation and CTO at Schneider Electric, secure power division is most definitely one of those.

"What is the reality of 5G?," he says. "As far as I can tell from working with people across the data centre and telco industry, there is no real application driving 5G yet. With regards to the hype around the build-up, I tend to be more of a sceptic at this point. That's because it's unclear how fast it is really going to happen, especially when you consider the sheer volume of data centre infrastructure required to deliver the service. For 5G to deliver ultra-low latency applications it is totally dependent on edge computing and this is even more important in smart cities."

Brown says that for consumers it's a marketing exercise and a race to own the fastest or newest technology first. "However, some of the 5G phones drain very quickly when they're searching for a 5G signal, which is another interesting point," he adds. "When you think about 4G, which is built out, the bandwidth is pretty good, so the 'killer app' for 5G is not just a bandwidth story, it's a latency story. What's not yet clear is the application that consumers are going to need that will require such low latency, the one that will propel the big build out of 5G. That's yet to be decided."

Another concern Brown points out is the fact "5G is also line of sight". He continues: "If I was walking around a building and trying to use the service, I would need 5G antennas inside it, or it would just switch back to 4G. And, with 4G you need antennas every one-to-two miles, but 5G antennas will be needed every 1,500 feet or closer. So, in time, there will be little antennas everywhere, from houses, light posts, and maybe on the corners of streets like the phone booths everyone used to depend on that are now obsolete."

While Brown has his doubts, Peters says there is in "no doubt" that the technical capabilities of 5G create the potential for entirely new service offerings, use cases, business models, and revenue opportunities, with ample benefits to the end users, whether they be consumers, enterprises or governments. However, he adds that the challenge for operators is to define how these benefits can be monetised for the benefit of the telco, and how the telco can create the environment to capture that value for themselves.

"With the advent of 4G demand was high and the benefits were also clear for all to see," says Peters. "However, it seems clear that the





Most of the advanced mobile operators in Asia have planned to invest in 5G to enable the future of the IoT and business applications, which usually require high-speed data transmission and ultra-low latency

largest beneficiaries of the 4G technology were not the telcos themselves. Instead the winnings went to the handset manufacturers and OTT players who have captured the vast share of the value created with higher speed mobile connectivity for all. Apple was a great example of an innovative player who created not only the handset and the operating software, but also the entire App Store ecosystem which enabled app developers globally to reach their audience, and monetise their apps. Apple was truly selling shovels to the gold miners."

Peters is also convinced that when 5G becomes a commercial reality, operators will need to take the leadership position to create the ecosystem which drives collaboration and innovation, and captures a large part of the value for themselves. "Which operator will create the 'App store' of 5G?" he asks.

"5G will enable the planet to be even more connected than it is today - not only between people, but machine to machine device connectivity. Its [5G's] services will involve an ecosystem of CSPs, third party content providers, vendors and value adding partners who share service delivery, responsibilities and revenues."

Peters says that telcos that can create this

"5G will enable the planet to be even more connected than it is today - not only between people, but machine to machine device connectivity" ecosystem are the ones to watch. "So, look out for the ones who are getting ready - they are innovative, they are well on the way to digital transformation to a real-time environment, they have opened APIs to third parties for data and API monetisation and they are creating win-win partnerships with local and global partners for delivering innovative services to consumers, business and enterprise," he adds.

Brown is of the opinion that "people are talking about 5G like it's already happened", but it's a big challenge to deliver on the service and build out the infrastructure. "Overall, it requires greater collaboration from all stakeholders in the ecosystem," he adds.

While it definitely hasn't "happened" yet, assuming southern Asia and the rest of the world can monetise 5G and the technology is everything it's cracked up to be, which industries will benefit most from 5G and why?

"Specifically, industries related to AI, robotics, VR, remote diagnosis, and automation will benefit the most from it, as long as they continue to be heavily reliant on high-speed data connectivity with ultra-low latency," says Hodges. "An important point to keep in mind is that, in addition to the separate challenges of a 5G network, many mobile solutions still face ongoing challenges related to regulatory compliance involving areas like technical infrastructure and privacy."

If consumers are to be charged a premium, 5G has to offer something tangibly more for their money come 2020. That is unless US president Donald Trump has his way and we go straight to 6G instead. Then we'll start a whole new debate.

#### WIRELESS USERS: MONITORING



# Breathing new life into the mangroves

Ericsson's Connected Mangroves project looks to help conserve the marine ecosystems – critical habitat and ecotourism areas – of southeast Asia

angroves play a pivotal and vital role in conserving the marine ecosystems and ecotourism in southeast Asia. They are crucial to the protection of seaside communities from typhoons, flooding, erosion and other coastal hazards. They are also a habitat for a variety of aquatic life forms.

However, according to information provided by the International Union for Conservation of Nature (IUCN), over the last five decades an estimated 50% of the world's mangroves have disappeared and every year another 1% is lost.

Together with Kampung Dato Hormat in Malaysia, Ericsson's Connected Mangrove project

combines cloud, machine-to-machine and mobile broadband to help the local community better manage the growth of new mangrove saplings.

Since its launch in 2017, volunteers have planted 3,400 mangrove saplings, as trees have grown more than six feet high, providing improved flood protection and enhancing the local community's ability to catch seafood.

The project is also helping to conserve the marine ecosystem of Bangkung Malapad in Pampanga – a critical habitat and ecotourism area in the country.

Together with Smart Communications, Ericsson's IoT solution uses wireless connectivity to capture water levels, salinity, soil, moisture and temperature data through waterproof solarpowered sensors installed onsite.

"Through this Internet of Things (IoT) solution, the community has been empowered to use data to manage their environment and take action to support the mangroves – and their community – to thrive."

The data is sent via a cloud system to a dashboard accessible to local authorities, fisherfolk and communities. As a result, the community has recorded a notable increase in biomass and has increased its fish catch. What's more, migratory birds not seen in the area since the early 1900s have also returned. ■

#### WIRELESS USERS: MONITORING

#### Smart bin – optimising waste management and cleaning resources

M1 is one of Singapore's leading full service communications providers and it is working with OTTO Waste Systems Singapore to provide a litter bin management system to the National Environment Agency (NEA). Indeed, the NEA has been exploring how data can be used to enhance the effectiveness and efficiency of public cleaning.

The new system is designed to enable the NEA to leverage technology to better manage the deployment of litter bins, as well as to optimise cleaning resources.

It utilises IoT sensors fitted within litter bins to track how full they are, so that the cleaning crew can be notified when they need to empty these litter bins. The NEA can also monitor the usage of litter bins to gauge if there are adequate bins in a particular area to serve the public. OTTO aims to deploy up to 500 of these smart bins during the first quarter of 2019.

M1 says the reliable and secure city-wide coverage provided by its NB-IoT, together with its support for industry standards, makes the technology well-suited for large scale smart city applications, such as the proposed litter bin management system. Smart city solutions can also benefit from NB-IoT's power

## Smart cold chain-tracking temperature during transit

AlS is Thailand's largest GSM mobile phone operator with 39.87 million customers as of Q3 2016. The company has developed a mobile IoTbased solution for monitoring the temperature of perishable goods during transportation. Fresh and frozen food, medicine and some other goods need to be stored at a constant temperature during distribution to ensure they don't decay and that



efficiency, which makes it viable to use batteries in connected devices, as well as reducing infrastructure and maintenance costs.

In addition, the operator developed the litter bin monitoring solution together with OTTO, which supplies the litter bin receptacles – and SmartCity, which provides the centralised management system.

"The collaboration with M1, using its NBloT network for smart waste management, allows our customers to enjoy easy access to useful real-time data for smarter planning and resourcing on waste management," explains

they reach end-customers in pristine condition.

Connected "cold chain" solutions can be used to monitor the temperature of a cold storage container during transit and maintain the quality of goods, reducing the number of claims from customers that goods have decayed or been damaged during transportation. These solutions can be configured to send a notification to the supplier if the temperature rises above a specific threshold.

To meet the demand for a low cost solution that can be installed easily without impacting



Fresh and frozen food, medicine and some other goods need to be stored at a constant temperature during distribution to ensure they don't decay and that they reach end-customers in pristine condition

The new system utilises IoT sensors fitted within litter bins to track how full they are, so that the cleaning crew can be notified when they need to empty these litter bins

Christopher Lopez, managing director of OTTO Waste Systems. "We also see the potential of such implementations to help consumers have a greener environment to live in."

P. Renganathan says extensive research and development were carried out to produce the hardware and methodology of installation to maximise the accuracy of the measurement in waste level and pollution in the environment. "Through the strategic cooperation with M1, we will help companies to achieve greater cost savings and reach higher productivity," adds Renganathan.

logistics companies' existing systems, AIS is using NB-IoT to connect on-board thermometers to its IoT platform, which can be used to record, analyse and display the resulting temperature.

AIS says the compact battery-powered thermometer is cost-effective enough to be deployed at scale, while its small size and independent power supply means it can be quickly and easily installed, as well as moved to another location.

The device can measure the temperature between -50 and 20 degrees Celsius. It can be configured to transfer temperature data to AIS IoT platforms during intervals, such as every three minutes and alert when the temperature changes by more than a certain number of degrees Celcius.

AIS says it is also using NB-IoT to monitor the electrical supply of the cooling system, allowing it to ensure there is sufficient power to cool the goods being transported. If the power supply is not functioning properly, the system is designed to relay the relevant data to the AIS IoT platform, thereby allowing the logistics company to proactively resolve the issues before any serious damage is caused.

"By installing the temperature-measuring devices in cold chain logistic systems, the quality of perishable goods can be assured – mobile IoT connectivity can be used to notify the operating parties when issues arise and take necessary actions to prevent any damage to the goods," says Asnee Wipatawate, head of enterprise product and international service at AIS. "The quality of IoT solutions becomes critical to mitigate this problem and therefore yields competitive advantages.

#### **INDUSTRY VIEW: AUTOMATION**



# Hands off! CSPs must automate to realise revenues in 2020

With customers expecting access to a full portfolio of digital services, the ability to quickly and efficiently meet their demands has become critical for success. Sigma Systems' Stephen Krajewski gives us an insight into how prepared service providers are to exploit these new opportunities

tatista predicts that more than 30 billion connected things will be in use worldwide by 2025. Communications service providers (CSPs) need to be ready to provide a full range of services that support customers' growing demand for connectivity in order to capitalize on this multibillion-dollar market. However, Sigma Systems' recent Create-Sell-Deliver Outlook survey found there is still work to be done.

Sigma Systems questioned 150 fixed, mobile,



"Manual intervention leads to slow, missed or inaccurate orders – and these factors have a real impact on the business. In the future, it could be expected that manual intervention will decline"

#### **INDUSTRY VIEW: AUTOMATION**

satellite and cable/TV operators around the world, across both the enterprise and consumer segments. It gauged sentiment among senior executives and decision-makers on key themes including the creation of new products and services, business models and monetizing new innovations, revealing significant trends for CSPs in Asia and globally.

#### The automation imperative for sales

Increasing automation in sales can deliver real results for CSPs - but it comes with challenges. CSPs have legacy infrastructure which supports their existing products and services, but which is often inflexible and makes automation a difficult proposition

Our survey respondents believed that increasing accuracy and automation in the configure, price and quote (CPO) process would directly increase annual sales. For those in Asia, it was estimated that increased automation would improve sales by 3%. To put that into financial terms, it equates to a combined USD7.8bn revenue boost for tier-1 and tier-2 operators in the region. At a global level, respondents also predicted an average impact on revenue of three percent, which equates to just over USD 18 billion for tier-1 and tier-2 operators worldwide.

As 5G becomes a reality, CSPs are experiencing a significant change: products are becoming increasingly complex across both consumer and enterprise markets. On a global basis, Sigma found that 62% of CSPs believe this is having a major impact on their CPQ capabilities. Increased automation is not just a way to address this challenge; it will be essential for service providers to respond to sales opportunities quickly and efficiently. To put it bluntly, there is a real likelihood of missed revenue in the absence of automation.

There are also high expectations for Artificial Intelligence (AI) as a sales tool, with 76% of glob-

57%

al respondents believing that AI can be applied to improve the sales process and conversion rates. Automating processes with increasing levels of AI and machine learning can enable a highly responsive and effective experience for customers. This expectation of Al-enabled benefits goes hand-in-hand with automation, in that both are underpinned by digitalized processes and the availability of accurate data.

The downside here is that 74% of enterprisefocused respondents noted a reliance on manual activities and/or paper-based processes in sales, while 65% called out reliance on non-digital channels. This creates a real roadblock for automation and the adoption of AI, and is something that must be addressed as product complexity increases.

#### Reducing manual intervention in fulfillment

With automation and AI seen as playing a major role in transforming the sales process, there is also a belief that automation is key to improving efficiency and cutting costs in the fulfillment process now. The dominant trend is that automation can improve the bottom line, with 83% of respondents across Asian CSPs agreeing that automating service fulfillment directly increases business profitability. Despite this recognition of the benefits, Sigma Systems' survey found that, globally, a staggering 75% of fulfillment tasks that could be automated today are not.

For all the talk of new products and services enabled by 5G, the Internet of Things (IoT) and virtualised networks, the idea that CSPs still rely on manual intervention in fulfillment seems out of place. Not so. The survey highlighted that manual intervention was a growing trend. More than two-thirds of the respondents fulfilling orders for business customers and consumers reported that manual intervention

Figure 2: What proportion of fulfillment tasks can be automated today actually are?

#### 28% 27% **Business Consumer** Priority Priority

had increased slightly or significantly over the last two years (see Figure 1).

On average, 15% of a fulfillment team's time is devoted to fixing order errors.

Manual intervention leads to slow, missed or inaccurate orders – and these factors have a real impact on the business. In the future. it could be expected that manual intervention will decline, but the consensus is that 14% of fulfillment tasks will always be manual. Almost half of respondents from Asian markets said they suffer too many order fulfillment issues requiring manual intervention on a daily basis.

There are a number of factors impeding the adoption of automation, including system capabilities, the rate of change of new product offerings, lack of time and lack of understanding. As products become more complex and CSPs look to capitalize on new businesses opportunities, these factors will only get worse. Manual processes aren't scalable or efficient enough for today's communications marketplace.

So, the good news is this: there are automation opportunities everywhere. As for the bad? Digital natives and OTT players have started out with automated systems, leapfrogging legacy technology - meaning that CSPs are now playing catch-up. As time goes on, things will not become simpler or easier for those who wait.

#### Conclusion

As we move into 2020, digitalisation and the emergence of game-changing technologies such as IoT, 5G and AI are creating new opportunities. In order to capitalize on this, CSPs must be able to respond with greater agility. New services need to be brought to market faster, additions to existing services made more quickly, and there must be dramatic reduction in errors and delays during the sales-and-delivery processes. Realistically, the only way to make this happen is through automation.

Respondents for the second edition of the Create-Sell-Deliver Outlook clearly see the benefits of automation in improving their sales and fulfillment efficiency, with the potential to increase both revenue and profitability. But automation levels remain limited and manual intervention is on the increase. Without the right enabling platforms, there is a danger that CSPs could miss out on many new opportunities due to their inability to offer compelling services quickly and profitably.

The message is clear: CSPs worldwide must act now, as there will be significant advantages for those who do – and significant disadvantages for those who do not.











# On the move: critical communications for the transport sector

Global transport infrastructure spending is set to reach a ten year cumulative total of US\$10 trillion by 2025. Paul Ward, international sales director of Etelm, explains why this represents an opportunity for transport providers to review their critical communication requirements

The pace of change in the transport sector is dramatic. PwC has calculated that global transport infrastructure investment is projected to increase at an average annual rate of about 5% worldwide from 2014 to 2025.

The type of infrastructure being developed may vary across global regions, but this general trend of investment remains constant. In Africa there has been a significant investment in major rail projects. This includes the Mombasa-Nairobi railway, for example, which was unveiled in the summer of 2017 and is Kenya's largest infrastructural project since independence in 1963. The 80% Chinesefinanced 472km railway will run from the country's biggest port, Mombasa, to its capital, Nairobi. In southeast Asia, where overall investment levels are particularly high, there has been a similar focus on rail projects, but this has also been matched by a focus on smart highways and autonomous vehicles, including recent news that self-driving taxis are set to be piloted in Hunan. China.

Whatever the transport mode, however, robust and reliable communication networks are critical to the success of operations, across both the public and the private sector. And as the pressure to operate as efficiently as possible mounts, so too does the ability of those networks to intelligently and dynamically reroute vehicles at the click of a button. This means transmitting data at the same time as voice - not a new requirement in itself, but thanks to the growing role of video and high-bandwidth applications, the sheer volume of data that organisations need to be able to process and analyse has gone stratospheric. Whether we're talking about CCTV on board trains, live mobile departure and arrival information for passengers, or behind-the-scenes applications for crews to access, the data that transport communication networks need to handle is rich, dynamic and broad.

How, then, can the transport sector best deal with these pressures and demands?

#### Understanding critical communications requirements in transport

There are two major trends in the sector which underpin the needs of critical communications networks. First, the data used to drive dynamic decision-making – such as rerouting vehicles or assigning particular drivers to particular tasks – has become far broader and richer, and analysable in real-time. From GPS trackers to sensors which measure passengers, loads and vehicles themselves, from connected thermometers to demandresponsive services, transport providers are dealing with an extraordinary range of information, which they need to analyse and harness on the move.

Second, transport providers are under greater pressure than ever before to offer cost-effective and highly efficient services. In many parts of the world, providing sufficient public transport to meet the needs of a dispersed and aging population is a major challenge. Meanwhile, climate change and the need to operate as responsibly as possible in terms of environmental impact is at the forefront of public consciousness.

In practice, this means that transport operators need to be highly responsive to changing, onthe-go demands, and highly intelligent in terms of route planning, vehicle and driver allocation.

#### Building next-generation communications networks

In the past, TETRA (Terrestrial Trunked Radio) has provided an effective and efficient foundation for critical communications networks. Thai state-owned operator CAT Telecom, for example, recognized the vital role that PMR can play by announcing plans last year to deploy a nationwide TETRA network covering more than 200,000 users including government departments, emergency services and other vital industries, including transport operators. In Africa TETRA also remains a common critical communications standard, particular in the transport sector.

The reason for this is simple – TETRA still carries plenty of powerful advantages. Specifically designed for use by the emergency services, military and government agencies, its resilience and reliability is therefore ideal for mission-critical contexts, where downtime is not an option. It is also better placed than many emerging technologies when it comes to handling communications over long distances. However, as that demand for higher bandwidth and data-rich applications increases, TETRA needs supporting.

This is where LTE networks, which offer greater

capabilities when it comes to video and other dataheavy use cases, come in. LTE networks enable transport operators to integrate data with their voice communications and therefore integrate smart transport technologies seamlessly into a single communications network. Here, a hybrid approach can offer the best of both worlds.

Given the current levels of transport infrastructure investment in major global regions – Asia Pacific and Africa together are projected to have made a cumulative transport infrastructure investment of over US\$8tn by 2025, according to the figures from PwC – transport operators also have the potential to seize this opportunity to leapfrog communication technology developments by jumping straight to Mission Critical LTE Broadband services. A hybrid communications approach enables the latest communications technology to be rolled out as part of any wider transport infrastructure project, while also ensuring more established technologies can be used for highly critical, highly secure or longdistance communications

What might this look like in practice? A rail operator might use a TETRA network for its core voice communications, ensuring, for example, that drivers can communicate consistently with stations and centralised staff. An LTE broadband overlay could offer high bandwidth data communications for real time passenger information apps – keeping users updated on journey progress – and security and surveillance systems.

As the demand for mission critical LTE services increases, and as the standards mature, the availability of LTE frequencies, and even 5G connectivity, for private users is likely to increase too, heralding the viability of hybrid critical communication networks.

In Africa, adoption of mobile cellular technology is in full swing and with these technological advances, comes the growing reality of private mobile broadband access – access that can be readily utilised in mission transport critical applications.

The transport sector has mobility at its core and its approach to mission critical communications must move at the same pace in order to deliver both reliability and technical innovation.

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# Orange begins tower carve-out to boost growth

French giant Orange will carve out its mobile towers in Europe from its main business with a view to consolidation or stake sales, as the company targets a return to "significant" growth.

The state-backed operator said its masts in most of the countries where it operates on the continent would be put into separate companies, over which it would retain control.

Several European telecom businesses, including Vodafone, Telefónica, Telecom Italia and Deutsche Telekom, have monetised their towers by splitting them from their core operations.

The sector is under pressure to raise money to invest in new fibre and 5G networks and so the assets have attracted tower specialists and private equity funds with large amounts of cash and looking for steady returns.

Orange said in early December it had agreed to sell 1,500 towers in Spain to Spanish tower company Cellnex for €260m. Orange currently owns 40,000 towers across Europe.

"Never will we give up any of our infrastructure in a way that will harm us in the future," Stéphane Richard, chief executive of Orange, told investors. "We will always keep control of these assets, even if we may consider some pragmatic disposals of less strategic towers as we have just done in Spain."

Orange is also looking at separate entities for its fibre businesses in Poland and Spain, as well as part of its fibre network in its native France.

# Telefónica and AT&T sign deal to share telecom infrastructure in Mexico

Spanish telecom giant Telefónica has signed a deal to use some of US rival AT&T's infrastructure in Mexico.

The development would better position Telefónica and AT&T to compete with the billionaire Carlos Slim's América Móvil.

Under the terms of the deal, Telefónica will use AT&T's wireless last-mile equipment – the final link of telecom network that delivers service to consumers through towers, antennas and fibre-optic cables.

After a three-year transition period, Telefónica will see savings of €230 (US\$254m) per year, as well as a reduction in net debt of  $\bigcirc$ 500m. The financial terms of the deal with AT&T were not disclosed.

Analysts described the deal as a "lifeline" for Telefónica in Mexico, where the company has struggled to gain traction. Despite a 2013-14 reform intended to lessen its dominance, América Móvil still holds nearly two-thirds of mobile lines in Mexico, according to data from telecoms regulator Instituto Federal de Telecomunicaciones.

AT&T has failed to significantly dent América Móvil's market share since it entered the country in 2015 by buying two local carriers. Telefónica Mexico chief executive officer (CEO) Camilo Aya told reporters the deal with AT&T was not exclusive, meaning the Spanish company remains free to use other companies' infrastructure. Telefónica will retain control over its operations and its traffic will remain separate.

"You need a lot of scale to compete in this business," Aya said at an event in Mexico City.

Monica Aspe, vice president of external affairs for AT&T Mexico, described the accord as an innovative agreement between telecom companies.

# Zain launches 5G in KSA

Zain Group has launched 5G services in the Kingdom of Saudi Arabia, going live with its networks in 20 towns and cities across the country.

Its network comprises 2,000 towers across the country, with plans to scale up to 2,600 towers and 26 cities by the end of 2019. The launch follows Zain's 5G launch in neighbouring Kuwait.

"5G will bring substantial change for the Kingdom's telecom industry, creating new business models and unlocking opportunities for many sectors such as financial, ICT, agricultural, tourism, entertainment, automotive, health, education and public sectors, to name a few," said Zain Group's vice chairman and group chief executive officer, Bader AI Kharafi. "The technology is also expected to contribute significantly to the country's economy, creating thousands of new jobs."

Al Kharafi added that Saudi would continue to enhance its services and launch innovative offerings "that guarantee satisfaction" for its 8.3 million customers. "We are keen to offer 5G services to all business and individual clients through various service packages at competitive rates," he said.

5G is expected to be a key enabler for Saudi as it looks to embrace a digital economy after decades of over reliance on oil and gas. It has made the digitalisation of its economy a central pillar of its Saudi Vision 2030 strategy.

## Vodafone looks to launch 5G in New Zealand

New Zealand became the 22nd country in the world to launch commercial 5G services, courtesy of the newly divested Vodafone NZ.

The operator switched on its 5G networks in four cities: Auckland, Wellington, Christchurch and Queenstown.

"Our team has been working hard to light up Aotearoa with a remarkable new 5G mobile network, along with awesome new smartphones in time for Christmas," said Vodafone NZ CEO, Jason Paris. "This is just the beginning of a new technology era for New Zealand. We expect Vodafone New Zealand customers using 5G to experience mobile download speeds of potentially 5-10 times the current 4G speeds."

Paris added that the move would mean Kiwis can download large files like movies much more quickly and start to experience a new world of entertainment such as cloudbased gaming – "while businesses can further innovate" with new technologies and connected devices.

"5G is our most powerful tool yet that will make the 'life remotes' in our pocket even more essential," he continued. "The fifth generation network will mean our cities and communities can become more connected, smarter, safer and healthier. 5G represents greater speed, latency, capacity and security – as well as an enhanced internet of things. If 4G was the era of the Smartphone, 5G will be the era of connected everything."



Vodafone NZ switched on its 5G networks in four cities: Auckland (pictured), Wellington, Christchurch and Queenstown

#### **WORLD NEWS**

## Oman's 5G roadmap

Oman's Telecom Regulatory Authority (TRA) has granted telecom operators Omantel and Ooredoo the right to use a 100MHz 5G spectrum, which will offer endless opportunities for upgrading their services.

Both firms will construct and install 4,400 stations in the Sultanate to operate 5G technology in the next five years, including 1,000 stations in the year 2019-2020.

To enable the effective roll-out of 5G services and encourage investment in the sector, the Omantel and Ooredoo will be exempted from the annual frequency usage fees for 12 months.

TRA also announced details of Oman's 5G roadmap, which will contribute to the research and development in crucial sectors, including education, health and logistics.

The announcement was made at the special 5G Roadmap event organised by TRA, which discussed the planned rollout, legislative developments as well as the readiness of operators to launch the super-speed network commercially.

"Working with the TRA and other government and private sector entities to deliver 5G, we'll be taking the Sultanates technology to the next level," said lan Dench, chief executive officer at Ooredoo. He added that his company has been preparing for the transition to 5G wireless technology since 2017.

# Polish energy player to start telecom services

Polish energy group Tauron has unveiled plans to introduce telecom services in the second quarter of 2020.

The company currently deploys a broadband network under the framework of the operational programme Digital Poland (POPC). It will offer access to its network, towers, nodes and other infrastructure, the BSA service, to the network in the collocation mode, LLU and VULA services, plus data links of either 100Mbps, 1Gbps or 10Gbps. Services will be provided based on the operator's DWDM/MPLS network. Tauron said it would deploy 259 broadband network access nodes. This will enable the provision of



services for more than 102,000 households and 601 schools in seven regions in the south of Poland.

Tauron currently deploys a broadband network under the framework of the operational programme Digital Poland (POPC)

# Thailand makes another 5G spectrum bid

Thailand's telecoms regulator the National Broadcasting and Telecommunications Commission (NBTC) has announced details of 5G spectrum auctions scheduled to begin in February 2020, with licences to be issued across four bands and rollouts to start in March.

The watchdog said it would auction spectrum first in the 2600MHz and 26GHz bands, and later in the 700MHz and 1800MHz bands.

A total of 190MHz of 2600MHz airwaves will be released in 10MHz blocks, while 2700MHz in the 26GHz band will be divided in 100MHz blocks, the newspaper said.

Operators will be restricted to a maximum 100MHz in the 2600MHz band and 1200MHz in 26GHz.

In mid-2020, three 5MHz blocks of 700MHz spectrum will be sold at a reserve price of THB17.58bn (\$581 million) per block. The 1800MHz spectrum will be split into seven 5MHz blocks, with a starting price of THB12.5bn per licence.

NBTC said it plans to finalise the auction details next month and invite bidders by December 20. This marks NBTC's third attempt at holding 5G spectrum auctions. It first detailed plans to auction 2.6GHz spectrum in 2016, targeting 2017 to conduct the process, but the sale was subsequently pushed back with no alternative announced. In January, it outlined plans for an auction across the 6GHz, 28GHz and 2.6GHz bands, establishing a dedicated team to draft the conditions for this. Operators dtac, TOT and CAT Telecom later joined forces to launch 5G testbeds at two universities.

## New express route to connect OZ with Middle East

Australian subsea firm SUB.CO is to build a new express route between Australia and the Middle East.

According to a company statement, the new cable will directly connect Perth with the city of Muscat in Oman.

The Oman Australia Cable will comprise a three-fibre pair system, with the option to upgrade to a four-pair system as required. There is also the option to extend the cable to the southern Omani city of Salalah and onwards to Djibouti on Africa's Eastern coast.

"I am delighted to be building a new, express route providing diversity and low latency between Australia and EMEA, while at the same time avoiding some of the challenges associated with building through the shallows of the Sunda Strait and busy South China Sea," said Bevan Slattery, founder of SUB.CO. "For me, the Oman Australia Cable is the final piece of an important puzzle



According to a company statement, the new cable will directly connect Perth with the city of Muscat in Oman (pictured)

to improve Australia's resiliency and recognises the growing importance of Oman in becoming the new 'Cloud hub' in EMEA."

Perth has also seen three new subsea cables land in the city to meet demand for capacity in the region.

"OAC will be highly complementary to the recent submarine cables between Perth and Singapore as well as Indigo Central, which will be used to extend OAC to Australia's cloud capital – Sydney" added Slattery.

The Oman Australia Cable will begin construction before the end of 2019 and is scheduled to be completed by December 2021.

# Pressure on Merkel to exclude Huawei

A group of MPs from Angela Merkel's centreright Christian Democratic Union (CDU) is pressing the German chancellor to keep Chinese vendor company Huawei out of the country's 5G network, for the sake of national security.

The push comes after Berlin in October released a new "security catalogue" for telecoms networks, which critics said lacks teeth because it only obliges Huawei to sign a "no spy" clause while generally opening 5G tenders to the Chinese telecoms giant.

Merkel has come under fire for her decision from allies like the US, which warned the move could have serious implications for future intelligence-sharing between Berlin and Washington.

Critics have claimed that Germany is kowtowing to pressure from China because it fears trade retaliation from the Asian powerhouse, which is Germany's biggest trading partner and an important export destination at a time when the German economy risks sliding into a recession.

However, Huawei and other Chinese telecom companies have long rejected suggestions that their equipment is vulnerable to spying by the Chinese state and said European countries should make their own decisions about 5G security.



Critics have claimed that Germany is kowtowing to pressure from China because it fears trade retaliation from the Asian powerhouse, which is Germany's biggest trading partner

## Russia passes smartphone software law

Russian president Vladimir Putin has signed legislation allowing only smartphones, computers and smart TVs with pre-installed native software to be sold in the country, in a bid to boost the adoption of domestic technology.

Russia's government will determine the types of devices which will need to include locally developed software, as well as the programmes which will be pre-installed on them. The authors of the law argued

the initiative would provide Russian companies with legal mechanisms to promote their programmes and services in the field of IT.

Last month, co-author of the bill Oleg Nikolayev said users in the country might think there were no domestic alternatives to Western applications and they would have the right to choose if their devices included pre-installed Russian software.

It has been reported that the move has angered some electronics retailers, who claimed they were not consulted prior to the law being passed.

The law, which the country's lower house of parliament the State Duma adopted in the third reading on November 21, will come into force on July 1, 2020.

# Alaska Comms names CEO

The Alaska Communications board of directors has named William (Bill) H. Bishop president and chief executive officer (CEO). Bishop has served as the firm's interim CEO since June 2019. He joined the company in 2004 and has served in several leadership roles, including senior vice president of customer and revenue management and chief operations officer. Bishop will also serve on the company's board of directors.

# Israel's Bezeq hit with fine

Bezeq Telecom, Israel's хx largest player, has been fined US\$8.6m for what the competition regulator said was an "abuse of the firm's monopolistic position". The regulator said Bezeq blocked competitors from deploying wired communications networks using the company's infrastructure. It also imposed a financial penalty of 500,000 shekels on a senior but unnamed Bezeq official and said it intended to levy a further financial penalty on Bezeq for misinformation during the authority's investigation.

#### BT Ireland & Huawei with own 'first'

BT Ireland and Huawei claimed to have completed the industry's first 1.2Tbps transmission real-time trial based on a commercial product platform in a live network. The trial used the latter's OptiXtreme series oDSP chips and optical transmission modules to implement a high-speed interconnection between two data centres in Dublin. The Chinese tech giant said the OptiXtreme series oDSP could sense key parameters of optical channels.

# Telecom Italia aids 5G surgery

Telecom Italia enabled remote surgery over a 5G connection in Italy, allowing the medical procedure to be assisted by a professor located more than 100km away from the operating theatre through a 4K live-stream.

During the operation, which was also delivered to in excess of 30,000 surgeons around the world, Rome-based professor Giorgio Palazzini interacted with a medical team performing a laparoscopic procedure in a hospital in the city of Terni, using a VR headset.

Telecom Italia explained Palazzini participated "first-hand" in the surgery, observing the patient's biometrics in real time using a trio of cameras broadcasting simultaneously from the operating theatre.

He was also able to "zoom in and

select important details", Telecom Italia said, adding the low latency over 5G had enabled high-quality video communication with 4K resolution.

Elisabetta Romano, chief innovation and partnership officer at Telecom Italia, said the operator's 5G Digital Business Platform, combined with robotics, Al and the Internet of Medical Things, are "opening up some exciting but challenging scenarios". Caroline De Vos -

SatADSL -

co-founder & COO -

# **AB**

of the incredible team on Lunar Mission Apollo 11 were hugely inspiring to me. As an explorer, I never cease to be amazed

hard work and dedication

by the achievements of Mike Horn; he motivates me every day by reminding me what the human body can achieve. Closer to home, I also

mountain guide and offer customized adventures, so I might run back to the mountains. I also give training and coaching within companies on Self leadership, team leadership, change, and stress management. As I have previously said, inspiring people is incredibly important to me, so something that still allows me to do that.

"The internet, for me, must be the most significant advancement. It connects us to people across the globe and gives us access to do and know things faster than ever before"

look up to both my Grandfather's, who followed their own paths, one through piloting planes and the other through test-driving cars. Together, they inspire me to never give up on my dreams and remind me of the importance of inspiring others to do the same.

#### What is your biggest regret?

I don't believe in regrets. Everything in life is either a success or a learning experience.

#### If you had to work in a different industry, what would it be?

I would remain in the technology industry since it is at the heart of what is changing the world, something that fascinates me, and more importantly, a big catalyst to help me be aligned with my purpose. I would consider spending more time investing and mentoring companies that solve complex unaddressed problems in the world. Healthcare and education are of special interest to me as those are probably the two industries that will look very different in the next decade than they are today.

#### What is the best business lesson you have learned?

Everything! Creating and running an international company of 25 employees and a network of 100 resellers around the globe from scratch!

#### If you had to work in a different industry, what would it be?

Exploration has also been my biggest passion. I am a qualified

#### What do you want to do when you retire?

I want to travel around the world and keep exploring places where others don't dare to go.

#### What would you say has been the best technological advancement in your lifetime?

The internet, for me, must be the most significant advancement. It connects us to people across the globe and gives us access to do and know things faster than ever before.

For remote communities across the globe, connectivity has the potential to improve the quality of day-to-day lives for citizens, as well as drive economic growth. From e-learning to healthcare services. the internet is enabling citizens in even the remotest corners of Africa to receive an education and sufficient healthcare. As networks and technology continue to advance, I look forward to being amazed by more innovative products that will change this world for the better.

#### Which competitor do you most admire, and why?

This is difficult to answer, as every company is different, so we have no direct competitor per se. With that said, one of SatADSL's main goals is to connect remote communities and change users' lives for the better. I would admire any company that was trying to accomplish the same. 🔳

#### Who did you want to be when you were growing up? I have had a fascination with space sci-

ence since a young age and dreamed of being an astronaut. It wasn't until later in life that I realized there were other ways to reach great heights.

#### What was your first job after leaving school?

I was a Teaching Assistant at the International Space University when I left school. Mentoring people and leaving a lasting, positive influence on them has always been a passion of mine.

#### When was your big career break?

My most significant career break was launching SatADSL with my partners in 2006. It was huge to make the step of becoming self-employed, and the outcome has been incredible.

#### What is the best thing about your job?

There are so many things I love about my job. There is the innovation side and being the "first" to do something differently. I enjoy being entrepreneurial and creating a company in an international environment. But ultimately. the best thing is being able to help and What has been your career low to date? Certainly, the hardest part of my career was deciding whether to keep going with the astronaut training program following my dream and waiting for a chance that may never come or leaving the

at the Global Women in

Telco & Tech Awards 2019.

The awards endorse the excep-

tional work that women achieve in

telecoms, and I am proud to be part

of an event, and a movement, that

will help pave the way for when the strength to shine for women should

be expected and not the exception.

#### What has been your career high to date?

program and finding a new dream.

My biggest career highlight to date was in September 2018 when SatADSL became a global company. We founded the company in 2011 and specialize in providing tailor-made solutions based on customers' specific requirements and flexible service plans, enabling them to meet their clients' budgets. We do so by providing affordable and dependable IP access to remote areas

#### "Being a woman in a man's world comes with a number of difficulties, but it has only ever inspired me to work harder"

connect people, for example, giving chances to children by providing better education with access to the internet, especially in remote regions.

#### What is the hardest thing about your job?

Being a woman in a man's world comes with a number of difficulties, but it has only ever inspired me to work harder. Not just to prove that a woman is as capable as a man, but to show women everywhere that they can follow their dreams and succeed in ways no one thought was possible. This year I was honoured with the Woman of the Year award

or areas where terrestrial infrastructure is not reliable, and it is hugely rewarding to see the significant impact this technology is having on the day-today lives of citizens. We have installed more than 3,000 VSAT networks in more than 45 countries since 2011, and everyone at SatADSL is so proud of what we have achieved. It has been amazing to watch the company grow and succeed!

#### Who has been your biggest inspiration?

I am always inspired by the incredible, almost unbelievable feats humans have achieved. As an aspiring astronaut, the

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